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Development and validation of a measure of intention to stay in academia for Physician Assistant faculty

Karen Graham
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A Dissertation

entitled

Development and Validation of a Measure of Intention to Stay in Academia for Physician Assistant Faculty

by

Karen Graham

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Higher Education Administration

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December 2012
This study attempted development and validation of a measure of “intention to stay in academia” for physician assistant (PA) faculty in order to determine if the construct could be measured in a way that had both quantitative and qualitative meaning. Adopting both the methodologic framework of the Rasch model and the theoretical framework that “intention to stay in academia” is a complex psychological construct influenced by a wide range of individual and environmental variables, this investigation identified potential observable indicators of the construct and used them to develop a survey instrument. Evidence of multiple aspects of validity was sought throughout the investigation in order to make an evaluative judgment regarding the validity of the measure at the conclusion of the research.

The investigation was conducted in four phases. In Phase I, the construct of “intention to stay in academia” was conceptualized by means of a literature review and interviews of 15 experienced PA faculty. This phase resulted in a list of 79 potential observable indicators of the construct which were transformed into survey items in Phase II. In Phase III of the study, an instrument of 70 items was piloted to a convenience
sample of 53 PA faculty. Following the pilot data analysis, a revised instrument was administered to all 1002 PA faculty in the U.S. in Phase IV, with a 49.3% response rate.

The measure of “intention to stay in academia” for PA faculty developed in this study demonstrated multiple types of validity evidence but was limited by the lack of an overall meaning to the item hierarchy and failure to meet the strict expectations of the Rasch model for unidimensionality. However, a subset of 19 items relating to a supportive academic environment produced a meaningful progression of types of indicators of “intention to stay in academia” and demonstrated characteristics of a linear measure. This subset included items dealing with relationships, autonomy, institutional support, and workload; inferences that higher education administrators and other stakeholders in PA education could make from the analysis of this subset of items were discussed. Although the cumulative evidence from this study allowed for concluding that measuring PA faculty “intention to stay in academia” was a realizable goal, the theoretical framework for the measure needs to be strengthened in order to guide future iterations of the instrument and validate a more meaningful and useful measure.
For Joel, Ellie, and Evan. I started this for me, but I finished it for you.
Acknowledgements

I would like to thank Dr. Svetlana Beltyukova for her guidance and support through this dissertation process, and for the countless hours she has devoted to my education. Dr. Beltyukova is a passionate researcher, a gifted writer, and a mentor whose excellent responsiveness is unaffected by geography. I will always be grateful that she took me on. I would also like to thank Dr. Florian Feucht and Dr. Snejana Slantcheva-Durst for their input and encouragement of my research.

Since the early days of my PA education, Dr. David Asprey has been my professional role model: the ideal physician assistant educator and scholar. His willingness to participate in my dissertation journey and his kindness and support along the way have been greatly appreciated.

Finally, this dissertation would not have been possible without my family. My parents, Keith and Carol Graham, provided me with the educational opportunities and the confidence necessary to aspire to this degree, and they have been there for me every step of the way. And thanks to my husband, Joel Burnet, who would not let me quit.
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List of Abbreviations

AAPA………………American Academy of Physician Assistants
DIF…………………Differential Item Functioning
PA……………………Physician Assistant
PAEA………………Physician Assistant Education Association
PCA……………….Principal Components Analysis
Chapter One

Introduction

Recruitment and retention of faculty in the health professions is a challenge and a priority for higher education administrators. The Association of Academic Health Centers calls the current shortage of faculty a “visible crisis,” as the majority of academic health centers report high attrition rates and inadequate numbers of faculty in the areas of dentistry, medicine, nursing, pharmacy, and many allied health programs (Association of Academic Health Centers, 2011; Moskowitz, 2007). Poor retention of health professions faculty has major implications for higher education administrators who are attempting to maintain quality programs while meeting the high demand for health professionals.

The physician assistant (PA) profession is no exception. In this profession, historically nine to ten percent of PA educators on the average have left their faculty positions each year (Reed, 2006), and faculty retention has always been an issue of concern (Cawley, 2007; Miller & Glicken, 2007; Orcutt, 2007). The recent and projected growth of the PA profession makes the effective retention of faculty to train this profession an imperative for higher education administrators.

The Importance of PA Faculty Retention

The market demand for physician assistants is strong. According to the U.S. Bureau of Labor Statistics (2009), the PA profession is one of the fastest growing professions in the country, with a projected job growth rate of 30% through 2020 (U.S. Bureau of Labor Statistics, 2012). Furthermore, this profession has been ranked as a top career choice in the popular media (CNNMoney.com, 2009, 2010, 2011; J. Smith, 2012; U.S. News and World Report, 2010). Much of this increased demand for the profession
is related to the aging U.S. population, which will significantly increase the need for physician care in the next decade (U.S. Department of Health and Human Services Health Resources and Services Administration, 2008). Planned enrollment increases in U.S. medical schools are not expected to meet this need in the coming years, so physician shortages are expected (Harris, 2009; Mann, 2011; Whitcomb, 2007).

Physician assistants represent a viable solution to the projected shortage of physicians. In fact, the PA profession was founded in response to the physician shortage in the 1960s (Hooker & Cawley, 2003; Jones, 2007) and since then has proven to be a safe (Hooker, Nicholson, & Le, 2009) and cost-effective (Grzybicki, Sullivan, Oppy, Bethke, & Raab, 2002; Hooker, 2002; Roblin, Howard, Becker, Adams, & Roberts, 2004) solution to meeting the healthcare needs of the U.S. population. There are currently an estimated 84,066 PAs practicing in the U.S. (American Academy of Physician Assistants (AAPA), n.d.). These people are licensed healthcare professionals practicing medicine under physician supervision; they can perform many tasks that are within the scope of practice of their supervising physicians, such as taking histories, performing physical examinations, making diagnoses, developing treatment plans, prescribing medications, counseling patients, performing minor procedures, and assisting in surgery. This established ability of the PA profession to effectively supplement physician care, along with the increased acceptance of PAs in the healthcare system (Cawley, 2007) and increased utilization of PAs in a variety of specialty and subspecialty settings over the past decade (Larson & Hart, 2007), also contributed to the recent increased demand for the PA profession.
With this demand came significant growth in PA education, as evidenced by the expansion of PA programs at institutions of higher learning. There are currently 164 accredited entry-level PA programs in the U.S. (Accreditation Review Commission on Education for the Physician Assistant, 2012), as compared to 134 programs in 2007 (Physician Assistant Education Association [PAEA], 2007), 100 programs in 1996 (Association of Physician Assistant Programs, 1997), and 35 programs in 1972 (PAEA, 2007). This growth is expected to continue over the next several years, with approximately 40 programs currently in the planning stages (Accreditation Review Commission on Education for the Physician Assistant, 2011, October).

At the same time, a significant portion of the current PA faculty workforce is expected to retire, thus increasing the challenge of meeting the demand for PA education. According to a 2006 survey of retirement intentions (Jones, Repka, Draper, & Orcutt, 2006), 29% of PA faculty planned to retire within the next 10 years. Although the validity of this statistic is limited by a 43% survey response rate (Jones, et al., 2006), 15.3% of current faculty are 60 years of age or older (PAEA, 2012). Projected retirement together with the historically high attrition rate of PA faculty noted earlier might help to explain why so many faculty in PA programs are new to academia. According to the most recent annual report data of the PAEA from the academic year 2009-2010, 43.9% of PA faculty have been in their current position for three years or less (PAEA, 2012). To be able to support the expansion of PA education and provide quality training, program administrators need to be efficient in retaining existing PA faculty, including those that are new to academia. Most of these individuals enter academia directly from clinical practice and without training in the educator role (Glicken, 2008); and historically,
retention of these individuals has been low while return back to clinical practice has been high (Reed, 2006). The PA profession cannot meet the healthcare needs of the U.S. population without adequate faculty to train its workforce.

**Problem Statement**

This study was designed to help address the problem of inadequate PA faculty retention in the United States. This problem is well-documented by PA faculty turnover statistics in the annual reports of the PAEA. An analysis of turnover from 1986 to 2005 revealed that although turnover rates fluctuated year to year, there was an overall upward trend of faculty turnover during that 20-year period, culminating in 14.2% of faculty in PA programs leaving their positions in the 2005-2006 academic year (PAEA, 2007).

Although there has been some improvement recently, with only 9% of faculty in 2007-2008 and 7% of faculty in 2008-2009 departing their positions (PAEA, 2009, 2010b), it is unknown whether this will develop into a long-term trend. How much of the turnover is a result of faculty moving to different positions within PA education is unknown; however, program directors report that the number one reason that faculty in their programs leave their positions is to return to clinical practice, not to take a position in another PA program (PAEA, 2010b). Thus, PA faculty retention remains a major concern of PA program administrators (Lane, 2010; Miller & Glicken, 2007; Min, 2003; Orcutt, 2007).

Within the overarching problem of inadequate PA faculty retention, there are essentially two issues that require attention of both researchers and those who use research findings to make policy decisions (e.g., PA program administrators). First of all, the reasons why some PAs intend to stay in academia while others do not are unknown;
second, there is a lack of an established methodology for studying this problem. In relation to the former, PA education is a relatively young discipline that lacks a robust research base. Thus, despite comments on the problem of inadequate PA faculty retention and calls for further investigation into this topic (see, for example, Boeve, 2007; Forister & Blessing, 2007; Orcutt, 2007; PAEA, 2010a; Reed, 2006), no research has been found that examined why PA faculty do or do not persist in academic positions. In fact, there is a paucity of research describing PA faculty in general. Therefore, reasons for inadequate retention can be merely speculated at this time.

In addition to the lack of research on the reasons for inadequate PA faculty retention, there is not an established methodology for studying why some PA faculty are retained while others are not, or what comprises an intention to stay in an academic role. In other words, researchers interested in studying PA faculty retention do not have a good measure of the construct of intention to stay in academia and cannot rely on the methods from other related disciplines (e.g., general higher education) because of the pervasive misunderstanding by a large research community of what proper measurement is.

The following sections will examine each of these issues in greater detail. What is currently known about the PA faculty workforce is reviewed first, followed by a discussion of speculated contributing factors to the PA faculty retention problem and elaboration on the measurement issue that should be addressed before any meaningful research of inadequate PA faculty retention could even commence.

**Current knowledge about PA faculty.** Much of what is currently known about PA faculty is the result of annual reports published by the PAEA. These reports summarize findings of annual surveys of PA program directors in the U.S. and include
information on the demographic and professional characteristics of PA program faculty. Demographically, the majority of PA faculty are female (56.3%), white (89.2%), and between the ages of 40 and 59 (62.8%). Professionally, most PA faculty have been in their current academic position for a relatively short period of time, and most are of low academic rank (instructor or assistant professor). Fewer than 10% of PA faculty have been in their current position for over 14 years, only 6.5% have achieved the rank of professor, and only 10.7% are tenured (PAEA, 2012). These numbers likely reflect not only faculty attrition, but also the recent growth of PA education, which as previously mentioned, has resulted in large numbers of faculty being new to academia. Although faculty attrition was documented in previous annual reports as a total percentage of faculty who ended employment with a PA program during the academic year, the specific demographic and professional characteristics of those PA faculty were not reported. Therefore, while previous annual reports presented descriptive statistics about the PA faculty workforce, they did not provide information about PA faculty who left their positions nor allow for comparisons of PA faculty who stayed with those who departed. In other words, those descriptive statistics are not helpful in advancing the understanding of the issue of PA faculty retention.

The only somewhat useful information regarding faculty retention on the PAEA’s annual program survey is elicited by a question in which directors are asked to identify the reasons for faculty turnover in their programs within the past year. In the 2008-2009 annual report, the most common reason identified was return to clinical practice (34%), followed by geographic relocation (18%), retirement (14%), family obligations (11%), career advancement (6%), salary dissatisfaction (3%), involuntary termination (3%),
return to school (1%), and other (10%) (PAEA, 2010b). The validity of these findings, however, is questionable, because they were reported by program directors rather than by the departing faculty members. In addition, there seems to be a considerable overlap among the identified categories (e.g., a faculty member could return to clinical practice because of dissatisfaction with the academic salary.) Because of this, the PAEA reports are not very informative to PA program directors or researchers in regards to faculty retention.

Beyond the PAEA annual report data referenced above, little is known about PAs who assume academic roles. The few studies that have been found (by Boeve [2006] and Forister & Blessing [2007]) report that PA faculty are generally satisfied with their jobs (Boeve, 2006) and do not experience higher levels of professional burnout than other faculty groups (Forister & Blessing, 2007), but the implications of these findings for faculty retention are unclear. A thorough review of the PA education literature and conversations with a few of the most prolific PA researchers (D. Asprey, personal communication, October 23, 2010; M. Davidson, personal communication, February 9, 2011; R. Hooker, personal communication, February 7, 2011) did not reveal any other studies that have described PA faculty or investigated issues related to their retention. In other words, the current knowledge regarding PA faculty is limited to descriptions of demographics, professional characteristics, program directors’ perceptions of reasons for attrition, job satisfaction, and professional burnout. While this information provides a valuable portrayal of the current PA faculty workforce, it does not aid in the understanding of why some PAs intend to stay in academic positions while others do not. The need for research of PA faculty retention is evident.
Factors speculated to contribute to inadequate PA faculty retention.

Although empirical evidence of the reasons for inadequate PA faculty retention is lacking, some explanations can be speculated based on references in the PA faculty literature and the author’s anecdotal experiences. Factors speculated to be contributing to poor PA faculty retention include but are not limited to low tenure rates, lack of intentionality toward an academic career, easy career mobility between academia and clinical practice, and disparity between clinical and academic salaries.

Tenure, which traditionally has been protective against turnover in academia by enhancing job security (Zhou & Volkwein, 2004), does not currently offer this same protection in PA education. Thus, only 10.7% of current PA faculty are tenured, and only an additional 18.5% are on a tenure track (PAEA, 2012). One possible explanation of this is that only 32% of PA faculty are doctorally prepared, including faculty who are Medical Doctors or Doctors of Osteopathy (PAEA, 2012). Other speculated reasons for the low numbers of tenured or tenure track PA faculty include their clinical rather than academic orientation, the diversity of sponsoring institutions, and the belief that “somehow PA education is so demonstrably different from that in other health professions that it can or should be exempted from the traditional expectations and requirements of academe” (Cawley, 2010, p. 38). It is unknown, however, if these low tenured and tenure track rates indeed contribute to the problem of inadequate PA faculty retention.

Another speculated reason for poor PA faculty retention is a lack of intentionality of PA faculty to have an academic career. “Intentionality” is a term used by Lindholm (2004) in her qualitative study of what draws faculty to academia. Faculty who had an
“intentionality” toward an academic career (they comprised two-thirds of the higher
education faculty she interviewed in her study) knew that they would pursue a faculty
role when they were in undergraduate or graduate school. Due to the clinical emphasis of
PA education, there may be a lack of intentionality toward an academic career in many
PAs who ultimately take academic positions. In addition, most PA faculty enter
academia directly from clinical practice without teaching experience or training in the
role of the educator (Glicken, 2008), and very few have the opportunity to take advantage
of training experiences that exist for PAs (e.g., teaching fellowships (Hills & Dieter,
2010; Min, 2003) or academic rotations during the clinical year of PA school
(Carrington, 1998)). To reiterate, these are just speculations as no data currently exist to
support or reject that intentionality is a factor in PA faculty retention.

The easy career mobility between academia and clinical practice may also
contribute to the problem of inadequate PA faculty retention. The strong connection
between PA faculty and clinical practice is evidenced by the fact that 90% of all PA
programs allow release time for clinical work (Danielsen, Simon, Wendel, & Bay, 2007),
and 58% of all program personnel continue some type of clinical work during their
academic employment (PAEA, 2012). Not all faculty groups in higher education have
the private sector job opportunities that clinicians including PAs enjoy (Matier, 1990;
Smart, 1990; Xu, 2008a), so this mobility may play a role in PA faculty attrition. This
speculation is further supported by the fact that PA program directors cite “return to
clinical practice” most often as the reason that faculty leave positions in their programs
(PAEA, 2010b).
Lastly, the difference between academic and clinical salaries may be an inducement to exercise this mobility to clinical practice and is frequently speculated as a reason for PA faculty attrition. The median income for a clinically practicing PA is $90,000 (AAPA, 2010), compared to $85,000 for PA faculty (PAEA, 2012). However, in studies of both general higher education faculty and health professions faculty, salary has been rarely the sole reason that faculty have left their positions (Ambrose, Huston, & Norman, 2005; Haden, et al., 2008; Johnsrud & Rosser, 2002; Matier, 1990; Smart, 1990). Additionally, the PA faculty salary data are difficult to analyze because these faculty often fill multiple roles (i.e. administration, clinical duties, or teaching in other schools or programs), resulting in a job that may be unique to an institution (Danielsen, et al., 2007). Many PA faculty also continue to practice clinically part-time and retain the income from that practice (PAEA, 2012). It is unclear, therefore, how and if salary is related to the inadequate PA faculty retention. Even if the factors of easy mobility to clinical practice and disparity between clinical and academic salaries both contribute significantly to PA faculty attrition, the question remains of why some PAs intend to stay in academia while others return to clinical practice.

The measurement problem. Before it can be understood why some PA faculty intend to stay in academia, it is necessary to have a measure of PA faculty “intention to stay in academia,” that is, to understand what it means to have an intention to stay. In this study, “intention to stay in academia” is defined as an anticipation or willingness to continue in the academic role. This is differentiated from the intention to stay in a current position because this study is more concerned with the movement of PA faculty to non-academic careers than to other PA faculty positions.
In the absence of literature on PA faculty retention, higher education literature was used to determine how “intention to stay in academia” had been measured or described (Chapter 2 details this literature review). It is noteworthy, however, that only a few studies found to date have operationalized a similar variable (see, for example, Buckley, Sanders, Shih, & Hampton, 2000; Cranford, 2009; Hagedorn, 1996). For example, Hagedorn (1996) used a 3-item scale for the variable “intent to remain in academe” in her national survey of higher education faculty, and no information is provided about the individual items, scoring, reliability, or validity of this scale. However, both Buckley, et al. (2000) and Cranford (2009) used a single question approach. Thus, Buckley, et al. attempted to measure or quantify the construct of “commitment to academic medicine” by the response to a single question about intention to stay in academic medicine for the next 10 years, while Cranford asked one survey question - “How likely is it that you will remain in nursing education for the duration of your career?” (p. 64). Such an approach of using a single item or a few items to operationalize a complex psychological variable, “intention to stay in academia,” is a gross simplification resulting in the inability of the measure to represent the full range of the variable as it exists within the population. Furthermore, it is impossible to meaningfully interpret any differences or changes in people’s responses to a single item or a few items.

As if to compensate for the inadequate approach to construct operationalization, the research studies cited above supplemented responses to the question(s) related to intention to stay in academia with descriptions of other factors (such as faculty characteristics or attitudes) and showed their statistically significant correlation with or
prediction of a response to the “intention to stay in academia” item(s). However, correlations and predictions are statistical tests, not measurement. This focus on statistical analysis of data rather than the actual measurement of the construct is a common scenario in social science (Bond & Fox, 2007; Fischer, 2004) and higher education research (Smart, 2005). While the statistical analyses in these studies provided descriptions of faculty in relation to how they answered a question about their intention to stay in academia at one point in time, none produced meaningful measurement, or measurement that had both qualitative and quantitative meaning (meaningful measurement is discussed in the Purpose below and more fully in Chapter 2).

**Purpose**

The purpose of this study was to determine if the intention of current PA faculty to stay in academia could be meaningfully measured. As Michell (2003) stated, not all psychological constructs are measurable; in order for a psychological construct to be measured, it must possess a continuous quantitative structure (Michell, 1997). Because proper measurement of “intention to stay in academia” had not previously been attempted, the quantitative structure of this construct had not been established and remained unknown at the time this research commenced. In other words, it was unclear if there was a more-to-less structure to the “intention to stay” that was quantitatively and qualitatively meaningful. Quantitative meaningfulness of PA faculty “intention to stay in academia” would be considered established when it is determined that “the quantitative meaning of the measure remains invariant such that the interpretation of the measurement is stable and independent of the instrument configurations” (Koskey, 2009, p. 2), that is, the measure has quantitative invariance. Similarly, qualitative meaningfulness of a
measure would be argued when there is evidence of qualitative invariance, which has been defined as the consistency of the qualitative meaning of a unit of measurement across person and instrument configurations (Fischer, 2004; Koskey, 2009). Although the establishment of qualitative invariance of the measure across person configurations was beyond the scope of this study, qualitative meaning of PA faculty “intention to stay in academia” was sought through the exploratory construction of a theory about a continuum of observations that was deemed to represent “intention to stay in academia.” This theory guided the development of the quantitative instrument in this research.

In keeping with the principles of meaningful measurement, this study employed both quantitative and qualitative methods in the attempt to meaningfully quantify “intention to stay in academia.” Successful quantification would allow higher education administrators to determine the likelihood of a PA faculty member staying in PA education based on the member’s pattern of responses to a set of questions. Administrators would be able to make meaningful probabilistic inferences about PA faculty intentions to stay in academia using a stable frame of reference.

**Research Questions**

Four overarching research questions were addressed in this study. They included:

RQ1. How is the construct of “intention to stay in academia” conceptualized in the higher education literature?

RQ2. How is the construct of “intention to stay in academia” conceptualized by experienced physician assistant educators?

RQ3. Is there a meaningful theoretical relationship among the items comprising the construct of “intention to stay in academia”? 
RQ4. Is there evidence that the items on the instrument provide a quantifiable measure of the construct of “intention to stay in academia”?

More detailed research questions are presented in Chapter 3, along with a framework for validating the measure with the Rasch model. Chapter 2 contains a detailed discussion of the theoretical and methodological frameworks that guided this research; however, a brief description of these is also included here.

**Overview of Theoretical Framework**

Briefly, several existing theories of faculty retention provided a theoretical lens from which to view PA faculty “intention to stay in academia.” Specifically, Matier’s (1990) inertial model was used as a classification framework for the conceptualization of this variable.

As previously explained, due to the lack of theoretical or empirical research on faculty retention in PA education, this study approached the development of the measure of intention to stay in academia by drawing on the work of higher education researchers. The work of Barnes, Agago, and Coombs (1998), Johnsrud and Rosser (2002), Matier (1990), Rosser (2004), Smart (1990), and Xu (2008a) was used as these researchers theorized a broad range of factors that influenced faculty retention within higher education. Most of them approached the problem of faculty retention by studying the intentions of current higher education faculty to leave their current positions, and theorized the relationship between these intentions and a broad range of individual, work-related, and non-work-related variables. Viewing faculty retention through these lenses suggested that the construct of “intention to stay in academia” was complex and could not be properly captured by the response to a single question of whether one intended to stay
or leave at one point in time. The operationalization of the construct of “intention to stay in academia” included a wide variety of personal, work-related and non-work-related factors that might influence a PA’s intention to persist in the academic role.

Matier’s (1990) inertial model of faculty retention provided a framework for classifying factors that were found in the literature or were identified by experienced PA faculty to be relevant to PA faculty retention. Matier (1990) posited that whether a faculty member stayed or left depended on “ease of movement and perceived desirability of moving” (p. 41), and that both had to exist to stimulate leaving a position. He characterized perceived desirability of moving as dependent on internal and external environmental factors. External environmental factors were non-work-related benefits such as family and friendships. Internal environmental factors included tangible benefits of the job, such as salary, and intangible benefits of the job, such as autonomy (Matier, 1990). The current study expanded this definition of internal environmental factors to include tangible and intangible characteristics of the work environment that Matier did not consider, but that other researchers (e.g. Johnsrud & Rosser, 2002; Rosser, 2004; Smart, 1990) had demonstrated to be important to faculty retention. Because personal characteristics and expectations might also affect faculty retention (Bickel & Brown, 2005; Smart, 1990), an additional category of individual characteristics was added to this framework to capture ideas that could not be classified into the environmental categories. Therefore, factors deemed as relevant to the construct of “intention to stay in academia” in this study were initially organized as depicted in Figure 1. The specific factors identified in each class were used to develop items on the instrument measuring PA faculty “intention to stay in academia.”
Figure 1. Classification of factors relevant to PA faculty intention to stay in academia.

Overview of Methodological Framework

Given that “intention to stay in academia” is a latent variable of human behavior, or an abstract psychological construct, and given that psychological constructs are attributes of the mind that exist theoretically, they cannot be observed or measured directly (McIntire & Miller, 2006). Measurement of such constructs is conducted indirectly through the construction of probabilistic inferences that are made from discrete observations (Linacre, 2005; Wright, 1994). However, such inferences are impossible to make when measurement is done based on the assignment of nominal or ordinal labels to human behaviors, as is often the case in the social sciences. Probabilistic inferences can only be properly made when human behavioral and psychological variables are
objectively measured in a manner similar to how measurement is done in physical sciences (Bond & Fox, 2007; Linacre, 2010). Objective measurement involves “the repetition of a unit amount that maintains its size, within allowable range of error, no matter which instrument, intended to measure the variable of interest, is used and no matter who or what relevant person or thing is measured” (Institute for Objective Measurement, 2000, p. 1). The objective measurement of “intention to stay in academia” must therefore involve the construction of an interval scale in which, simply put, “one more unit means the same amount extra no matter how much there already is” (Linacre, 2005, p. 1).

The Rasch model of measurement was used in this research as the methodological framework because it is based on the principles of objective measurement. This model allows researchers to construct a linear scale of additive, equal interval units of measurement, assuming quantification is even possible. Rasch measurement methodology has been extensively applied in many fields, including high stakes testing such as professional certification examinations (Bond & Fox, 2007; Fischer, 2004). In this study, the Rasch model allowed for determining the extent to which the construction of a useful measure of “intention to stay in academia” had been achieved and enabled probabilistic inferences about intention to stay based on the pattern of responses to a meaningful set of survey items. A framework for validating measures using the Rasch model proposed by Wolfe and Smith (2007a, 2007b) was adapted as the validation framework for this investigation and is discussed in Chapter 3.
Significance of the Study

This study makes a useful contribution to both the basic and applied research on faculty retention. The absence of an established methodology for measuring “intention to stay,” and more specifically “intention to stay in academia,” represents a gap in the current literature. This study advances the basic research by examining whether this construct or latent variable is quantifiable, which has implications for other researchers who are attempting to measure similar psychological constructs. Additionally, a measure of “intention to stay in academia” that allows for making valid inferences about intention to stay sets a precedent for appropriate interval measurement of this construct and enables parametric statistical analyses in faculty retention research (e.g., examining group differences in intention to stay), should those be desired.

This study also informs stakeholders in PA education regarding what comprises an intention to stay in academia, which can assist higher education administrators (including PA program directors), senior PA faculty, and the leadership of the AAPA and PAEA in developing targeted recruitment and retention efforts for PA faculty. Because many other health professions are also facing difficulties with faculty retention (Association of Academic Health Centers, 2011), higher education administrators may additionally benefit from this research because an enhanced understanding of faculty retention in one profession may provide useful insight to many other health professions that are struggling with faculty retention.

Finally, in a broader sense, this study holds significance for U.S. healthcare policy makers, who are faced with spiraling healthcare costs and projected physician shortages. Many believe that increasing utilization of PAs may be part of the solution to stabilizing
or reducing U.S. healthcare spending (Hussey, Eibner, Ridgely, & McGlynn, 2009) and filling the gaps in medical care that will result from a shortage of physicians (Jones, 2007; Miller & Glicken, 2007; Morgan, Shah, Kaufman, & Albanese, 2008; Whitcomb, 2007). However, the PA profession will not be able to meet these expectations if adequate numbers of faculty cannot be retained to teach and train the PA workforce. In this sense, a study that helps address the problem of inadequate PA faculty retention has implications for the health and well-being of the nation.

**Chapter Summary**

This chapter presented the problem of inadequate PA faculty retention, which has been a concern in PA education for many years (Cawley, 2007; Miller & Glicken, 2007; Orcutt, 2007). Two issues within this problem were discussed: a) the unknown reasons why some PAs persist in academia while others do not, and b) the methodological deficiency in higher education research with regard to measuring “intention to stay in academia.” The author conducted this study to address the second issue, with the purpose of the study being to determine if this psychological construct could be meaningfully measured. The author believes that execution of this study makes a significant contribution to the field of higher education research as well as the PA profession and presents an important step in understanding how to better retain PA faculty.

A review of the literature is presented in Chapter 2. Chapter 3 describes the research design, methods, and limitations of the study. Chapter 4 contains results and discussion. Finally, Chapter 5 focuses on general conclusions and implications. The terms used in this research are defined below.
Definition of Terms

**Allied health.** A group of healthcare professions separate from nursing, medicine, or dentistry. Examples of allied health professionals include respiratory therapists, dieticians, and speech language pathologists.

**Construct map.** A hierarchical ordering of items in order of difficulty (or ease of endorsement) that reflects the conceptualization of the construct, or construct theory (Linacre, 2010).

**Hierarchical structure of a measure.** A “hierarchical ‘more than/less than’ line of inquiry” (Bond & Fox, 2007, p. 41).

**Intention to stay in academia.** An anticipation or willingness to continue in the academic role.

**Item difficulty.** “An estimate of an item’s underlying difficulty calculated from the total number of persons in an appropriate sample who succeeded on that item” (Bond & Fox, 2007, p. 311).

**Logit.** A log odds unit; a “unit of measurement used in Rasch analysis for calibrating items and measuring persons, based on the natural logarithmic odds of the probability of a response” (Jackson, Draugalis, Slack, Zachry, & D'Agostino, 2002, p. 235).

**Meaningful measurement.** Measurement in which both the qualitative meaning and quantitative meaning are stable across persons and instrument configurations (Fischer, 2004; Koskey, 2009).

**Objective measurement.** “The repetition of a unit amount that maintains its size, within an allowable range of error, no matter which instrument, intended to measure the
variable of interest, is used and no matter who or what relevant person or thing is measured” (Institute for Objective Measurement, 2000, p. 1).

**Person ability.** “An estimate of a person’s underlying ability based on that person’s performance on a set of items that measure a single trait. It is calculated from the total number of items to which the person responded successfully in a test” (Bond & Fox, 2007, p. 313).

**Psychological construct.** An underlying attribute of the mind that exists in theory but cannot be directly observed or measured. Examples of psychological constructs include intelligence, self-esteem, and love (McIntire & Miller, 2006).

**Physician assistant.** A licensed healthcare professional who practices medicine under physician supervision.

**Rasch model.** A mathematical model of measurement used in the social sciences to construct unidimensional, hierarchically structured, interval measures.

**Retention.** “The issue of how to keep employees from leaving an organization” (Bannock, Davis, Trott, & Uncles, 2003, p. 117).

**Semi-structured interview.** A loosely structured interview conducted with open-ended questions to explore a theme (Britten, 1995).

**Turnover.** The “movement of members across the boundaries of an organization” (Price, 2001, p. 600).

**Unidimensionality.** The “examination of only one human attribute at a time” (Bond & Fox, 2007, p. 41).
Chapter Two

Literature Review

In this chapter, faculty retention theories are reviewed first as a framework for the conceptualization of “intention to stay in academia” for PA faculty. This is followed by a review of the various approaches that researchers have used to study faculty retention and discussion of the limitations of these approaches relative to the study of PA faculty retention. An argument is made about the inadequacy of operationalization of intention to stay by previous research. The chapter concludes with the discussion of meaningful measurement of psychological constructs and introduces Rasch measurement as the methodological framework for this proposed research.

Faculty Retention Theories

As previously mentioned, applied research on PA faculty is scarce, and there is also limited basic research on retention of health professions faculty. Therefore, the literature review for the current investigation was expanded to include faculty retention research in general higher education. Several theories of faculty retention were identified and are discussed below. These theories informed this study by providing a theoretical framework for the conceptualization of “intention to stay in academia” for PA faculty.

Faculty turnover intention theories. Higher education researchers have often grounded their work on faculty retention in theories of personnel retention and turnover found in human resources and organizational literature. Early work in this field (see, for example, Flowers & Hughes, 1973; March & Simon, 1958) focused on the influence on retention of individual characteristics, such as commitment to work, personal decisions, and socialization, (Johnsrud & Heck, 1994). However, finding that individual
characteristics could not completely explain retention, later researchers (see, for example, Price, 1977) considered organizational characteristics, the work environment, and other external factors (Johnsrud & Heck, 1994). These researchers grounded their studies in expectancy theory, which involved the idea that in addition to their individual characteristics (e.g., gender, age, personality traits, etc.), people entered a position of employment with certain expectations and values. Expectations were defined as “beliefs about what [would] characterize the work organization and values [were] conceptions of preferred courses of action” (Kim, Price, Mueller, & Watson, 1996, p. 949). According to expectancy theory, if employees’ expectations and values were met, they were likely to remain as members of the organization (Kim, et al., 1996). Studies based in expectancy theory typically considered how the expectations and values of employees regarding multiple aspects of the work environment and aspects of the environment outside of work affected psychological outcomes, such as job satisfaction and morale, or behavioral outcomes, such as turnover intentions (Kim, et al., 1996).

Consistent with expectancy theory, Barnes, Agago, and Coombs (1998), Johnsrud and Rosser (2002), Rosser (2004), Smart (1990), and Xu (2008a) who studied the turnover intentions of faculty, approached the issue of faculty retention by theorizing that those behavioral intentions were a direct antecedent of actual turnover behavior. (A discussion of the relationship between turnover intentions and actual turnover will follow later in this chapter.) These researchers conceptualized a wide range of individual, structural, and contextual variables that might be related to faculty retention and theorized a relationship between these variables and turnover intentions (Rosser & Tabata, 2010).
Thus, in one of the initial theoretical attempts to explain faculty turnover intentions, Smart (1990) hypothesized a causal, ordered sequence for four sets of variables: individual and institutional characteristics, work environment characteristics, dimensions of job satisfaction, and intention to leave the current institution. In other words, he felt that individual characteristics (such as gender and marital status) and institutional characteristics (such as governance) impacted contextual, work environment characteristics (such as participation in governance and research productivity), which in turn impacted three dimensions of job satisfaction: organizational satisfaction, salary satisfaction, and career satisfaction. He theorized that an intention to leave a faculty position was dependent on all of these variables. Smart tested his model on a subset of data from the 1984 Carnegie Foundation for the Advancement of Teaching national survey and found that it did explain some of the variance (about 13%) in intention to leave. Most notably, he found that career age (defined as number of years since obtained highest degree), organizational satisfaction, and career satisfaction had significant negative correlations with intention to leave.

Barnes et al. (1998) conducted a similar study in which they conceptualized several variables related to faculty job stress as predictors of intent to leave academia (as opposed to intent to leave a current position). They tested their theory with a hierarchical regression analysis of data from a 1989 Carnegie Foundation national survey and found that the most important predictors of intent to leave academia were a lack of a sense of institutional community and frustration due to time constraints. As expected, higher levels of job stress were associated with greater intent to leave academia.
The role of faculty morale in turnover intentions was considered in a conceptual model of faculty turnover proposed by Johnsrud and Rosser (2002). They posited that structural and demographic variables, as well as individual and group perceptions of worklife affected faculty morale, which in turn affected intent to leave an institution. They tested their theoretical model through a system-wide, 10-campus faculty survey and found that faculty morale negatively correlated with intent to leave. Individual perceptions of worklife were also directly related to intent to leave. The only demographic variable that influenced faculty morale in the tested model was academic rank: the rank of full professor was negatively correlated with morale. Building on this work, Rosser (2004) hypothesized that the effect of demographic and worklife variables on intent to leave was mediated through job satisfaction. She found that the most influential variables in her model included being tenured (it had a significantly negative effect on intent to leave and a significantly positive effect on satisfaction) and perceptions of worklife (those indirectly affected intent to leave through a significant effect on job satisfaction).

A common feature of the complex theoretical models of faculty turnover intentions referenced above is the incorporation of a broad range of individual, structural, and contextual variables into attempts to understand faculty intentions to leave either a current position in academia or academia as a field. However, none of these theories was able to sufficiently explain or accurately predict these intentions. The amount of variance in intent to leave that these conceptual models explained when empirically tested ranged from 13% (Smart, 1990) to 25% (Barnes, et al., 1998) to 32% (Rosser, 2004), leaving the authors to admit that factors not included in these models also contributed to turnover.
intentions (Johnsrud & Rosser, 2002) and that the current understanding of faculty retention in higher education was incomplete (Johnsrud & Rosser, 2002; Rosser, 2004).

The applicability of these general theories of higher education faculty turnover to health professions faculty, particularly to PA faculty, is possible but unclear. Previous meta-analyses of employee turnover in the business and organizational literature found that variables related to turnover varied by profession or by worker population (Cotton & Tuttle, 1986; Griffeth, Horn, & Gaetner, 2000). Building on this finding, Xu (2008a) theorized that factors important to faculty retention might vary by academic discipline. He supported this hypothesis by analyzing data from the National Study of Postsecondary Faculty:1999 (NSOPF:99). He found substantial variations in the factors related to turnover intentions in eight academic discipline clusters that he examined. Job security, advancement opportunities, academic opportunity, and research support were related to turnover intentions among faculty in the cluster of Hard/Applied/Life sciences that included medical and allied health faculty along with other science faculty groups. Although it is unclear if any PA faculty were involved, this finding suggests that discipline-specific factors in PA faculty retention should be considered.

Medical faculty retention theory. Only one theoretical model related to faculty retention has been found to date that specifically considered medical faculty. Nyquist, Hitchcock, and Teherani (2000) proposed a conceptual model of job satisfaction for faculty in academic medicine, hypothesizing that job satisfaction would affect retention. Although this theory has not been empirically tested, it has relevance to a discussion of PA faculty retention because of the similarities between PA school faculty and medical school faculty. (Both faculty groups are health professionals who are trained in the
medical model and who can move between academia and clinical practice.) Nyquist et al. (2000) postulated that organizational factors (such as available resources and relationships with colleagues), job-related factors (such as autonomy and salary), and personal factors (such as family and home life responsibilities) all contributed to job satisfaction for physician faculty. They further postulated that job satisfaction would positively affect the outcomes of job productivity, student satisfaction, patient satisfaction, and retention of physicians in the academic role. The inclusion of individual, structural, and contextual variables in this theory is consistent with the general higher education theories previously discussed.

**Matier’s inertial theory.** Taking a different approach than the researchers who studied turnover intentions of faculty in academia, Matier (1990) conceptualized a broad range of factors that influenced an individual’s decision to stay at or to leave an institution after receiving another firm offer of employment. His theory was based on the idea of inertia, as originally conceived by Flowers and Hughes (1973). Flowers and Hughes argued that it required considerable force to move an employee ensconced in a position. Matier also incorporated Burke’s (1988) “push-pull” metaphor for faculty turnover and argued that there were internal factors that pushed a faculty member from and external factors that pulled a faculty member toward a new position. Matier felt that it was important to consider those internal factors, because as he put it, “without strong internal pushes to invite individuals seriously to consider external offers, lavish external pulls are typically not sufficient in and of themselves to disengage a faculty member” (Matier, 1990, p. 58). He posited that whether a faculty member stayed or left depended on “ease of movement and perceived desirability of moving” (Matier, 1990, p. 41), and
that both were required to exist to stimulate leaving, or to overcome the inertia of the current position. Matier further characterized perceived desirability of movement as dependent on internal (both tangible and intangible) and external environmental factors. He tested his theory on 221 tenure track faculty at two institutions who received a firm opportunity to leave their institution for another position and found that his model explained two-thirds of the final decisions to stay or leave. The most important factors in those decisions were relationships with colleagues and leadership, research opportunities, reputation (of the department, colleagues, and institution), and salary.

Matier’s (1990) theory may have direct relevance to PA faculty retention, which was the focus of the current investigation. He theorized about decisions to stay or leave when facing another firm offer of employment. Considering the strong market demand for PAs, private sector jobs are readily available for PA faculty. The accessibility of private sector jobs for health professions faculty is a luxury that many other faculty groups do not have (Matier, 1990; Smart, 1990; Xu, 2008a). Therefore, it can be argued that PA faculty may have much in common with the faculty in Matier’s study where they had a firm offer of employment elsewhere. It can also be argued that including the “perceived desirability of moving” for PA faculty is important when studying PA faculty retention. In other words, it is important to examine tangible, intangible, or external environmental benefits that might keep PA faculty in academia or predispose them to the academic role despite the availability of clinical positions.

**Theoretical framework for this study.** In summary, informed by the theories outlined above, operationalization of PA faculty “intention to stay in academia” pursued in this study incorporated a broad range of individual, structural, and contextual factors.
that may influence a PA’s decision to remain in academia. Because of the importance of considering discipline-specific factors in faculty retention emphasized by Xu (2008a), the conceptualization of “intention to stay in academia” in this study focused on the meaning of this variable for PA faculty.

Matier’s (1990) work was used as a framework for classifying factors that were conceptualized as relevant to “intention to stay in academia” for PA faculty, and his terminology of internal environmental factors (both tangible and intangible) and external environmental factors was adopted for this research. Examples of tangible factors include salary, facilities, and work rules. Intangible factors include autonomy, reputation, and influence. External environmental factors are non-work related factors and include family and friendships. This study, however, broadened Matier’s (1990) definitions of tangible and intangible benefits to include characteristics of the work environment that have been noted as important by other researchers (see, for example, Johnsrud & Rosser, 2002; Rosser, 2004; Smart, 1990). (For example, relationships with students, a factor not considered by Matier (1990), was classified as an intangible benefit in this study.) Given that personal characteristics and expectations may also affect retention (Bickel & Brown, 2005; Smart, 1990), an additional category of individual characteristics was added to this framework to capture ideas that could not be classified into the other categories. The classification framework adopted in this research is depicted in Figure 1 in Chapter 1. The specific factors identified in each category were used to develop items for the survey instrument intended to measure PA faculty intention to stay in academia.
Approaches to Faculty Retention Research

The literature was further reviewed in order to understand additional ways in which researchers in higher education, particularly in the health professions, have previously approached the problem of faculty retention. Examining faculty turnover intentions seemed to be the most common approach and also the basis for many of the major theoretical works in the area of faculty retention, as discussed in the previous section. However, most studies of turnover intentions have focused on intention to leave a current position, and few studies have attempted to operationalize “intention to stay in academia.” Other ways in which researchers in the health professions have studied faculty in order to better understand retention include: (a) studying job satisfaction, (b) identifying reasons for attrition or retention, and (c) determining effectiveness of faculty retention interventions. This section reviews these approaches, followed by a review of studies that used turnover intention variables, either intention to leave or intention to stay. Where available, studies that included PA faculty, the population of interest in the current investigation, are discussed with greater detail. The review concludes with the argument that previous operationalizations of turnover intentions are inadequate for measurement.

**Job satisfaction as an approach in faculty retention research.** Several higher education researchers (see, for example, Ambrose, et al., 2005; Hagedorn & Sax, 2003; Seifert & Umbach, 2008) have cited the need for a better understanding of faculty retention as a rationale for studying faculty job satisfaction. Likewise, researchers in the health professions have conducted discipline-specific investigations of faculty job satisfaction in an attempt to better understand faculty retention. Thus, researchers have examined faculty satisfaction in the fields of pharmacy (Conklin & Desselle, 2007a; Latif
& Grillo, 2001; Nair & Gaither, 1999; Spivey, Chisholm-Burns, Murphy, Rice, & Morelli, 2009), medicine (Bunton, et al., 2012; Chung, et al., 2010; Field, Barg, & Stallings, 2011; Shollen, Bland, Finstad, & Taylor, 2009), dentistry (Haden, et al., 2008), physical therapy (Harrison & Kelly, 1996), other allied health fields (Beavers, 2010; Romig, Maillet, & Denmark, 2011; Undie & Passmore, 2010), and nursing (Bittner & O’Connor, 2011; Gui, Barriball, & While, 2009a, 2009b). There was only one job satisfaction study of PA faculty - a dissertation research by Boeve (2007).

The specific methodologies varied greatly in the health professions faculty job satisfaction studies cited above. However, they all shared a similar purpose: to identify factors related to faculty job satisfaction in a specific field. Some of the common factors identified included work-life balance (Chung, et al., 2010; Conklin & Desselle, 2007a; Gui, et al., 2009b; Spivey, et al., 2009; Undie & Passmore, 2010), autonomy (Bittner & O’Connor, 2011; Chung, et al., 2010; Conklin & Desselle, 2007a; Gui, et al., 2009b), departmental leadership (Chung, et al., 2010; Gui, et al., 2009b), collegial relationships (Beavers, 2010; Bittner & O’Connor, 2011; Bunton, et al., 2012; Chung, et al., 2010; Conklin & Desselle, 2007a; Gui, et al., 2009b), and opportunities for professional development (Bittner & O’Connor, 2011; Haden, et al., 2008; Spivey, et al., 2009). Similar factors were also identified as components of PA faculty job satisfaction by Boeve (2007) in his survey of all PA faculty in the U.S. in 2005.

Boeve (2007) asked PA faculty to rate their satisfaction with various aspects of their jobs in the domains of overall job satisfaction and satisfaction with work itself, supervisor support, coworker relations, advancement opportunities, and salary. Consistent with Chung et al.’s (2010) finding that medical faculty highly valued their
collaboration with colleagues and with Conklin & Desselle’s (2007a) finding that collegiality was an aspect of the job that pharmacy faculty were satisfied with, Boeve found that PA faculty were generally satisfied with their relationships with coworkers. Similar to dental faculty (Haden, et al., 2008) and pharmacy faculty (Spivey, et al., 2009), PA faculty in Boeve’s study were also overall satisfied with their opportunities for advancement. Consistent with Gui et al.’s (2009b) report that supervision was a component of job satisfaction for nursing faculty and Chung et al.’s (2010) finding that satisfaction with departmental leadership predicted overall job satisfaction for medical faculty, Boeve found that PA faculty were overall satisfied with their supervisor support. PA faculty were also generally satisfied with the domain of work itself in Boeve’s study. Salary was the only aspect of the job that PA faculty were not satisfied with; this was consistent with Chung et al. (2010) and Conklin and Desselle’s (2007a) research, in which salary was not a source of satisfaction for medical faculty or pharmacy faculty, respectively. Boeve (2007) also concluded that PA faculty were overall highly satisfied with their jobs. If his conclusion is accurate, then inadequate retention of PA faculty would imply that lack of satisfaction with an academic career is not the major explanation for PA faculty turnover. A parallel situation can be seen in pharmacy and dentistry education. Conklin and Desselle (2007a) and Spivey et al. (2009) reported good overall job satisfaction levels among pharmacy faculty in their studies, and Haden et al. (2008) reported good overall job satisfaction among dental faculty. However, retention of both pharmacy faculty and dental faculty is very poor (Beardsley, et al., 2008; Haden, et al., 2008; Moskowitz, 2007; Spivey, et al., 2009). Therefore, there must be factors beyond
job satisfaction that influence an individual, in particular a health professional, to persist in an academic career.

Although informative, much of the current research on faculty job satisfaction in the health professions (see, for example, Boeve, 2007; Chung, et al., 2010; Conklin & Desselle, 2007a; Spivey, et al., 2009) is descriptive in nature. All the prediction studies cited above yield only correlational evidence, and meaningful inferences about faculty satisfaction beyond the specific factors cannot be made. In addition and very important to this investigation, researchers presumed that the ordinal data they collected were interval, which was a violation of the measurement requirement for the types of analyses that were conducted. As an example, in the PA faculty satisfaction study, Boeve (2007) asked participants to use a Likert-type scale from 1 (“very dissatisfied”) to 5 (“very satisfied”) to respond to the item on overall job satisfaction (“Considering all aspects of your job as a PA educator, please indicate your overall level of job satisfaction” [p.119]) and reported a mean response of 4.15, from which he concluded that PA faculty were overall satisfied with their jobs. Similarly, he reported means for each of the other domains of job satisfaction (work itself, supervisor support, coworker relations, advancement opportunities, and salary). Such practice of quantification is problematic from the measurement perspective because Likert response scales are ordinal, not interval (Wolfe & Smith, 2007a). The difference between, for example, “very satisfied” and “satisfied” cannot be assumed to be equal to the difference between “satisfied” and “neutral,” etc. Therefore, the summation of item responses within a domain and calculation of a mean response for that domain are inappropriate (Wolfe & Smith,
2007a). However, presuming that ordinal data are interval is a common practice in educational research (Jamieson, 2004), as will be demonstrated later in this chapter.

Even if satisfaction were properly measured, the implications of job satisfaction for retention are unclear due to the fact that the relationship between faculty job satisfaction and *actual* faculty retention has not been established (as opposed to the correlation between turnover intentions and faculty job satisfaction, which has been demonstrated by Hagedorn (1996), Garbee and Killacky (2008), Rosser (2004), and Smart [1990]). As evidence of the lack of clarity regarding the relationship between job satisfaction and faculty retention, in their qualitative investigation of 123 general higher education faculty who stayed in or left positions at one specific institution, Ambrose et al. (2005) found no correlation between faculty members’ assessments of their overall satisfaction with their experience at a university and their decisions to stay in or to leave their positions. Furthermore, Gui et al. (2009a) and Conklin and Desselle (2007b) concluded that the relationship between faculty job satisfaction and retention was unclear in the fields of nursing education and pharmacy education, respectively. Therefore, definitive statements about the relationship between faculty job satisfaction and retention cannot be made at this time.

One explanation of the disconnect between high PA faculty job satisfaction reported by Boeve (2007) and inadequate PA faculty retention may be that clinically practicing PAs are also satisfied with their jobs. In her national job satisfaction study of PAs, LaBarbera (2010) found that 93.9% of practicing PAs were satisfied with their career choice and of these, 73.7% were “very satisfied” or “extremely satisfied.” Over 91% were additionally satisfied with their current PA position. Because of the easy
mobility to clinical practice jobs for PA faculty, the fact that the vast majority of clinically practicing PAs are satisfied with both their career and their current practice may somewhat limit the importance of job satisfaction in the retention of PAs in academia.

All of this suggests that there must be issues beyond job satisfaction that influence a PA to choose an academic career over a clinical career. Examining reasons why faculty leave or stay in faculty positions, as opposed to determining what aspects of the job they are satisfied with, is an alternative approach to faculty retention chosen by researchers.

**Identifying why faculty leave or stay as an approach in faculty retention research.** In an attempt to better understand how to retain faculty, researchers have queried faculty who voluntarily left institutions or academic careers regarding the reasons for their departure (Anderson, Grayson, Newton, & Zoeller, 2003; Cropsey, et al., 2008; Matier, 1990; Weiler, 1985) or the barriers to their retention (Johnsrud & Heck, 1994). Researchers have also queried current faculty regarding their reasons for staying (Matier, 1990; Shepherd, Nihill, Botto, & McCarthy, 2001) or their perceived barriers to retention (Johnsrud & Heck, 1994).

Using the approach of studying faculty who left, Weiler (1985) surveyed all tenured faculty members who resigned from the University of Minnesota between 1980 and 1984, asking them to rate the importance of several different factors in their decisions to leave their positions. Although this survey gave respondents a limited number of general factors to rate, it revealed that the new employer’s reputation, research fund availability, geographic factors, and personal factors were just as important (if not more important) as salary considerations in the decision to leave a faculty position. Matier’s
research, which was previously mentioned in this chapter, revealed similar findings. According to Matier, although salary was a consideration in faculty members’ decisions to accept another employment offer, there were additional factors that “pushed” or “pulled” a faculty member to leave an institution. Salary inducements alone were not sufficient to stimulate attrition.

Similarly, in the health professions literature, salary was identified as a reason (although, again, not the only reason) for leaving in two small, single-institution studies of medical school faculty by Anderson, Grayson, Newton, and Zoeller (2003) and Cropsey (2008). These findings coupled with Boeve’s (2007) finding that salary was the aspect of their job that PA faculty were least satisfied with as well as the disparity between academic and clinical salaries for PAs make it reasonable to postulate that salary issues may play a role in PA faculty retention. However, because PA faculty have not been surveyed regarding the reasons that they stay in or leave faculty positions, the role of salary in PA faculty attrition or retention remains unknown.

Anderson et al. (2003) and Cropsey (2008) also identified a lack of leadership as a major reason for the inability to retain medical faculty. This was consistent with Matier’s (1990) finding that rapport with departmental leaders was a major reason why faculty both stayed in and left institutions and with Johnsrud and Heck’s (1994) finding that tenure-track faculty who left an institution identified “chair and departmental relations” (p. 81) as a major barrier to their success. Shepherd, Nihill, Botto, and McCarthy’s (2001) study also illustrated the importance of departmental relationships. In their survey of dental faculty who had been in academia for five years or less, they asked respondents to rate the importance of various factors in their decisions both to accept a faculty
position and to remain in the faculty position, and a positive departmental working environment was found to be most important factor.

In addition to salary and departmental relationships, other factors identified as major reasons for leaving included personal reasons (Cropsey, et al., 2008; Weiler, 1985), quality of life (Anderson, et al., 2003; Johnsrud & Heck, 1994), opportunity for career advancement (Cropsey, et al., 2008; Matier, 1990), institutional reputation (Matier, 1990; Weiler, 1985), and tenure pressure (Johnsrud & Heck, 1994). Other factors identified as reasons for staying included opportunity for professional development (Shepherd, et al., 2001), institutional and departmental reputation (Matier, 1990), and educational facilities and resources (Shepherd, et al., 2001). Additionally, Johnsrud and Heck (1994) found that tenure-track faculty perceived quality of life, time pressure, time for personal life, and workload balance as the most important barriers to their success in their current faculty positions. It should be noted that with the exception of Anderson et al. (2003), the focus of all of these studies was on identifying reasons and barriers to faculty leaving or staying at an institution. In other words, the focus of the research was on retention in current positions rather than retention within academia as a whole.

It should also be noted that most studies reviewed in this section were strictly quantitative in their data collection, and most of them asked faculty to rate reasons why they left or stayed (e.g., Shepherd, et al., 2001; Weiler, 1985). In other words, there may have been important factors in participants’ decisions that were not identified through the surveys and especially through ranking that allowed only for a limited number of factors to be considered. An alternative approach was taken by Trotman, Bennett, Scheffler, and Tulloch (2002) who used in-depth phone interviews to elicit perceptions of barriers to
dental faculty recruitment and retention. Their broad range of study subjects included dental students and residents who expressed an interest in academia, junior and senior dental faculty, and former dental faculty. Although perceptions varied among the groups, there was a consensus among all participants that the lack of training for an academic career was a barrier to the recruitment and retention of dental school faculty (Trotman, et al., 2002). This finding may be quite relevant in a study of PA faculty retention because similar to dental faculty, most PA faculty do not have training in the academic role (Glicken, 2008). The fact that Trotman et al. (2002) identified a factor not evaluated in the reviewed quantitative studies had further importance for the current investigation, as qualitative methods helped to identify indicators of PA faculty “intention to stay in academia” that the researcher may not have otherwise known to include on a survey instrument.

**Retention interventions as an approach in faculty retention research.** A third major approach to studying faculty retention has been to investigate outcomes of interventions designed to improve retention. In the literature reviewed to date, studies in the intervention outcome category have only been found in the health professions field, and by far, the most commonly studied faculty retention intervention strategy has been the use of mentoring programs (see, for example, Benson, Morahan, Sachdeva, & Richman, 2002; Varkey, et al., 2012; Wingard, Garman, & Reznik, 2004). However, in a 2006 systematic review of mentoring in academic medicine, Sambunjak, Straus, and Marusic concluded that, despite a strong perception that mentoring was important to faculty retention, the true effect of mentoring on the retention of academic medical faculty remained unknown due to the poor quality of available studies. The outcomes of
comprehensive faculty retention programs, which include multiple interventions in addition to mentoring that are perceived to be useful to faculty retention, are rarely reported. Those studies that have reported the outcomes (e.g., Ries, et al., 2012; Ries, et al., 2009; Taylor & Berry, 2008) and documented significantly improved retention rates of faculty members after participation in a faculty development program have limited population and ecological validity because they have been conducted at single institutions and used small sample sizes.

A review of the PA education literature revealed only one study that reported retention outcomes of a faculty development activity. In 2010, Hills and Dieter reported the outcomes of the teaching fellowship at the Duke University PA Program. This one-year stipended teaching fellowship was developed “in order to provide a structured experience for training potential faculty for careers as PA educators and to address the barriers to recruitment and retention of new faculty” (Hills & Dieter, 2010, p. 31). The program began in 1998 and produced 11 graduates through 2010. However, only five of those graduates remained in academia in 2010; the other six PAs who completed the teaching fellowship had returned to clinical practice (Hills & Dieter, 2010). The effectiveness of other faculty recruitment and retention interventions, such as rotations in academic medicine in the clinical year of PA school (Min, 2003) or faculty development activities by the PAEA, has not yet been evaluated.

This insufficiency of evidence of the effectiveness of interventions in the literature may be due to the fact that designing strong intervention studies and following retention outcomes long-term may not be feasible and involves many logistical and financial barriers. It is not surprising therefore that national faculty development
programs for PA faculty (e.g., workshops administered by the PAEA) are being conducted without the evaluation of retention outcomes.

The difficulty involved in designing generalizable retention interventions, in addition to the difficulty of locating and studying faculty who left to determine their reasons for leaving may explain why studying faculty intentions to leave or to stay has been one of the most common approaches to faculty retention. This approach to faculty retention research is discussed next.

**Turnover intentions as an approach in faculty retention research.** When studying faculty retention by examining the intention of current faculty to leave or stay, researchers have attempted to identify factors that correlated with or predicted those intentions instead of trying to understand what it meant to have an intention to leave or an intention to stay. The precedent for studying retention through the examination of intention to leave is well-established in the human resources and business literature, where there is a large body of research on the intention to leave of all types of employees (Cotton & Tuttle, 1986). The approach of examining intention to stay, on the other hand, seems to be much less common and has been found most often in this literature review in the context of health professions faculty retention. However, neither intention to leave nor intention to stay has yet been studied in PA faculty.

Studies of employee turnover have overwhelmingly adopted the premise that turnover intentions predict actual turnover, and therefore intention to leave has been used as a proxy for attrition (see, for example, Griffeth, et al., 2000; Hellman, 1997). The relationships between the variable of intention to leave a current faculty position and a large number of other variables have been examined, including, but not limited to
multiple domains of job satisfaction (Heckert & Farabee, 2006; Rosser, 2004; Smart, 1990; Xu, 2008a; Zhou & Volkwein, 2004), perceptions of faculty autonomy (Dee, 2004), collegiality (Dee, 2004; Manger & Eikeland, 1990), organizational support (Dee, 2004), faculty morale (Johnsrud & Rosser, 2002), perceptions of faculty worklife (Johnsrud & Rosser, 2002; Xu, 2008a), demographics (Johnsrud & Rosser, 2002; Rosser, 2004; Smart, 1990; Xu, 2008a, 2008b; Zhou & Volkwein, 2004), work experience (Zhou & Volkwein, 2004), and institutional characteristics (Johnsrud & Rosser, 2002; Smart, 1990; Zhou & Volkwein, 2004).

In the health professions literature, specifically, only four studies of faculty intention to leave have been found to date: by Conklin and Desselle (2007b), Lowenstein, Fernanex, and Crane (2007), Gormley and Kennerly (2011), and Pololi, Krupat, Civian, Ash, & Brennan (2012). These studies attempted to find predictors of intention to leave either academia or a current position in samples of pharmacy (Conklin & Desselle, 2007b), medical (Lowenstein, et al., 2007; Pololi, et al., 2012), or nursing faculty (Gormley & Kennerly, 2011); however, they used different sets of independent variables. The only common predictors of intention to leave in these studies were poor department chair support in Conklin and Desselle’s (2007b) and Lowenstein et al.’s (2007) studies and organizational commitment in Conklin and Desselle’s (2007b) and Gormley and Kennerly’s (2011) studies.

Variables similar to that of interest in this proposed study – “intention to stay in academia” for PA faculty – have been analyzed in only six studies found to date in this literature review: by Hagedorn (1996), Al-Omari, Qablan, and Khasawyney (2008), Buckley, Sanders, Shih, and Hampton (2000), Cranford (2009), Garbee and Killacky
(2008) and Froeschle & Sinkford (2009). Four of these studies dealt with specific disciplines of health professions faculty, while Hagedorn (1996) studied higher education faculty in general in the U.S. and Al-Omari et al. (2008) studied higher education faculty in Jordan. The aim of these researchers was to either describe correlations between intention to stay and other specific variables (Al-Omari, et al., 2008; Cranford, 2009; Garbee & Killacky, 2008; Hagedorn, 1996) or compare differences in intention to stay between various groups of faculty (Buckley, et al., 2000; Froeschle & Sinkford, 2009).

The studies referenced above all described correlations between intention to stay and other variables but had different purposes; that is, the researchers were interested in examining the relationship between intention to stay and different variables. In her dissertation research, Cranford (2009) was specifically interested in the relationship between nursing faculty intention to stay in academia and role strain, which she defined as “the stress generated within individuals when they have difficulty complying with the expectations of the nurse educator role” (p. 57). She found that role strain accounted for 11% of the variance in intent to stay in academia. In the case of Hagedorn (1996), intention to stay in academia was just one of many variables that she examined in relation to gender wage differentials. She discovered that the intent of female faculty to remain in academia declined as the gender wage differential increased. Alternatively, Al-Omari et al. (2008) and Garbee and Killacky (2008) aimed to discover predictors of intention to stay in a current faculty position and therefore examined the relationship between intention to stay and a large number of other variables. Both found that intent to stay was weakly to moderately correlated with job satisfaction and with organizational commitment. Of the variables that have been found to correlate with intention to stay,
only job satisfaction has been studied in PA faculty (Boeve, 2007); role strain, gender wage differentials, and organizational commitment have not been investigated for PA faculty.

Buckley et al. (2000) and Froeschle and Sinkford’s (2009) purpose in determining faculty intent to stay was to compare that intention between groups of faculty. In a study of medical faculty at two institutions, Buckley et al. (2000) reported significantly less intention to stay (termed “commitment to academic medicine” in their study) in faculty who spent more than 50% of their time in clinical care compared with faculty who spent less time in clinical care. In their national study of dental faculty, Froeschle and Sinkford (2009) simply compared differences in responses to intention to stay questions by gender, academic rank, employment status (tenure track versus clinical track), age, geographic location, marital status, and years in dental education. The only significant difference was that females were more likely than males to intend to stay in academia for 5-8 years. There was no difference in shorter-term intention to stay.

Unfortunately, the literature in general on faculty intention to leave and intention to stay is somewhat disjointed and sometimes conflicting, making it impossible to summarize researchers’ findings in a clear and consistent way. The best general conclusion that can be currently drawn is that a large number of correlations have been found between responses to turnover intention questions and a broad spectrum of individual, structural, and contextual factors of faculty work and personal life. As such, these studies provide mere descriptions of factors that correlate with intention and do not measure intention. The limitations of existing operationalizations of intention to stay or leave are discussed in further detail next.
**Methodological limitations of the reviewed research approaches.**

Methodologically, most of the reviewed studies of faculty retention, including all of the studies that examined their intention to stay or leave, had at least one serious limitation – researchers assumed they measured their variables (e.g., intention to leave, intention to stay, satisfaction, etc.) and proceeded directly to statistical analyses. In reality, however, those researchers simply collected observations and did not convert those to measures. As a result, validity of the inferences from such studies is questionable. Focusing on statistical analysis rather than on construction of a measure (e.g., a measure of faculty intention to stay or leave) is a very common practice in educational research (Bond & Fox, 2007; Fischer, 2004). The limitations of using existing quantifications of intention to stay and intention to leave as measures include: (a) the inadequacy of a single or a few questions to capture a state of mind, (b) lack of predictive validity, and (c) lack of proper interval variable measurement.

With regard to intentions, the focus of the current investigation, all of the studies cited previously quantified a faculty member’s intention to stay or leave by using either a single question (see, for example, Buckley, et al., 2000; Cranford, 2009; Heckert & Farabee, 2006; Lowenstein, et al., 2007; Smart, 1990) or very few questions (see, for example, Dee, 2004; Hagedorn, 1996; Pfeffer & Lawler, 1980). For example, Lowenstein et al. (2007) measured intent to leave academic medicine as agreement with the survey item: “I am seriously considering leaving academic medicine in the next five years.” Those who ‘strongly agreed’ or ‘agreed’ were classified as ‘seriously intending to leave.’ Those who answered ‘don’t know,’ disagree’ or ‘strongly disagree’ were classified as ‘no intent to leave’” (p. 3). Alternatively, to measure intent to stay in
academia, Cranford (2009) asked: “How likely is it that you will remain in nursing education for the duration of your career?” (p. 64), with responses on a four-point Likert scale. As an example of using more than one item, Hagedorn (1996) used a 3-item scale to quantify “intent to remain in academe.” Examples of using a single or a few questions to capture turnover intentions can also be found in the human resources and business literature, where the intention to leave has been typically captured or measured by an employee response to a single item (see, for example, Lounsbury & Hoopes, 1986; McCarthy, Tyrrell, & Lehane, 2007) or as a sum of Likert-type responses to a few items (see, for example, Dawley, Houghton, & Bucklew, 2010; de Moura, Abrams, Retter, Gunnardottir, & Ando, 2009; Larrabee, et al., 2010; Lee & Mowday, 1987).

It can be demonstrated that assessing intention with the response to one question or to a few questions at one point in time is an inadequate operationalization of a complex psychological variable. One question with an arbitrary timeframe (e.g., “within the next five years”) and with a limited set of possible responses cannot capture the full range of low to high levels of “intention to leave” or “intention to stay” that exist within a faculty population. Also, respondents’ answers might vary over time and with the context in which they answer the question. (For example, they may respond differently after a bad day at work or after a frustrating committee meeting than they would after a good day or after a particularly positive interaction with students.) A single question about a state of mind at one point in time cannot be a reliable indicator of intention.

One possible rationale for using the single question approach, particularly the use of “intention to leave” as a surrogate for actually leaving a position, is based on the results of two meta-analyses of general employee turnover that estimated the correlation
between intention to leave and actual turnover to be about .50 (Steel & Ovalle, 1986; Tett & Meyer, 1993). However, it is unknown whether this correlation is consistent across professions. The correlation between reported intentions to leave and actual turnover among faculty has not yet been established (Conklin & Desselle, 2007b), and neither has the correlation between “intention to stay” and actual faculty retention.

As further evidence of the uncertain predictive value of questions about turnover intentions, two recent studies of non-academic health professionals found that intention to leave was not a good predictor of actual attrition (Rittenhouse, Mertz, Keane, & Grumbach, 2004; Seston, Hassell, Ferguson, & Hann, 2009). In a study of specialty physicians in California, “intention to leave clinical practice in three years” was assessed by the response to a single item. When actual attrition was evaluated three years later, the response to the intention to leave item was found to have a positive predictive value of only 35.4%. The authors speculated that “self-reported intention to leave practice may be more of a proxy for dissatisfaction than an accurate predictor of actual behavior” (Rittenhouse, et al., 2004, p. 1571). Similarly, only 7.1% of British pharmacists who expressed an intention to quit the profession within two years (defined, again, as the response to a single question) were actually no longer practicing pharmacy two years later (Seston, et al., 2009).

Probably the greatest limitation of the turnover intention studies discussed in this literature review is the lack of proper interval measurement of the intention to leave or intention to stay variables. Likert responses to a question about intention to leave or stay represent ordinal relationships, that is, relationships in which “strongly agree” implies “more” of a variable than “agree,” but in which the actual magnitude and consistency of
the relationship between levels is unknown. (For example, the difference between “strongly agree” and “agree” may not be the same as the difference between “strongly disagree” and “disagree.”) When statistical analyses are conducted treating the intention variable as continuous (see, for example, Barnes, et al., 1998; Cranford, 2009; Garbee & Killacky, 2008; Heckert & Farabee, 2006; Smart, 1990; Zhou & Volkwein, 2004), ordinal relationships are inappropriately presumed to be interval, and raw scores are inappropriately treated as measures. For example, Heckert and Farabee (2006) used a single item about turnover intention with a 7-point Likert response scale (1=strongly disagree to 7=strongly agree) to measure intention to leave, and then treated this as a continuous dependent variable in the multiple regression analysis. This is a common practice in the social sciences, despite the fact that many statistical comparisons “assume the existence of linear, interval relations of known magnitude and consistency” (Fischer, 2004, p. 435).

Studies that used scales consisting of a few items to operationalize intention to leave or stay also had serious methodological issues. For example, the reliability, validity, wording of the individual items, and scoring of the items in the scales used by Al-Omari et al. (2008), Barnes et al. (1998), Garbee and Killacky (2008), and Hagedorn (1996) were not reported in the published studies. Furthermore, some researchers (see, for example, Barnes, et al., 1998; Johnsrud & Rosser, 2002; Xu, 2008b; Zhou & Volkwein, 2004) inappropriately added Likert-type responses to intent items. This combining of ordinal level responses creates a pseudoscale in which the data are simply presumed to have an interval nature (Bond & Fox, 2007).
To date, this review of the literature has not revealed a precedent for appropriate measurement of faculty intention to stay. A broadening of the search for other studies of intention to stay revealed that this variable had been operationalized in other fields in a similar way to how it was operationalized in the higher education literature. For example, in studies of both the intention of nurses to stay in their current nursing positions (Kovner, Brewer, Greene, & Fairchild, 2009) and the intentions of medical military personnel to stay in the military (Kim, et al., 1996; Price & Kim, 1993), intent to stay was measured with a four-item scale containing statements such as “I plan to stay with my employer as long as possible” (Kovner, et al., 2009, p. 84), with responses on a five-point Likert scale. Because ordinal responses were summed to obtain a score for the intention variable, these studies had the same issue of improper variable measurement.

**Measurement of Psychological Constructs**

As a psychological construct, “intention to stay in academia” is an abstract trait that exists in theory but cannot be perfectly predicted or directly measured (McIntire & Miller, 2006). Because of the inability to observe intention directly, indicators that are observable and that can provide evidence of the construct should be identified in a construct theory (Wolfe & Smith, 2007a). Measurement of the psychological construct is then conducted indirectly through the construction of probabilistic inferences from discrete observations of these indicators (Linacre, 2005; Wright, 1994). As demonstrated in the previous section, a precedent for proper measurement of the psychological construct of “intention to stay in academia” was not found in the literature.

What complicates the matter even more is that not all psychological constructs are measurable (Michell, 2003). “To show that a variable is quantitative is to show that it
has a definite kind of structure: its values stand in ordinal and additive relations to one another” (Michell, 1990, p. vii). If this quantitative structure exists, “then it [the construct] is, in principle, measurable” (Michell, 1997, p. 358). To illustrate this idea of measurability, Michell (1986) provided the analogy of mass and nationality. Mass is a variable with a quantitative structure; differences in mass have both ordinal and additive relationships; mathematical operations of addition, multiplication and division can be performed and are meaningful. Hence, mass is a measurable construct. Differences in nationality, on the other hand, cannot be quantified, and therefore nationality cannot be measured. The conceptualization of a psychological attribute as measurable is a hypothesis that must be confirmed by the discovery of a continuous quantitative structure to the variable (Michell, 1997). Such discovery is necessary with regard to the construct of “intention to stay in academia.”

Unfortunately, as demonstrated in this chapter, measurement in the social sciences is often asserted based on the assignment of nominal or ordinal levels to human behaviors (Bond & Fox, 2007; Fischer, 2004; Wolfe & Smith, 2007a). This practice dates back to Stevens’ (1946) definition of measurement as “the assignment of numerals to objects or events according to rules” (p. 677). For decades, most social science researchers adopted this definition and treated raw scores as measurement (for example, they treated ordinal survey data as interval data), despite the fact that equal numerical differences between raw scores do not necessarily reflect equal amounts of the construct in question (Wolfe & Smith, 2007a; Wright & Mok, 2000). Others have argued that this practice is not true measurement, and that human behavioral and psychological variables can and should be objectively measured when possible in a manner similar to how measurement is done in
the physical sciences (see, for example, Bond & Fox, 2007; Fischer, 2004; Michell, 1997; Wright, 1983).

Objective measurement involves “the repetition of a unit amount that maintains its size, within allowable range of error, no matter which instrument, intended to measure the variable of interest, is used and no matter who or what relevant person or thing is measured” (Institute for Objective Measurement, 2000, p. 1). The objective measurement of “intention to stay in academia” must therefore involve the construction of an interval scale in which, simply put, “one more unit means the same amount extra no matter how much there already is” (Linacre, 2005, p. 1). This interval scale, furthermore, must maintain its meaning across configurations of the instrument and measurement contexts; that is, it must have quantitative meaningfulness (Fischer, 2004; Koskey, 2009).

Interpretations of quantitative results of a measure of a psychological construct are dependent, however, on qualitative meaning (Fischer, 2004). Therefore, the construction of a measure of a psychological construct is dependent on an underlying theory about that construct (Michell, 2003; Wolfe & Smith, 2007a); in the case of the current investigation, a theory about intention to stay in academia. As stated by Bond and Fox (2007), “recognizing the presence/absence of behavior and ordering observations along a none/some/more/all continuum presumes that some underlying theory is guiding these observations” (pp. 17-18). Therefore, the qualitative exploration and ordering of potential indicators of “intention to stay in academia” preceded examination of the quantitative structure to this variable and contributed to the qualitative meaningfulness of the resulting measure. The Rasch model that allows for the integration of qualitative and quantitative meaning in measure development (Fischer, 2004), was used in this research
as a methodological framework for developing an objective measure of “intention to stay in academia” for PA faculty.

**Rasch measurement.** Rasch measurement methodology has been applied in hundreds of studies published in many fields and has also been used in many professional certification examination processes (Bond & Fox, 2007; Fischer, 2004), including, interestingly, the certification examination for physician assistants (National Commission on Certification for Physician Assistants, n.d.). Fear of falling in older adults (Velozo & Peterson, 2001), public policy involvement of nutrition professionals (Boardley, Fox, & Robinson, 1999), student satisfaction with college (Beltyukova, 2002), client satisfaction with public schools (Bond & King, 2003), understanding of irony in poetry (M. W. Smith, 1990), patient quality of life (Badia, Arribas, Ormaetxe, Peinado, & de los Terreros, 2007), and children’s empathetic attitudes (Funk, Fox, Chan, & Curtiss, 2008) are just a sampling of the wide variety of psychological constructs that have been measured or examined with the Rasch method.

The Rasch analysis guides researchers in the construction of linear scales of additive, equal interval units of measurement from raw scores or observations. Raw data are used by the Rasch analysis to estimate probabilities of responses, which are then logarithmically transformed into an interval scale and expressed in units called logits. In other words, ordinal data from individual responses to items that are conceptualized to be indicators of the construct of interest are converted into a scale that yields interval data, and person and item estimates are placed on the same logit scale (Bond & Fox, 2007). As stated by George Rasch, the originator of the method:
a person having a greater ability than another person should have the greater probability of solving any item of the type in question, and similarly, one item being more difficult than another means that for any person the probability of solving the second item is the greater one (as cited in Bond & Fox, 2007, p. 10).

The person ability estimate is then a measure of the revelation of the construct in that person (Bond & Fox, 2007). In this study, person ability should reflect “intention to stay in academia,” and items that are more difficult to endorse should reflect more of this construct or stronger intention and vice versa.

Because meaningful measurement of a psychological construct assumes an underlying theory about that construct (Bond & Fox, 2007), conceptualization of “intention to stay in academia” for PA faculty preceded instrument development. Conceptualization led to the development of items, which were qualitatively ordered. This qualitative ordering of items from “easiest to endorse” to “most difficult to endorse” resulted in a theoretical construct map of “intention to stay in academia,” reflecting the perceived continuum of item difficulty as conceptualized by those who are knowledgeable about the construct. The Rasch analysis was then used to validate the theoretical construct map, thus contributing evidence of the validity of the measure (validity is discussed in Chapter 3).

Just as measures in the physical sciences assess only one dimension at a time (e.g., height, weight, etc.), so measures of human behavior are useful only if they measure a single attribute (Bond & Fox, 2007; Thurstone, 1928; Wright, 1994). Unidimensionality, or the measurement of one attribute at a time, is an underlying principle of the Rasch method (Bond & Fox, 2007; Wright, 1994). The Rasch
measurement model conceptualizes a latent variable (or a construct) as a straight line, or a “more/less” continuum in which a person with “more” of the latent variable can endorse more difficult items than can a person with “less” of the latent variable. A commonly used analogy is that of a ruler. Applied to the construct of “intention to stay in academia,” such a ruler created by the Rasch analysis would have items that span the continuum from reflecting the least “intention to stay in academia” (easiest to endorse) at the bottom of the ruler to the most “intention to stay in academia” (most difficult to endorse) at the top of the ruler. Faculty could then be placed along this ruler to measure their likelihood of staying in academia, given the items they endorse. In other words, a faculty member with more “intention to stay in academia” should score higher than a faculty member with less “intention to stay in academia,” and the difference between them can be meaningfully understood in terms of behaviors or indicators that separate them. It is the equal interval units created by the Rasch analysis that allow for the ordering and comparisons of both respondents and items along this single continuum.

A latent trait is unidimensional to the extent that the data fit the expectations of the Rasch model. Fit statistics produced by the Rasch analysis allow for assessment of unidimensionality by identifying items that do not fit the construct or persons that diverge significantly from the expected performance (Bond & Fox, 2007). “Whether a particular kind of data can be disciplined to follow the Rasch process can only be discovered by applying the process to the data and examining the consequences” (Wright, 1983). The construction of a useful measure of “intention to stay in academia” in this study could be inferred if the data were to fit the Rasch model to form a unidimensional and hierarchical measure of the construct. Only then could useful inferences about the intention of current
PA faculty in the U.S. to stay in academia be made. A more detailed discussion of the fit statistics and other indices produced by the Rasch analysis is included in the next chapter.

**Chapter Summary**

A review of current theory and research regarding faculty retention presented in this chapter emphasized the lack of literature on PA faculty retention. Hence the literature review was expanded to include research from the areas of health professions education and general higher education. The theoretical works of Barnes, et al. (1998), Johnsrud and Rosser (2002), Rosser (2004), Matier (1990), and Smart (1990) provided a theoretical framework for the incorporation of a broad range of individual, structural, and contextual factors into the operationalization of “intention to stay in academia” in this proposed study. The work of Matier (1990), specifically, was reviewed to provide the basis for a classification framework for factors conceptualized to be relevant to PA intention to stay in academia. Evidence from Xu’s (2008a) research was included to support the argument that the discipline-specific context of PA education might be an important factor in the operationalization of this variable.

Four major research approaches to faculty retention in the current literature were also reviewed. These included: (a) studies of faculty job satisfaction (see, for example, Chung, et al., 2010; Conklin & Desselle, 2007a; Hagedorn & Sax, 2003); (b) studies of faculty reasons for leaving or staying (see, for example, Shepherd, et al., 2001; Weiler, 1985); (c) studies of faculty retention interventions (see, for example, Ries, et al., 2009; Taylor & Berry, 2008); and (d) studies of faculty turnover intentions (see, for example, Barnes, et al., 1998; Conklin & Desselle, 2007b; Garbee & Killacky, 2008). Only two of these approaches have been used to study PA faculty: Boeve (2007) studied PA faculty
job satisfaction and Hills and Dieter (2010) reported the outcome of a single faculty retention intervention.

Existing operationalizations of intention to stay were found to be inadequate for the measurement of this construct due to (a) the inadequacy of a single question to express the full range of the variable, (b) the lack of validity of the questions or scales used in these studies, and (c) the lack of an interval scale of equal units of measurement. Therefore, the conclusion was drawn that there was not a precedent in the literature for appropriate interval measurement of the variable of “intention to stay in academia.”

Finally, the measurement of a psychological construct through probabilistic inferences from observations of potential indicators of the construct (Linacre, 2005; Wolfe & Smith, 2007a; Wright, 1994) was introduced along with the Rasch model. The latter served as a methodological framework for this research because it allows researchers to construct a linear scale of equal interval units of measurement suitable for inference. Not all psychological constructs are measureable (Michell, 2003), but if the data obtained in this study were to fit the Rasch model to form a hierarchical, unidimensional, and qualitatively meaningful measure of “intention to stay in academia,” then useful inferences could be drawn about the intentions of current PA faculty in the U.S.
Chapter Three

Research Design and Methodology

In an effort to determine if the intention of PA faculty to stay in academia could be meaningfully measured, this study was conducted in four phases: (a) Construct Conceptualization, (b) Measure Development, (c) Pilot Testing, and (d) Calibration and Validation. This sequence of steps is commonly followed by researchers who use Rasch methodology to construct measures of psychological attributes (see, for example, Badia, et al., 2007; Frantom, 2001; Hibbard, Stockard, Mahoney, & Tusler, 2004). The framework for validation of the measure is presented first, followed by a detailed discussion of each phase of the study. The chapter concludes with a discussion of the limitations and delimitations of the study.

Measure Validation Framework

Validity of the measure developed in this research was evaluated using Wolfe and Smith’s (2007a, 2007b) interpretation of Messick’s (1995) definition of validity as “an overall evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions on the basis of test scores and other modes of assessment” (p. 741). In keeping with this view of validity as a unified concept for which evidence is collected, validation of the measure of PA faculty “intention to stay in academia” involved examination of multiple aspects of validity. Table 1 shows where evidence of validity was sought in this investigation. Table 2 presents the research questions that were raised to generate each type of validity evidence.
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<td>Substantive validity</td>
<td>Expert reviewers’ comments on construct relevance of items</td>
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<td>Person fit indices</td>
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<td>Structural validity</td>
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<td>Instrument administration to all PA faculty in U.S. in Phase IV</td>
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<td>Differential item functioning analysis by doctoral preparation</td>
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<td>External validity</td>
<td>Examination of person separation statistics</td>
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<tr>
<td>Interpretability</td>
<td>Inferences about the construct from person-item maps</td>
</tr>
</tbody>
</table>

*Note.* Content validity addresses technical quality and construct relevance of items. Substantive validity addresses the degree to which the construct theory explains the data. Structural validity deals with whether the scoring structure represents a unidimensional construct structure. The generalizability aspect of validity refers to the consistency of the meaning of person and item measures across contexts. External validity covers the applied utility and criterion relevance of a measure, in addition to what has traditionally been known as convergent and discriminant validity. The interpretability aspect of validity refers to the degree to which measure meaning is clearly interpretable. Definitions are adapted from Wolfe and Smith (2007a, 2007b).
Table 2
Alignment of Research Phases, Questions, and Types of Validity

<table>
<thead>
<tr>
<th>Research Phase</th>
<th>Research Question</th>
<th>Type of Validity Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>RQ1. How is the construct of “intention to stay in academia” conceptualized in the higher education literature?</td>
<td>Content validity</td>
</tr>
<tr>
<td>I, II</td>
<td>RQ2. How is the construct of “intention to stay in academia” conceptualized by experienced physician assistant educators?</td>
<td>Content validity</td>
</tr>
<tr>
<td>III, IV</td>
<td>RQ3. Is there a meaningful theoretical relationship among the items comprising the construct of “intention to stay in academia?”</td>
<td>Substantive validity</td>
</tr>
<tr>
<td>III, IV</td>
<td>RQ4. Is there evidence that the items on the instrument provide a quantifiable measure of the construct of “intention to stay in academia?” (See sub-questions below.)</td>
<td>Reliability and generalizability aspect of validity</td>
</tr>
<tr>
<td>III, IV</td>
<td>RQ4.1. Do the data fit the Rasch model expectations for a unidimensional construct?</td>
<td>Structural validity</td>
</tr>
<tr>
<td>III, IV</td>
<td>RQ4.2. Do the items in the instrument provide acceptable coverage of the construct?</td>
<td>Substantive validity</td>
</tr>
<tr>
<td>III, IV</td>
<td>RQ4.3. Does the progression of item difficulty in the data reflect the theoretical hierarchy of item difficulty in the construct map?</td>
<td>Substantive validity</td>
</tr>
<tr>
<td>III, IV</td>
<td>RQ4.4. Does the instrument demonstrate adequate internal reliability estimates for persons and items?</td>
<td>Reliability and generalizability aspect of validity</td>
</tr>
<tr>
<td>IV</td>
<td>RQ4.5. Do items function in the same way for faculty who have or are pursuing a doctoral degree as for those who are not?</td>
<td>Generalizability aspect of validity</td>
</tr>
<tr>
<td>IV</td>
<td>RQ4.6. How many distinct groups can be differentiated along the continuum of “intention to stay in academia?”</td>
<td>External validity</td>
</tr>
<tr>
<td>IV</td>
<td>RQ4.7. What useful inferences can be made about the intention of current PA faculty in the U.S. to stay in academia?</td>
<td>Interpretability aspect of validity</td>
</tr>
</tbody>
</table>

Note. The specific research questions raised in each phase of the investigation allowed for collecting evidence of content validity, substantive validity, structural validity, the generalizability aspect of validity, external validity, and the interpretability aspect of validity.
Six aspects of validity that were outlined by Wolfe and Smith (2007a, 2007b) and were assessed in this study included: content validity, substantive validity, structural validity, generalizability, external validity, and interpretability. As seen in Table 1, evidence of content validity that “addresses the relevance and representativeness of the content upon which the items are based and the technical quality of the items” (Wolfe & Smith, 2007a, p. 99), was demonstrated through the use of relevant literature and the involvement of experienced PA educators in the construct conceptualization, as well as multiple reviews of the technical quality of items in the item development and pilot testing phases. Evidence of substantive validity, which addresses the degree to which the construct theory explains the observed responses, was obtained by examining the theoretical meaning of the item hierarchy generated from the data in the pilot and final stages of the research. Evidence of structural validity that deals with the scoring structure and is assessed by determining whether this structure conforms to the construct’s dimensional structure, was also collected in the pilot and final stages of the research by examining if the Rasch model expectations for unidimensionality in the data were met (Wolfe & Smith, 2007a). This involved an investigation of fit statistics and principal component analysis (PCA) of residuals.

As further seen in Table 1 and Table 2, evidence of generalizability that refers to the consistency of the meaning of measures across contexts (Wolfe and Smith (2007a, 2007b), was demonstrated by the examination of internal reliability estimates for persons and items, especially using the data from the national administration of the instrument to
all PA faculty in U.S. in Phase IV. Additional evidence of generalizability was sought by evaluating whether the items on the instrument functioned in the same way for faculty who were doctorally prepared as for faculty who were not doctorally prepared. The rationale for this comparison is discussed later in this chapter in the section on Phase IV of this investigation.

External validity within the given framework subsumes what traditionally has been known as convergent and discriminant validity, and also “includes criterion relevance and the applied utility of measures” (Wolfe & Smith, 2007a, p. 99). Wolfe and Smith discussed several ways in which evidence for external validity could be collected, including demonstrating changes in individual person measures after an intervention. Although the latter was beyond the scope of this study, the discriminatory ability of the measure was documented as “evidence relating to the external aspect of validity” (Wolfe & Smith, 2007b, p. 223). This was accomplished by identifying the number of distinct groups of respondents that could be differentiated along the continuum of intention to stay in academia. This provided preliminary evidence that further external validation of the measure was possible and warranted.

Finally, the evidence in support of the interpretability aspect of validity, defined as “the degree to which the meaning of measures is clearly communicated to those who want to interpret the measures” (Wolfe & Smith, 2007b, p. 227), was demonstrated through the display of a person-item map and discussion of the usefulness of inferences that stakeholders in PA education could make about the intention of PA faculty to stay in academia when using the measure developed in this study. Person-item maps, which
allow for the visualization of both respondents and items along the variable continuum, are discussed in greater detail later in Chapter 4.

In summary, to fulfill the goal of the study and determine if a meaningful measure of “intention to stay in academia” had been developed, the researcher answered four major research questions. These questions were formulated such that the evidence of content validity, substantive validity, structural validity, generalizability, external validity, and interpretability could be collected and used by the researcher to make an evaluative judgment about the overall quality and meaningfulness of the developed measure of PA faculty “intention to stay in academia” at the conclusion of the research. A detailed discussion of each of the four phases of the study that follows clarifies the procedures of data collection and methodology of data analysis that were employed to answer each research question and collect evidence of each type of validity.

**Phase I: Construct Conceptualization**

The process of developing a measure of “intention to stay in academia” for PA faculty started with exploring how the construct of “intention to stay in academia” was operationalized in the relevant higher education literature (RQ1) and defined by experienced PA educators (RQ2). Both steps were necessary and are commonly used in the development of measures of psychological constructs in that a literature review and expert input into the topic allow for generating a list of potential observable indicators of the construct (Wolfe & Smith, 2007a). Phase I concluded with the comparison of the indicators from the literature review and interviews, which resulted in a composite list of potential observable indicators of “intention to stay in academia” that served as the basis for measure development in Phase II.
Conceptualization of “intention to stay in academia” in the literature. The review of the existing literature conducted in Phase I was different from that presented in Chapter 2 in that the previous chapter included a broad overview of faculty retention theories and methodological approaches of higher education researchers to faculty retention while Phase I of this research focused on developing a list of factors that were potentially relevant to PA faculty retention and could represent observable indicators of PA faculty intention to stay in academia.

Because of the importance of discipline-specific considerations in faculty retention (Xu, 2008a), the literature review in Phase I began with the health professions literature to identify factors that were important to the retention of health professionals in academic positions. PubMed, CINAHL, and Dissertation Abstracts were searched using the terms “faculty” AND “retention” OR “turnover” OR “intention” OR “satisfaction” to find relevant articles. The reference lists of relevant articles were also reviewed. The same search was then expanded to ERIC and Education Research Complete to identify factors that were important to the retention of faculty in higher education in general. Because of the focus of the current study on intention to stay in academia as opposed to intention to stay in a current position, the general higher education portion of this literature review was limited to studies that primarily examined retention in academic careers as opposed to retention in current institutions.

The resulting list of factors that the researcher considered possibly relevant to “intention to stay in academia” for PA faculty was organized according to the expanded Matier’s (1990) classification framework discussed in Chapter 2. The three major categories were: (a) individual factors, or characteristics of an individual that might play
a role in intention to stay in academia; (b) internal environmental factors, or characteristics of academia, the academic role, or the academic environment; and (c) external environmental factors, or non-work related issues. The category of internal environmental factors was further divided into tangible factors and intangible factors (see Figure 1).

**Conceptualization of “intention to stay in academia” by PA faculty.** Given that the conceptualization of “intention to stay in academia” for PA faculty through a literature review was limited by the lack of literature available on PA faculty and that “intention to stay in academia” had not yet been adequately measured, the input of PAs who were in academia was vital to the process of exploration of the meaning of “intention to stay in academia” for PA faculty. As the second step in Phase I, experienced PA faculty were interviewed to further expand and co-validate the list of potential indicators of the construct. Experienced PA educators were preferred over inexperienced PA educators because of their potential to better contribute to the conceptualization of the construct. In fact, experienced PA educators were considered to be content experts regarding PA faculty, and thus their input was vital to establishing the content validity of the measure. Furthermore, because it is difficult to locate faculty members once they have left academia and given that their response rates are typically low (Johnsrud & Rosser, 2002), the input of PAs who had left academia was not sought in this investigation. Not only might PA faculty who have left academia have little motivation to contribute to faculty retention research, but they might not have a good understanding of why other PAs intended to stay in academia.
The principles of appropriateness (i.e. finding faculty who could best inform the construct conceptualization) and adequacy (i.e. having enough data to develop the construct or to reach saturation) guided the sampling decisions (Morse & Field, 1995) and selection of experienced PA faculty to serve as content experts. Purposeful sampling, a type of nonprobability sampling in which the researcher selects “a sample from which the most can be learned” (Merriam, 2009, p. 77), was employed in order to find faculty who were “information-rich” (Patton, 2002, p. 230) and could best inform the conceptualization of “intention to stay in academia.” Similar to the literature search, interviewing continued until saturation was reached.

Purposeful sampling began with the development of inclusion criteria for content expert selection. These criteria guided the researcher in identifying information-rich cases. Three inclusion criteria for selecting experts in this study were used: (a) being in a full-time position in PA education for at least 10 years, (b) being eligible to practice clinically as a PA, and (c) being in a different program than faculty already selected for this phase. The rationale for the first criterion was to ensure that the faculty member had spent enough time in PA education to understand the culture and had interacted with other PA faculty who had entered into and departed from academia. Because the large majority of PA faculty had been in PA education for fewer than seven years (PAEA, 2010b), using this criterion in sample selection ensured that selected faculty were relatively senior PA educators. The rationale for the second criterion, that the faculty member was eligible to practice clinically as a PA, ensured that the he or she had the ability to practice clinically, and therefore may have had more insight into why some PAs persist in academia (rather than return to clinical practice) than a faculty member who
was not a PA, or who had not maintained certification to practice as a PA. The final criterion, that the faculty member was not in the same PA program as those already selected for the study, was to avoid redundancies in the interviews that might have occurred as a result of similar experiences in a single program.

A special form of purposeful sampling, network sampling, was employed. The researcher contacted a few PA faculty who met all three inclusion criteria and asked for referrals to other experienced PA faculty who met the same criteria and had the potential to contribute to the study (Merriam, 2009). Efforts were made to select content experts from a wide range of geographic regions and institution types. Potential experts were contacted by email to discuss the goals of the research, confirm their willingness to participate in the study, and establish the interview date and time.

**Interview data collection procedures and analysis.** In order to generate as many potential construct indicators as possible in the discussion, a semi-structured interview format was used. Semi-structured interviews are guided by a list of questions or issues without a set wording or sequence (Merriam, 2009). Thus, the interview protocol for this proposed study contained a mix of structured questions, open-ended questions, and question stems that were used flexibly in the interview process. The researcher adopted the emic (insider’s) perspective in these interviews because the goal was to understand “intention to stay in academia” from the perspective of PAs who were currently in academia. Exploratory methods were used in that the data were gathered to conceptualize a construct. Example questions included:

- Tell me about your choice to become a full-time PA faculty member.
• Think about PA faculty who you have interacted with over the years who have been in academia long-term and will likely persist in academia until retirement. How would you describe them?

• Can you think of anything else that differentiates those PAs who stay in academia long-term from those who return to clinical practice after a few years?

Prior to beginning the interviews, the University of Toledo Department for Human Research Protections Social, Behavioral, and Educational Institutional Review Board (UT SBE IRB) was contacted with the interview protocol (see Appendix A) and study design. Because the purpose of the research was to develop an instrument rather than to study the interviewees specifically, the UT SBE IRB requested that an application for approval of the study be submitted after the interviews had been conducted, when an instrument had been developed.

The interviews were conducted via phone at the established times. The researcher began each interview by restating the purpose of the research to the expert and obtaining verbal consent to participate. The interview was then conducted according the interview protocol (see Appendix A). The researcher recorded the calls and took notes during the interviews, capturing both potential indicators of “intention to stay in academia” for PA faculty and key expressions, terms or phrases, some of which were later used to craft items for the instrument. The purpose of recording was to allow the researcher to access and review the interview data and extract more information if needed. As previously stated, the interviews were conducted until saturation was reached, that is, until new information was no longer emerging (Merriam, 2009).
Analysis of the interview data was initiated after the first couple interviews and was ongoing through the completion of the final interview. The extracted data were coded in terms of potential observable indicators of “intention to stay in academia” for PA faculty. Whenever possible, the same coding terminology was applied as in the classification of factors identified in the literature review. The codes were then further categorized according to the expanded Matier’s (1990) classification framework. Thus, the analysis was both inductive, in that data was gathered to conceptualize a construct, and deductive, in that a predetermined categorization scheme was applied. Examples of coding are presented in Chapter IV as part of the results of Phase I.

**Composite construct conceptualization.** In order to develop a composite list of potential indicators of PA faculty “intention to stay in academia” for use in measure development in Phase II of the study, data from the literature review and the interviews were reviewed and compared. Retention of an indicator for inclusion in the measurement of “intention to stay in academia” was based on the frequency and consistency with which the indicator was identified in the literature and/or the interviews, as well as based on its potential to be captured by a survey (*i.e.* that the indicator was concrete enough to be assessed with a survey question). Factors or indicators that emerged frequently in the literature, the interviews, or both, were retained. When inconsistencies in construct conceptualization among experts occurred, the potential indicator in question was not retained for Phase II due to the lack of clarity regarding its relevance and the possibility that there might be too much variance among PA faculty with how that particular indicator contributed to their intention to stay to make it useful in a measure. However, if the indicator that the experts disagreed on was strongly represented in the literature
related to health professions faculty retention, it was retained for measure development in Phase II.

In summary, qualitative nature of the data collection and analysis in Phase I allowed for identifying factors that were related to health professions faculty retention in the literature and for understanding how PAs who were currently in academia made sense of not only their own intentions to stay in academia, but also the intentions of other faculty who they had come in contact with over the years. Thus, Phase I provided preliminary evidence of content validity for the measure and resulted in a list of potential observable indicators of “intention to stay in academia” that became the basis for survey construction in Phase II.

**Phase II: Measure Development**

During the second phase of the study, the factors that were retained from the composite conceptualization of the construct in Phase I were transformed into survey items. These items were reviewed by experts for quality, construct relevance, and hierarchical ranking. In order to have a sizeable pool of potential survey items, multiple items were created for some of the indicators that emerged most frequently in Phase I. The goal was to create an instrument in which items would range from difficult to endorse (*i.e.* only faculty with the most intention to stay in academia could endorse those items), to mid-range items (*i.e.* the items that would be endorsed by all faculty except those with the lowest levels of intention to stay) to easy items (*i.e.* the items that almost all faculty could easily endorse).

Item development was guided by Wolfe and Smith’s (2007a) methodology for instrument development. They presented 13 general guidelines for constructing items.
Examples of these guidelines are: (a) “avoid absolutes such as ‘all,’ ‘none,’ always,’ and ‘never’”; (b) “avoid suggesting a particular answer (Do you agree that…?)”; and (c) “avoid double-barreled items and compound sentences” (p. 115). Regarding response categories for items, Wolfe and Smith stated their preference for an even number of response categories. In particular, they suggested avoiding a neutral middle category that could be preferred by respondents who felt compelled to respond to a question but were not willing to indicate an opinion, or by respondents for whom the question was not applicable. They additionally recommended using five or fewer response categories due to the fact that respondents might be unable to reliably differentiate more than five categories. After considering these suggestions and experimenting with different response scales, a 4-point Likert scale of “strongly agree,” “agree,” “disagree,” and “strongly disagree” was deemed to be the most consistently appropriate for the items, with the response of “not applicable” added when necessary.

**Expert review of survey items.** Six of the content experts from Phase I participated in the measure development phase of the study by serving as expert reviewers of the instrument. Wolfe and Smith (2007a) defined expert reviewers as those who were “particularly familiar with the construct in question…and those who [were] likely to use the information provided by the instrument in applied settings” (p. 117). Experienced PA faculty satisfied this definition of expert reviewers; they were deemed knowledgeable about why PA faculty stayed in academia and had the potential, as relatively senior faculty, to be involved in PA faculty retention efforts. The goals of expert review were identification of construct-irrelevant items, determination of item
quality, and establishment of the theoretical hierarchical ordering of items. The expert review and consensus procedures used in this study were adapted from Frantom (2001).

Following Frantom’s (2001) procedure, the expert reviewers were emailed a review form of potential survey items. For each item, the reviewer was asked to indicate (*i.e.* mark ‘yes’ or ‘no’) whether the item was relevant to “intention to stay in academia” for PA faculty. Items that received at least four votes for being relevant to the construct were retained; items receiving fewer than four votes were discarded. This elimination of construct-irrelevant items through expert review contributed evidence of the substantive validity of the measure (Bagheai, 2008; Wolfe & Smith, 2007a).

The reviewers were also asked to rate the perceived difficulty of each item. Items marked as difficult, for example, were those items that theoretically could be endorsed only by respondents who had the most “intention to stay in academia.” Items marked as easy were those items that the reviewers perceived that most PA faculty could easily endorse. Items that received a minimum of three votes from the reviewers for a level of difficulty – easy, moderate, or difficult – were classified in that category (Frantom, 2001). The researcher used these ratings to develop a theoretical construct map of “intention to stay in academia” for PA faculty. The input of the expert reviewers into the construct map development provided further evidence of the substantive validity of the measure (Wolfe & Smith, 2007a, 2007b).

Finally, the reviewers were asked to comment on the technical quality of items. Specifically, they were asked to identify items that were poorly worded, unclear, or biased. They were also asked to identify items that could be misinterpreted and to provide alternate wording. Items identified by the reviewers as being of poor quality
were reworded or discarded, based on the reviewers’ comments (Frantom, 2001). This procedure of expert review of the technical quality of items supplied additional evidence of the content validity of the measure (Wolfe & Smith, 2007b).

**Phase III: Pilot Testing**

The third phase of the study involved pilot testing the instrument developed in Phase II. The primary purposes of pilot testing were to empirically test the quality of the individual items in the instrument, feasibility of the instrument format, and adequacy of the construct coverage (Wolfe & Smith, 2007a). This phase also provided preliminary answers regarding whether the items on the instrument formed a meaningful hierarchy (RQ3) and comprised a quantifiable measure of PA faculty “intention to stay in academia” (RQ4), although these questions were more thoroughly addressed in Phase IV when the instrument was administered on a larger scale.

The instrument was converted into an electronic format using SurveyMonkey® online survey software. Demographic questions and an open-ended question asking participants to comment on any items that were unclear were added to the end of the survey. Permission to collect data was obtained from the UT SBE IRB. Appendix B contains the approval letter, Appendix C is the approved consent email, and Appendix D is the approved pilot instrument. The survey was administered to a convenience sample of 53 PA faculty from nine PA programs (the use of a convenience sample is generally accepted for the pilot testing of an instrument [Wolfe & Smith, 2007a]). All the participants received an email outlining the purpose of the research and a statement of informed consent. The participants were informed that clicking the survey link indicated
their consent to the study terms (see Appendix C). Reminder emails were sent at 10 and 22 days to those participants who had not yet responded.

**Pilot data analysis.** The pilot data were analyzed with Winsteps® software (Linacre, 2011a) using the Rasch-Andrich rating scale model (Andrich, 1978). This model is used when all the items are on the same scale, as was the case in this investigation. Rating scale category functioning, item-measure correlations, fit statistics, and internal reliability estimates were examined (these are discussed in detail next), and the instrument was further refined based on the obtained results. The data were also analyzed to determine if an adequate coverage of the construct of “intention to stay in academia” had been achieved, and if the hierarchy of item difficulty had a theoretical meaning. Additionally, comments from respondents about item clarity were reviewed, and items were modified as needed. The opportunity for pilot participants to comment on the technical quality of items contributed further evidence of the content validity of the instrument (Wolfe & Smith, 2007b).

**Category functioning.** The purpose of inspecting the rating scale category functioning in the Rasch analysis was to determine if the chosen 4-point response scale was functioning as intended, that is, if the categories were distinct and used by respondents consistently. For this purpose, the average measure for each response category was examined. The average measure is defined as the average of person measures in logits, calculated across all items, for persons who chose a particular response category (Bond & Fox, 2007). If the 4-point Likert response scale used in the instrument was functioning appropriately, then the average measures would increase in
size as the level of item endorsement increased (e.g., the average measure would be higher for “strongly agree” than for “agree”).

**Item-measure correlations.** The item-measure correlations, also called point-measure correlations, were examined for each item in the pilot instrument to determine “the degree to which the scores on a particular item [were] consistent with the average scores across the remaining items” (Wolfe & Smith, 2007b, p. 206). Positive item-measure correlations were desirable because they indicated that higher ratings of an item correlated with higher person measures/scores. Negative item-measure correlations indicated problematic items in that responses to those items contradicted the latent variable’s direction (Linacre, 2010). Small positive correlations were interpreted as an indication that an item was either very easy or very difficult to endorse and might not be functioning in the same way as the other items. An arbitrary cut-off of 0.4 was used for flagging items that needed further investigation. Using this guideline suggested by Wolfe and Smith (2007b), any item with an item-measure correlation of <0.4 was flagged for review to confirm that it was properly scored and worded and to determine if it should be retained in the final phase of the study. This process of evaluating the technical quality of the items through the examination of item-measure correlations further informed of the content validity of the measure (Wolfe & Smith, 2007b).

**Fit statistics.** Fit statistics produced by the Rasch analysis were used to identify items in the instrument that deviated from the expectations of the Rasch model. The Rasch model is the theoretical ideal in which items that reflect more of the construct or trait (e.g., intention to stay in academia in this study) are more difficult to endorse than items that reflect less of the construct. Fit statistics provide a quality-control method for
ensuring construct relevance of the items in the instrument. An item with a mean square fit value of 1.0 fits the model perfectly (Hibbard, et al., 2004). A fit statistic of >1.0 indicates “underfit,” or more variability in responses than expected, while a fit statistic of <1.0 indicates “overfit,” or less variability in responses than expected (Linacre, 2010). Winsteps® provides two types of fit statistics: infit and outfit. Outfit is sensitive to outliers; therefore, reasons for large outfit statistics are usually easy to identify (Linacre, 2010). Large infit statistics, however, indicate unexpected deviations in person responses and are problematic because they may be indicating that an item is not measuring the construct of interest (Linacre, 2010). A reasonable fit range for items on a Likert-type scale is 0.6-1.4 (Bond & Fox, 2007), although values of >2.0 are of the greatest concern because they distort or degrade measurement (Linacre, 2010). Therefore, in the analysis of the pilot data, items with a fit index of >1.4 were flagged for review, with a particular focus on the items with a fit index of >2.0.

Misfit may simply indicate that an item has been miskeyed or is poorly worded (Wolfe & Smith, 2007b). Therefore, flagged items were reviewed to determine if they could be adequately modified. However, misfit may also represent multidimensionality in the data, indicating that items need to be discarded or that the construct theory needs to be revisited (Bagheai, 2008; Wolfe & Smith, 2007b). The items that fit the Rasch model expectations “are likely to be measuring the single dimension intended by the construct theory” (Bagheai, 2008, p. 1145). Thus, an evaluation of fit statistics in the pilot data was used to generate initial evidence of the structural validity of the measure. Additionally, item fit evaluation allowed the researcher to ensure the technical quality of
the items in the instrument, thus providing further evidence of content validity (Wolfe & Smith, 2007b).

Evidence of substantive validity was obtained by conducting fit evaluation for the persons (the Rasch analysis provides the same fit statistics for persons as for the items). In this study, the expectation of the Rasch model was that PA faculty with the most intention to stay in academia would more strongly endorse more difficult items than those with less intention to stay and vice versa. The evaluation of person fit statistics in the pilot data provided evidence of substantive validity by confirming that the person responses fit the expectations of the Rasch model (Wolfe & Smith, 2007b).

**Internal reliability estimates.** Reliability estimates were examined for the evidence of the replicability of the person and item ordering along the variable continuum. Reliability refers to the reproducibility of a measure. The Rasch analysis provides internal reliability estimates for items and persons that range from 0.0-1.0 (Schumacker & Smith, 2007). Person reliability refers to the reproducibility of the person ordering in the sample (Bond & Fox, 2007), or “the proportion of total sample variability… that is not measurement error” (Hibbard, et al., 2004, p. 1014). Likewise, item reliability refers to the reproducibility of the item difficulty calibrations (Bond & Fox, 2007). Reliability estimates closer to 1.0 are desirable because they indicate a good spread of persons and items along a continuum. According to Linacre (2010), a reliability of 0.5 is the lowest meaningful reliability, while 0.8 is the lowest reliability that should be accepted for serious decision-making. A low item reliability may indicate the need for a larger sample, while a low person reliability may indicate the need for more items in the instrument (Linacre, 2010). Adequate item and person reliability
estimates would support the generalizability aspect of validity for the measure (Wolfe & Smith, 2007b) because they would provide evidence of the replicability of the person and item ordering given different configurations of persons or items (i.e. if the same sample were given a different instrument measuring the same construct or if another sample of PA faculty were given the same instrument; Beltyukova, 2010).

**Construct coverage.** Finally, a person-item map was generated by the Rasch analysis of the pilot data in order to visually inspect the adequacy of construct coverage by the instrument and to examine whether the hierarchy of the items on the map was meaningful, thus contributing further to the evaluation of the substantive validity of the measure of PA faculty “intention to stay in academia.” The pilot study person-item map is presented in Chapter 4, along with guidelines for the interpretations of such maps in Rasch analyses.

The adequacy of construct coverage was considered, along with the other evidence from the pilot data analysis outlined above, in determining whether revisions needed to be made to the instrument at the conclusion of Phase III. Decisions to retain, discard, add, or reword items in the instrument were based on strength of the item-measure correlations, item fit, construct coverage, pilot participant comments, and further consideration of item wording by the researcher. Such revisions were made as necessary in order to prepare the instrument for a larger scale administration in Phase IV.

**Phase IV: Calibration and Validation**

The final phase of the study was conducted for the purposes of calibration and validation of the measure. An item calibration indicates how much of a latent trait a respondent must display in order to endorse that item (Hibbard, et al., 2004). Thus, in the
current investigation an item calibration indicated how much intention to stay in academia a respondent displayed. The same Rasch analysis as in Phase III was carried out to calibrate item difficulties and to collect evidence of all six aspects of validity that comprised the validation framework used in the study (see Tables 1 and 2). Thus, Phase IV allowed the researcher to complete answering the research questions of the study and to make an evaluative judgment regarding the validity of the developed measure of PA faculty “intention to stay in academia.”

**Phase IV participants and procedures.** Email addresses for current PA program faculty with physician assistant credentials (as opposed to medical doctor or other credentials) were obtained from the PAEA, and all 1002 eligible faculty were invited to participate. This administration of the survey to the entire population of interest, as opposed to a sample, enhanced the possibility of generating evidence of the generalizability of the measure.

As in Phase III, all the participants received email invitations that contained the purpose of the research, a statement of informed consent, and the survey link; the participants were informed that clicking the survey link indicated their consent to the study terms. Although responses were not anonymous, confidentiality was assured, and multiple efforts were made to ensure an adequate response rate. Given that pre-notices can increase overall survey completion rates (King, Pealer, & Bernard, 2001) and click-through rates of web-based surveys (Manfreda & Vehovar, 2003), an announcement of the study was posted on the PA faculty list serve one week prior to sending out the survey invitations. The invitations contained a statement of university affiliation, since this has been associated with higher survey response rates (King, et al., 2001). Because
individual invitations are also associated with increased response rates (King, et al., 2001; Manfreda & Vehovar, 2003), invitations were personalized with the recipient’s name in the greeting of the email. Reminder emails with the survey link were sent at 12, 22, and 39 days to all invited participants who had not yet responded. The decision to use three email reminders is based on Boeve’s (2007) experience (he had one of the best response rates in recent years to a national survey of PA faculty, used both a pre-notice and three reminder emails in his study, and noted a significant increase in the number of responses he received on days that he sent the email reminders [W. Boeve, personal communication, 2010]).

**Data analysis.** A Rasch analysis of the Phase IV data was conducted using Winsteps® (Linacre, 2011a). Rating scale category functioning, item-measure correlations, fit statistics, and internal reliability estimates were examined using the same criteria as stated in Phase III. The validity framework outlined previously in this chapter (see Tables 1 and 2) was used to guide the evaluation of the validity of the measure. In other words, content validity was sought by examining item-measure correlations and the mean square item fit statistics. Item fit indices also aided in the evaluation of the structural validity of the measure (RQ 4.1). Evidence of substantive validity was sought by examining mean square person fit indices, the construct coverage on the person-item map (RQ 4.2), the theoretical meaning of the item hierarchy (RQ 3), and the degree to which the progression of the item difficulty reflected the construct map (RQ 4.3). Reliability and the generalizability aspect of validity were examined through internal reliability estimates for persons and items (RQ 4.4). Additional analyses conducted in Phase IV that were not addressed in Phase III included the person strata index, the Rasch
principal components analysis (PCA) of residuals, and differential item functioning (DIF). These are discussed next and placed in the context of the validation framework.

**Person strata index.** A person strata index was used to demonstrate initial evidence of the external validity of the measure (RQ 4.6). The Rasch analysis provided a person separation statistic (G), an estimate of the spread of persons along the construct continuum (Funk, et al., 2008), which was used to calculate a person strata index (H) via the formula, $H = (4G + 1)/3$ (Wright & Masters, 2002). The person strata index indicated the number of distinct groups of respondents that could be differentiated by the measure (Schumacker & Smith, 2007). This statistic was used to demonstrate the discriminatory power of the instrument by showing how many distinct levels of “intention to stay in academia” could be differentiated among current PA faculty. As explained previously, this provided preliminary evidence of external validity because in order for the measure to detect change in a person measure after a retention intervention, there must be more than one level of “intention to stay in academia” that a PA faculty member can manifest (Wolfe & Smith, 2007b).

**Principal components analysis (PCA).** A Rasch PCA of residuals was conducted in order to further evaluate the structural validity of the measure (RQ 4.1). This analysis allowed for identifying patterns in the parts of the data that did not perform according to the expectations of the Rasch model and was needed to determine if the items on the instrument captured more than one dimension (Beltyukova, 2010; Linacre, 2010). Adequate evidence of unidimensionality would be obtained if at least 50% of the variance were explained by the Rasch factor and a first contrast would have an eigenvalue of less than 3 (Beltyukova, 2010; Linacre, 2011b). Demonstration of
unidimensionality would provide further evidence of the quantifiable nature of the construct of “intention to stay in academia.”

**Differential item functioning (DIF).** Rasch DIF analysis was used to determine if the items performed in the same way for different subgroups within the sample. In a DIF analysis, difficulty estimates of the items obtained for one subgroup within the sample are compared with those for another subgroup. If the items function in the same way for both groups (i.e. are statistically similar in difficulty and maintain the same order), then the measure invariance is inferred (Bond & Fox, 2007). Thus, in this study, a DIF analysis by doctoral status was performed in order to collect further evidence of the generalizability aspect of validity (RQ 4.5).

The subgroups of interest for the DIF analysis were: (a) faculty who had, were pursuing, or were planning to pursue a doctoral degree, and (b) faculty who were not planning to pursue a doctoral degree. Due to the fact that the terminal degree of a PA is a master’s degree, PA faculty who had already obtained a doctoral degree or who were anticipating obtaining a doctoral degree might be doing so because they planned to stay in academia long-term. Demonstrating that the items in the instrument functioned in the same way for faculty in both subgroups would provide evidence of the generalizability of the measure and support the use of the instrument as a measure of “intention to stay in academia” for all PA faculty, regardless of the doctoral status.

In summary, the data analysis in Phase IV, as outlined above, allowed the researcher to evaluate the theoretical meaning of the items comprising the construct of “intention to stay in academia” (RQ 3) and to determine the extent to which a linear measure had been extracted (RQ 4). The analysis would be repeated if insufficient
evidence of validity were found or if the measure failed to have both quantitative and qualitative meaning.

**Interpretability of the measure.** The interpretability aspect of validity, referenced in RQ 4.7 ("What useful inferences can be made regarding the intention of current PA faculty in the U.S. to stay in academia?") was addressed last because it was dependent on the answers to the prior research questions; valid inferences about the intention of current PA faculty to stay in academia could only be made if the data met the expectations of the Rasch model for unidimensionality and the items adequately represented the construct and made sense as a “ruler.” Inferences here refer to the conclusions that can be drawn about a construct based on a pattern of responses to a set of items (Wright, 1994). If the analysis revealed that “intention to stay in academia” was a quantifiable, or measureable construct, then inferences regarding PA faculty intention to stay in academia would be possible at the conclusion of the study.

Specifically, it would be possible to determine which PA faculty had a strong intention to stay and which ones had a weak intention to stay and identify the *types of indicators* (*i.e.* beyond the specific indicators included on the measure) that might be associated with each level of intention to stay. It would also be possible to infer the likelihood of each individual PA faculty of endorsing certain types of indicators and not endorsing others. This information could be very helpful to stakeholders in PA education, thus allowing them to target individual retention efforts to the types of items that the faculty member was not likely to endorse. Additionally, profiles of PA faculty with varying levels of intention to stay in academia could be developed based on the spread of items along the continuum of intention to stay in academia in the measure. By providing
descriptions of PA faculty with high levels, mid-range levels, and low levels of intention to stay, these profiles could further inform the development of faculty recruitment and retention efforts by stakeholders in PA education. Specific examples of inferences are included in Chapter 4 and specific implications of these inferences for PA faculty retention are discussed in Chapter 5.

**Study Limitations and Delimitations**

The methodology and research design chosen for this study had some inherent limitations and delimitations. While the sampling procedure chosen for the conceptualization phase of this research was designed to yield the most information-rich interviews, it is possible that a full range of potential indicators of “intention to stay in academia” for PA faculty was not elicited in those interviews, leading to gaps in the construct theory. It is also possible that reviewers in Phase II may have felt obligated to perceive items as relevant to the construct of “intention to stay in academia” for PA faculty, when perhaps they were indicators of a different construct.

Although the generalizability of the measure was strengthened by the fact that the instrument in Phase IV was administered to all PA faculty in the U.S., the ability to demonstrate external validity, as defined by Wolfe and Smith (2007b), was limited by the lack of an established valid external measure of “intention to stay in academia” or of a similar construct with which this instrument could be correlated. Long-term follow-up of the participants to confirm that inferences about intention to stay in academia were accurate was beyond the scope of the current study.

Finally, prior to actually conducting this study, an explicit theory regarding PA faculty “intention to stay in academia” had not been established, and it was unknown if
the construct of “intention to stay in academia” for PA faculty could be measured. This study began with conceptualization of the construct and progressed to measure development and validation. It was unlikely that a perfectly-functioning measure could be developed from a single iteration of an instrument. Therefore, while this study undoubtedly contributes to current knowledge about PA faculty, multiple future iterations will likely be necessary to improve the quality of the instrument and its suitability for valid inferences about PA faculty intention to stay in academia.
Chapter Four  
Results and Discussion  

This chapter presents the results of the data analyses, both quantitative and qualitative, of all four phases of the study as well as the discussion of the results of each phase. The discussion is guided by the validation framework outlined in Chapter 3 and the theoretical framework presented in Chapters 1 and 2 that was adopted in conceptualization of this research.  

Results and Discussion of Phase I: Construct Conceptualization  

The first phase of this study involved the conceptualization of the construct of “intention to stay in academia” for PA faculty through a review of the relevant higher education literature and interviews of experienced PA educators (content experts). The research questions that were addressed in this phase were raised in order to provide evidence of the content validity of the measure being developed. These research questions were:  

RQ 1. How is the construct of “intention to stay in academia” conceptualized in the higher education literature?  

RQ 2. How is the construct of “intention to stay in academia” conceptualized by experienced PA educators?  

Results of conceptualization of “intention to stay in academia” in the literature. The search of PubMed, CINAHL, and Dissertation Abstracts yielded 41 articles. Most of these were small studies that focused on retention of health professions faculty in a particular discipline, with little consistency in methodology. Expanding the literature search to the databases ERIC and Education Research Complete and searching
for studies of retention of general higher education faculty in academic careers resulted in only two additional references - Barnes, et al. (1998) and Hagedorn (1996) - both of which were previously discussed in Chapter 2. A total of 40 factors that could potentially be relevant to the construct of “intention to stay in academia” were extracted from the literature and then coded as described in Chapter 3. Table 3 displays the results of the literature review.

**Results of conceptualization of “intention to stay in academia” by PA faculty.**

As a second step in the conceptualization process in Phase I, a total of 15 PA faculty were identified through purposeful network sampling to serve as content experts. They were eligible to practice clinically as PAs, ranged from 11 to 33 years of experience in PA education (with a mean of 19 years of experience), and represented 15 different PA programs in the U.S., from different institution types and geographic regions. Characteristics of the experts and their PA programs are presented in Table 4.

Following are three examples of how the interview data were coded and categorized in the data analysis. First, almost all of the experts emphasized the importance of having a mentor in academia to a PA’s intention to stay. These statements were simply coded as “mentor,” which was categorized as an individual factor. In other words, having a mentor in PA education was an individual experience or characteristic that described a PA faculty member who intended to stay in academia. A second example is “multiplication effect.” This is an internal, intangible factor in PA faculty intention to stay in academia that was expressed by Expert #4 as the opportunity academia provided to teach multiple students at one time. This opportunity had "a bigger
Table 3

*Factors Related to Health Professions Faculty Retention in the Literature*

<table>
<thead>
<tr>
<th>Factors</th>
<th>Faculty Groups Studied (Sources)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External Environmental Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>dental hygiene (Ley, 1982); medical (Cropsey, et al., 2008; Levine, Lin, Kern, Scott, &amp; Carrese, 2011; Nyquist, et al., 2000; Shollen, et al., 2009); pharmacy (Conklin &amp; Desselle, 2007b; Spivey, et al., 2009); PT (Radtka, 1993)</td>
</tr>
<tr>
<td>Geography</td>
<td>pharmacy (Conklin &amp; Desselle, 2007b)</td>
</tr>
<tr>
<td>Work-life balance</td>
<td>allied health (Romig, et al., 2011); dental (Haden, et al., 2008); medical (Anderson, et al., 2003; Bickel &amp; Brown, 2005; Chang, et al., 2010; Field, et al., 2011; Levine, et al., 2011; Lowenstein, et al., 2007; Nyquist, et al., 2000); PA (PAEA, 2010c)</td>
</tr>
<tr>
<td><strong>Internal Environmental Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Tangible Factors</td>
<td></td>
</tr>
<tr>
<td>aAcademic rank</td>
<td>medical (Buckley, et al., 2000)</td>
</tr>
<tr>
<td>Benefits</td>
<td>dental (Shepherd, et al., 2001); pharmacy (Conklin &amp; Desselle, 2007b); RT (Beavers, 2010)</td>
</tr>
<tr>
<td>aEducational resources and facilities</td>
<td>dental (Shepherd, et al., 2001); medical (Nyquist, et al., 2000)</td>
</tr>
<tr>
<td>Faculty development</td>
<td>medical (Lowenstein, et al., 2007; Ries, et al., 2009); pharmacy (Taylor &amp; Berry, 2008)</td>
</tr>
<tr>
<td>Flexibility of schedule</td>
<td>allied health (Romig, et al., 2011); dental (Trotman, et al., 2002); PA (Min, 2003; PAEA, 2010c); pharmacy (Spivey, et al., 2009)</td>
</tr>
<tr>
<td>Salary</td>
<td>allied health (Romig, et al., 2011); dental (Froeschle &amp; Sinkford, 2009; Shepherd, et al., 2001; dental hygiene (Ley, 1982); medical (Anderson, et al., 2003; Chung, et al., 2010; Cropsey, et al., 2008; Nyquist, et al., 2000); nursing (Garbee &amp; Killacky, 2008; Gui, et al., 2009b); pharmacy (Conklin &amp; Desselle, 2007b); OT (Cosgrove, 2003); PA (Min, 2003); PT (Radtka, 1993); RT (Swafford &amp; Legg, 2007)</td>
</tr>
<tr>
<td>aSupport for research</td>
<td>allied health (Xu, 2008a); medical (Nyquist, et al., 2000; Shollen, et al., 2009); pharmacy (Conklin &amp; Desselle, 2007b; Spivey, et al., 2009)</td>
</tr>
<tr>
<td>Workload</td>
<td>medical (Anderson, et al., 2003; Nyquist, et al., 2000); PA (PAEA, 2010c); pharmacy (Conklin &amp; Desselle, 2007b)</td>
</tr>
<tr>
<td>Intangible Factors</td>
<td></td>
</tr>
<tr>
<td>Administrative tasks</td>
<td>medical (Field, et al., 2011)</td>
</tr>
</tbody>
</table>

86
<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>allied health (Romig, et al., 2011); medical (Chung, et al., 2010; Nyquist, et al., 2000); nursing (Gui, et al., 2009b); pharmacy (Conklin &amp; Desselle, 2007b; Latif &amp; Grillo, 2001); PA (PAEA, 2010c); RT (Beavers, 2010; Swafford &amp; Legg, 2007)</td>
</tr>
<tr>
<td>Career advancement</td>
<td>opportunity</td>
</tr>
<tr>
<td>Collegiality</td>
<td>allied health (Romig, et al., 2011; Xu, 2008a); dental hygiene (Ley, 1982)</td>
</tr>
<tr>
<td></td>
<td>nursing (Gui, et al., 2009b); PA (Boeve, 2007)</td>
</tr>
<tr>
<td>Institutional culture</td>
<td></td>
</tr>
<tr>
<td>a) Institutional reputation</td>
<td></td>
</tr>
<tr>
<td>Job security</td>
<td>allied health (Romig, et al., 2011; Xu, 2008a); medical (Buckley, et al., 2000; Nyquist, et al., 2000)</td>
</tr>
<tr>
<td>Promotion process</td>
<td>allied health (Calvert, Vaughn, Sullivan, &amp; Garn, 2007); medical (Chung, et al., 2010; Lowenstein, et al., 2007; Nyquist, et al., 2000); PA (PAEA, 2010c)</td>
</tr>
<tr>
<td>Pursuit of learning</td>
<td>allied health (Romig, et al., 2011); dental (Shepherd, et al., 2001)</td>
</tr>
<tr>
<td>Recognition from</td>
<td>allied health (Romig, et al., 2011); medical (Nyquist, et al., 2000); pharmacy (Spivey, et al., 2009)</td>
</tr>
<tr>
<td>colleagues</td>
<td></td>
</tr>
<tr>
<td>Relationships with students</td>
<td>allied health (Romig, et al., 2011); dental (Froschle &amp; Sinkford, 2009); PA (PAEA, 2010c); pharmacy (Spivey, et al., 2009)</td>
</tr>
<tr>
<td>Scholarship</td>
<td>allied health (Calvert, et al., 2007; Romig, et al., 2011); dental (Shepherd, et al., 2001); medical (Levine, et al., 2011; Shollen, et al., 2009); pharmacy (Latíf &amp; Grillo, 2001; Spivey, et al., 2009); PT (Harrison &amp; Kelly, 1996)</td>
</tr>
<tr>
<td>Sense of community</td>
<td>allied health (Romig, et al., 2011); medical (Lowenstein, et al., 2007)</td>
</tr>
<tr>
<td>Support of administration</td>
<td>medical (Anderson, et al., 2003; Lowenstein, et al., 2007); nursing (Garbee &amp; Killacky, 2008); pharmacy (Conklin &amp; Desselle, 2007b); PT (Harrison &amp; Kelly, 1996)</td>
</tr>
<tr>
<td>Support of supervisor</td>
<td>medical (Anderson, et al., 2003; Chung, et al., 2010; Cropsey, et al., 2008; Levine, et al., 2011; Lowenstein, et al., 2007); nursing (Garbee &amp; Killacky, 2008; Gui, et al., 2009b); PA (Boeve, 2007; Min, 2003; PAEA, 2010c); pharmacy (Conklin &amp; Desselle, 2007b); RT (Beavers, 2010; Swafford &amp; Legg, 2007); OT (Cosgrove, 2003)</td>
</tr>
<tr>
<td>Teaching</td>
<td>allied health (Romig, et al., 2011); dental (Schenkein, 2001); medical (Nyquist, et al., 2000); PA (PAEA, 2010c); pharmacy (Conklin &amp; Desselle, 2007a; Latif &amp; Grillo, 2001)</td>
</tr>
<tr>
<td>Time demands</td>
<td>dental (Trotman, et al., 2002); medical (Nyquist, et al., 2000; Shollen, et al., 2009); nursing (Garbee &amp; Killacky, 2008)</td>
</tr>
<tr>
<td>Variety of work</td>
<td>PA (PAEA, 2010c)</td>
</tr>
<tr>
<td>Individual Factors</td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Challenge</strong></td>
<td>allied health (Romig, et al., 2011); dental (Schenkein, 2001); medical (Nyquist, et al., 2000); pharmacy (Conklin &amp; Desselle, 2007b; Spivey, et al., 2009)</td>
</tr>
<tr>
<td>^aClarity of mission</td>
<td>RT (Beavers, 2010)</td>
</tr>
<tr>
<td>^aDesire for new career</td>
<td>medical (Anderson, et al., 2003)</td>
</tr>
<tr>
<td><strong>Mentor</strong></td>
<td>allied health (Romig, et al., 2011); dental (Shepherd, et al., 2001); medical (Anderson, et al., 2003; Benson, et al., 2002; Bickel &amp; Brown, 2005; Field, et al., 2011; Levine, et al., 2011; Nyquist, et al., 2000; Sambunjak, et al., 2006; Wingard, et al., 2004); nursing (Dunham-Taylor, Lynn, Moore, McDaniel, &amp; Walker, 2008); PA (Min, 2003); pharmacy (Fuller, Maniscalco-Feichtl, &amp; Droege, 2007)</td>
</tr>
<tr>
<td>^aOrganizational commitment</td>
<td>medical (Nyquist, et al., 2000); nursing (Garbee &amp; Killacky, 2008); pharmacy (Conklin &amp; Desselle, 2007b);</td>
</tr>
<tr>
<td><strong>Patient interaction</strong></td>
<td>PT (Radtka, 1993)</td>
</tr>
<tr>
<td><strong>Positive feelings about job</strong></td>
<td>PA (Boeve, 2007); RT(Beavers, 2010; Swafford &amp; Legg, 2007)</td>
</tr>
<tr>
<td>^bProfession</td>
<td>PA (PAEA, 2010c)</td>
</tr>
<tr>
<td><strong>Research mentor</strong></td>
<td>medical (Levine, et al., 2011)</td>
</tr>
<tr>
<td>^aRole strain</td>
<td>nursing (Cranford, 2009)</td>
</tr>
<tr>
<td><strong>Training in education</strong></td>
<td>dental (Trotman, et al., 2002)</td>
</tr>
</tbody>
</table>

*Note. OT = occupational therapy; PA = physician assistant; PT = physical therapy; RT = radiation therapy

^aIndicates a factor which was found in the literature review but did not emerge in the interviews in Phase I of the study.

^bProfession: a desire to advance and give back to the profession.
Table 4

*Characteristics of Phase I Experts (N=15)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
</tr>
<tr>
<td>Doctoral Preparation</td>
<td></td>
</tr>
<tr>
<td>PhD</td>
<td>5</td>
</tr>
<tr>
<td>Other Doctoral Degree</td>
<td>3</td>
</tr>
<tr>
<td>No Doctoral Degree</td>
<td>7</td>
</tr>
<tr>
<td>Number of PA Programs Worked For</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2-3</td>
<td>7</td>
</tr>
<tr>
<td>4-5</td>
<td>3</td>
</tr>
<tr>
<td>Institution Type</td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>4</td>
</tr>
<tr>
<td>Private</td>
<td>11</td>
</tr>
<tr>
<td>Institution Classification</td>
<td></td>
</tr>
<tr>
<td>Research University</td>
<td>5</td>
</tr>
<tr>
<td>Master’s Level</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
<tr>
<td>Geographic Consortium</td>
<td></td>
</tr>
<tr>
<td>West or Heartland</td>
<td>4</td>
</tr>
<tr>
<td>Southeast</td>
<td>2</td>
</tr>
<tr>
<td>Midwest</td>
<td>6</td>
</tr>
<tr>
<td>East or Northeast</td>
<td>3</td>
</tr>
<tr>
<td>Program Housed in Medical or Health Professions School</td>
<td>5</td>
</tr>
<tr>
<td>Program with Significant Minority Enrollment</td>
<td>1</td>
</tr>
</tbody>
</table>
ramification for healthcare than teaching one student at a time.” Expert #5 expressed it as follows:

Every once in a while I get a student or a graduate coming, that they remember something that I taught them and they use it in their clinical care. So a piece of me is in that clinical encounter and I'm indirectly impacting patient care. That's an awesome responsibility.

Similarly, Expert #13 said: “I feel like I touch more patients by producing more providers than I'd ever be able to touch just working clinically…” Six other experts made similar statements that were also coded as “multiplication effect.”

As a final example of coding, several experts expressed that they identified themselves primarily as educators. For example, Expert #7 stated:

I’m a PA educator. That’s really what I should do… I would be really frustrated being a clinician. I would just sort of eventually find ways to be an educator inside of a clinician, and probably not be as good of a clinician as I should be because I would be distracted by being an educator… I’m an educator and that’s all there is to it.

Four other experts also talked about identifying themselves as educators. These statements were coded as “identity as educator,” which was classified as an individual factor. In all, the interview data were coded with 114 unique labels. A comprehensive list of statements extracted from the interviews, along with their coding and categorization is presented in Appendix E.

Saturation of the data was essentially reached by the eighth interview, in which only four new codes were created. Although five additional codes were created in
interviews nine and ten, 97% (77 out of 79) of the codes that were retained as potential indicators of “intention to stay in academia” emerged prior to the ninth interview. No new potential indicators of PA faculty “intention to stay in academia” emerged in the last five interviews. These interviews were conducted to ensure that a wide range of experts from different types and locations of PA programs was included in the study.

Results and discussion of composite construct conceptualization. Closer examination and comparison of the lists of potential indicators that emerged from the literature review and the interviews revealed that within the health professions faculty literature, internal environmental factors were mentioned much more frequently than external environmental factors or individual characteristics; as seen in Table 3, the intangible factors outnumbered the tangible factors. The interviews, on the other hand, were a richer source of individual factors related to intention to stay in academia; the interviewees identified a wide variety of personal characteristics, motivations, and experiences that could contribute to a faculty member’s intention to stay but were not identified in the literature (see Appendix E). In fact, a total of 31 individual factors and 15 intangible internal environmental factors not identified in the literature review emerged with frequency in the interviews. However, similar to the literature review, only a few external environmental indicators and tangible internal environmental factors emerged in the interviews.

Table 5 presents the results of the composite conceptualization of the construct. As displayed in Table 5, a total of 79 potential indicators were identified, including 47 from the interviews and 31 from both the literature and the interviews. Only two potential indicators appeared multiple times in the literature but did not emerge in the
Table 5

*Potential Indicators of “Intention to Stay in Academia” for PA Faculty*

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
<th>Literature Review</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Environmental</td>
<td>Those who intend to stay have:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family situation <em>conducive to academic lifestyle</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Family support <em>of academic career</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Achievement of work-life balance</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Internal Environmental, Tangible</td>
<td>The working environment of those who intend to stay includes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Faculty development <em>activities</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Flexibility of <em>personal schedule</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Support for research</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Opportunity to travel</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Those who intend to stay are not experiencing:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Dissatisfaction with academic salary</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Overwhelming workload</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Internal Environmental, Intangible</td>
<td>Those who intend to stay enjoy or appreciate:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Administrative tasks</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Outcomes assessment</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Autonomy</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Opportunity for career advancement</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Opportunity to be a change agent</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Relationships with colleagues</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Relationships with colleagues nationally</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Opportunity to exercise creativity</em></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curriculum development</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Lack of academic emergencies</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Feedback from graduates</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Feedback from students</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Job security</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Leadership opportunity</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Opportunity to mentor others</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Multiplication effect <em>(teaching multiple students widens sphere of influence)</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Opportunity to impact next generation of PAs</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Opportunity for pursuit of learning</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Recognition from administration</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Recognition from colleagues</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Relationships with students</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Sense of community <em>at institution</em></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Student maturation <em>process</em></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Support of administration</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Support of supervisor</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Teaching</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><em>Daily variety of academic work</em></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Those who stay understand or are involved in:

- Institutional culture  
- Promotion process  
- Scholarship  
- Service  

Those who intend to stay are not experiencing:

- Dissatisfaction with time demands  

**Individual**

- Those who intend to stay have the following characteristics or motivations:
  - Altruism
  - Sense of vocational calling to PA education  
  - Enjoyment of a challenge  
  - Content mastery in teaching areas  
  - Unable to handle the demands of clinic
  - Detail-oriented
  - Desire for educational advancement
  - Engagement in program
  - Excitement about academic work
  - Realistic expectations upon entering academia
  - Flexibility/personal
  - Identity as educator
  - Improvement in skills over time
  - Intentionality toward an academic career
  - Organizational skills
  - Sense of ownership in the PA program
  - Patience
  - Not missing patient interaction  
  - Positive feelings about job  
  - Put in necessary preparation time for class  
  - Problem-solving skills
  - Devotion to the PA profession  
  - Find academia a rewarding experience  

- Those who intend to stay have [had] the following experiences:
  - Clinical participation
  - Pursuit of doctoral degree  
  - Received encouragement to go into education  
  - Founding involvement in a PA program
  - Leadership experience
  - Available mentor  
  - National involvement  
  - Negative examples in PA school
  - Part-time experience in PA education
  - Affinity for patient education in clinical practice
  - Clinical preceptor experience
  - Previous teaching experience
  - Available research mentor  
  - A role model in PA education
  - Training in education  

**Note.** An “X” in the Literature Review column denotes that the indicator was found in the literature review. An “X” in the Interviews column designates that the indicator emerged in the interviews.
interviews: the tangible internal factor of “support for research” and the individual factor of “organizational commitment” (see Table 3). Because “support for research” was identified as a factor related to faculty retention in several studies in the literature review, it was included in the conceptualization of “intention to stay in academia.” However, “organizational commitment” was not retained because it was a more abstract indicator (i.e. a construct itself that researchers have attempted to measure with scales of nine or more items - see for example, Garbee and Killacky, 2008). Two similar abstract factors, “clarity of mission” and “role strain,” were each encountered once in the literature review and were not retained as indicators either.

Six other factors identified in the literature as related to faculty retention were not retained in the composite construct conceptualization. These included: geography, benefits, academic rank, educational resources/facilities, institutional reputation, and desire for new career. The external environmental factor of geography and the internal environmental factor of benefits were not retained due to discrepancies in the views of the interview participants on their relevance to the construct (discrepancies are discussed below). The tangible internal environmental factors of academic rank and educational resources/facilities, the intangible internal environmental factor of institutional reputation, and the individual factor of desire for a new career were found infrequently in the health professions faculty literature (see Table 3) and failed to emerge in the interviews; thus, they were not retained in the construct conceptualization. Likewise, indicators that emerged infrequently in the interviews (see, for example, the code “admissions” in Appendix E) and were not found in the literature were also not retained in the construct conceptualization.
There were a few inconsistencies in the construct conceptualization phase both among interview participants and between interview participants and the literature. The first noted inconsistency was a difference in opinion regarding the role of external environmental factors in intention to stay. Family support, family situation, and work-life balance were the only external factors that emerged with any frequency (see Table 3). Because so few external environmental factors were identified in the literature review and in the first couple interviews, most participants were specifically asked about the role of external factors in PA faculty intention to stay. Expert #5 felt strongly that external factors such as geography were more important than individual or internal environmental factors in a PA faculty member’s intention to stay in academia; however, none of the other 14 participants shared this view. An explanation for this discrepancy may be that Expert #5 was somewhat of an outlier among the other Phase I experts. He stated that in over 30 years of experience in PA education, he had worked with only one PA faculty member who left academia to return to full-time clinical practice. This was in contrast to other experts who had known many PA faculty over the years who returned to clinical practice, and may explain the difference in opinion about the role of external factors in PA faculty intention to stay.

A specific area of inconsistency in external environmental factors was geography. Geographic location of the program was a factor in faculty retention in one study in the literature review and was a personal influence for Experts #5 and #6 in their entry into PA education. In fact, Expert #5 felt strongly that the external consideration of geographic location of a program was very influential in a PA faculty member’s intention to stay in academia. However, other experts disagreed, citing the proliferation of PA
programs across the country as an indication that PA faculty who wanted to be in academia were likely to find a PA program geographically near them. Also, as Expert #7 stated, those who intended to stay long-term were “willing to move to stay in PA education…” Because of this difference of opinion, geography was eliminated as a factor in the conceptualization of intention to stay in this study.

An additional inconsistency in the construct conceptualization involved satisfaction with fringe benefits of a faculty position (insurance, retirement, educational reimbursement, etc.), which was identified as important to faculty retention in 3 of the 42 studies in the literature review (see Table 3). One interviewee noted that the excellent fringe benefits associated with an academic position relative to those available in most clinical practices motivated her to stay in PA education early in her career. Another interviewee identified the excellent financial reimbursement for educational expenses, conference attendance, and credentialing maintenance as important to faculty retention in his particular PA program; however, he also acknowledged that most PA programs, especially those housed in public institutions, were not able to offer the same level of financial reimbursement. On the contrary, several other experts expressed that benefits for PAs were currently superior in clinical practice, and thus the fringe benefits associated with an academic position did not play a role in a PA’s intention to stay in academia. Therefore, because of this discrepancy between the literature review and the interviews, the tangible, internal environmental factor of benefits was not included in the conceptualization of intention to stay in this study.

The final area of discrepancy was salary. Three interviewees specifically identified dissatisfaction with salary as playing a negative role in “intention to stay in
academia” due to the relatively higher salaries available in clinical practice. Expert #5 actually viewed his salary as a personal motivating factor for staying in academia; however, in his case he was offered more money in academia than he was receiving in clinical practice. Several other interviewees, however, made statements such as “it’s [staying in academia] not about the money,” indicating that salary was not a factor in a PA faculty member’s intention to stay. However, because salary was so frequently identified in the literature as related to health professions faculty retention (see Table 2), dissatisfaction with academic salary was retained as a negative indicator of PA intention to stay in this study.

**Summary of phase I: Construct conceptualization.** In summary, at the conclusion of Phase I the construct of “intention to stay in academia” for PA faculty in this study was conceptualized in terms of 79 potential observable indicators (see Table 5). These observable indicators included 3 external environmental factors (e.g., family support of academic career); 6 tangible factors of the internal environment (e.g., support for research); 32 intangible factors of the internal environment (e.g., autonomy); and 38 individual characteristics (e.g., detail-oriented), experiences (e.g., previous teaching experience), or motivations (e.g., sense of vocational calling to PA education). The interview data contributed most richly to this conceptualization: 78 of the indicators were identified in the interviews. Of these 78 indicators, 31 were also extracted from the literature review. Only one indicator of the construct retained from the literature review—support for research – did not emerge in the interviews. The derivation of these 79 indicators from previous literature and from those who were likely to be most
knowledgeable about PA faculty provided evidence of the content validity of the measure being developed.

**Results and Discussion of Phase II: Measure Development**

In Phase II of the study, a total of 114 survey items were developed from the 79 potential construct indicators that were retained from Phase I of the study. These items were reviewed and ranked by experienced PA faculty, providing additional evidence of content and substantive validity. Thus, this phase continued to address the second research question of the study:

**RQ 2. How is the construct of “intention to stay in academia” conceptualized by experienced physician assistant educators?**

More than one item was created for 22 of the potential indicators that emerged most frequently in Phase I. For example, the indicator of “mentor” was strongly represented in Phase I: it emerged 22 times in the interviews and 14 times in the literature review. However, interviewees in Phase I referenced both mentors within the institution and mentors in PA education (who could reside in a different institution). Therefore, two survey items were written for the mentor indicator to cover both types of mentor relationships. Other indicators for which more than one item was written included colleagues, culture, flexibility/personal, national involvement, scholarship, and teaching.

**Results and discussion of expert review of survey items.** The form and detailed results of the item review are contained in Appendices F and G, respectively. The majority of the reviewers considered all 114 items were relevant to the construct of “intention to stay in academia” for PA faculty. Therefore, no items were discarded on the basis of construct irrelevance (*i.e.* content validity of the items was again supported).
However, four items (9, 43, 45, and 80) were discarded due to a lack of agreement among the reviewers on level of item difficulty, and eight items (4, 14, 15, 24, 74, 86, 90, and 108) were discarded as a result of comments from reviewers about item quality or clarity. Furthermore, the wording of 11 items was modified based on the reviewers’ comments (see revision of items 7, 8, 12, 25, 26, 29, 32, 53, 67, 71 and 72 in Appendix G), and two additional items were developed based on comments regarding items 29 and 40.

Overall, reviewer assessment of item difficulty resulted in a spread of 11 easy items, 67 moderate items, and 14 difficult items, each containing both individual and environmental indicators. Additionally, 5 items tied for “easy” and “moderate,” and 7 items tied for “moderate” and “difficult.” The researcher deemed this distribution of item difficulty to adequately “cover” the construct, considering that the moderate category likely represented a range of items of difficulty.

**Summary of phase II: Measure development.** In summary, reviewers’ ranking of the 104 items in terms of endorsement effort created a desirable hierarchy of item difficulty, in which “difficult to endorse” items theoretically reflected higher levels of “intention to stay in academia” than “moderately difficult to endorse items,” which in turn reflected higher levels of the construct than “easy to endorse items.” For example, the item “I have adequate support from my institution to produce scholarly work” was identified as a difficult item, or an item that only faculty with the most “intention to stay in academia” could endorse. The item “I feel that my PA program is supported by institutional administration” was designated as a moderate item, or an item that PA faculty with at least moderate levels of intention to stay could endorse, while the item “I have good working relationships with my fellow faculty members within the PA
program” was identified as an easy item, or an item that almost all PA faculty should be able to endorse. Thus, the ranking of items in Phase II further informed the construct conceptualization of “intention to stay in academia” for PA faculty and suggested a theoretical hierarchy of item difficulty, thus contributing further evidence of the substantive validity of the measure.

At the conclusion of Phase II, 104 items of acceptable quality and relevance were available for the pilot instrument. In order to have a survey of manageable size, only 70 out of 104 items were retained for pilot testing in the next phase of the research. Decisions to include or exclude the items were based on the degree of agreement from reviewers on relevance and difficulty level, and on the coverage of the construct. The items that were retained had the highest level of agreement from reviewers on relevance and difficulty level and provided adequate coverage of the construct. The 34 items not included in the pilot instrument were considered alternate items that could be used in Phase IV, if additional items were needed. Twelve demographic questions and an open-ended question asking participants to comment on any questions that were unclear were added to the end to complete the pilot instrument that was administered in Phase III.

Results and Discussion of Phase III: Pilot Testing

In this phase of the study, the results of the Rasch analysis of the pilot were used to begin to address the last two research questions of the study:

RQ 3. Is there a meaningful theoretical relationship among the items comprising the construct of “intention to stay in academia?”

RQ 4. Is there evidence that the items on the instrument provide a quantifiable measure of the construct of “intention to stay in academia?”
Out of the 53 survey invitations that were sent, 40 surveys were completed, yielding a 75% response rate to the pilot study. (See Table 6 for participant characteristics.) Prior to the analysis, 13 items (9, 10, 11, 19, 21, 26, 27, 41, 48, 49, 50, 51, and 55) were reverse-scored. These items were either negatively worded or worded such that higher endorsement of these items would theoretically reflect lower intention to stay in academia (e.g. “My family would prefer that I was in full-time clinical practice.”) Reverse-scoring these items ensured that all score-to-measure correlations were positive (i.e. a higher rating on an item correlated with higher person measures indicating more intention to stay in academia).

The results of the category functioning analysis are presented in Table 7. In this table, the frequency with which each response was selected across all items is displayed in the observed count column followed by the column containing average measures corresponding to each category. As expected for a well-functioning response scale, the average measures increased in size from -2.85 to +3.08 as the level of item endorsement increased from strongly disagree to strongly agree. Therefore, the 4-point Likert response scale used in the pilot instrument developed in this study was deemed to be functioning appropriately.

The reliability estimates were acceptable. The person reliability estimate of 0.90 indicated adequate reproducibility of person ordering, while the item reliability of 0.94 indicated reproducibility of the item difficulty calibrations.

Item-measure correlations and item fit statistics are presented in Appendix H. Most of the items had positive item-measure correlations, ranging from 0.07 to 0.68. However, five items (items 1, 6, 17, 21, and 22) had undesirable negative item-measure
Table 6

*Characteristics of Phase III Participants (N=40)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12 (30%)</td>
</tr>
<tr>
<td>Female</td>
<td>27 (67.5%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt;40</td>
<td>18 (45%)</td>
</tr>
<tr>
<td>40-59</td>
<td>20 (50%)</td>
</tr>
<tr>
<td>&gt;60</td>
<td>2 (5%)</td>
</tr>
<tr>
<td>Years of Faculty Experience</td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>9 (22.5%)</td>
</tr>
<tr>
<td>3-10</td>
<td>18 (45%)</td>
</tr>
<tr>
<td>&gt;10</td>
<td>9 (22.5%)</td>
</tr>
<tr>
<td>Appointment</td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>36 (90%)</td>
</tr>
<tr>
<td>Part-time</td>
<td>4 (10%)</td>
</tr>
<tr>
<td>Tenure Status</td>
<td></td>
</tr>
<tr>
<td>Tenured</td>
<td>3 (7.5%)</td>
</tr>
<tr>
<td>Tenure track</td>
<td>14 (35%)</td>
</tr>
<tr>
<td>Non-tenure track</td>
<td>23 (57.5%)</td>
</tr>
<tr>
<td>Doctoral Status</td>
<td></td>
</tr>
<tr>
<td>Have a doctoral degree</td>
<td>9 (22.5%)</td>
</tr>
<tr>
<td>Pursuing or planning to pursue a doctoral degree</td>
<td>10 (25%)</td>
</tr>
<tr>
<td>Not planning to pursue a doctoral degree</td>
<td>18 (45%)</td>
</tr>
<tr>
<td>Program Director</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8 (20%)</td>
</tr>
<tr>
<td>No</td>
<td>32 (80%)</td>
</tr>
</tbody>
</table>

correlations. Item 6 - “I had positive experiences in a part-time role in PA education prior to accepting a full-time position” – was also the only item with a fit statistic >2.0.
Table 7

Category Functions in Phase III

<table>
<thead>
<tr>
<th>Category Label</th>
<th>Observed Count</th>
<th>Average Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, “strongly disagree”</td>
<td>237</td>
<td>-2.85</td>
</tr>
<tr>
<td>2, “disagree”</td>
<td>644</td>
<td>-1.00</td>
</tr>
<tr>
<td>3, “agree”</td>
<td>1239</td>
<td>+0.87</td>
</tr>
<tr>
<td>4, “strongly agree”</td>
<td>614</td>
<td>+3.08</td>
</tr>
</tbody>
</table>

Note. The observed count is the number of times that each response was chosen across all items. The average measure is the average of person measures in logits, calculated across all items, for persons who chose a particular response category (Bond & Fox, 2007).

There were also 27 items (items 4, 5, 7, 8, 9, 10, 11, 14, 20, 23, 25, 30, 34, 35, 38, 42, 43, 51, 54, 56, 59, 60, 64, 66, 68, 69, 70) with small positive correlations, and 13 items with fit statistics of >1.4 (items 1, 3, 4, 14, 15, 20, 21, 23, 24, 35, 58, 60, 66). These items were closely examined for proper wording, scoring, and relevance to the construct. For several of these items, it was determined that a “not applicable” response category should be added. For example, item 17 – “I currently receive high ratings on my course evaluations from PA students” – had an item-measure correlation of -.01. According to Phase I of this study, faculty who intended to stay in academia were expected to have good course evaluations from students. The reviewers in Phase II felt that this item was relevant to the construct and should be relatively easy for PA faculty to endorse if they intended to stay in academia. However, it is possible that some respondents were not currently teaching or had just begun their faculty career and not yet received course evaluations; therefore, a category of “not applicable” was added for this item.

The analysis of person fit statistics revealed five respondents with mean square person infit of >1.4, indicating that they had multiple unexpected responses on items
near their “ability” level. Four of those same respondents also had mean square outfit
statistics of >1.4, meaning that they either endorsed more difficult items than expected or
failed to endorse easier items that they should have endorsed. The remaining
respondents, however, performed according to the expectations of the Rasch model,
providing strong initial evidence of the substantive validity of the measure as well as
indicating that there were some outliers in the population.

**Person-item map.** Figure 2 shows the person-item map generated by the Rasch
analysis of the pilot data. The vertical dashed line in the middle represents the
unidimensional “ruler” of the construct of “intention to stay in academia” with the levels
of the intention to stay increasing in a linear fashion from the lowest at the bottom to the
highest at the top. The marks on the vertical line represent logits, the equal interval units
on the Rasch scale. To the left of the line, the respondents are placed according to their
logit score, while the items are placed on the right side next to their calibration or
difficulty estimate (also in logits). Thus, as seen in Figure 2, item difficulty in the pilot
data ranged from +2.55 to -2.47 logits, while person measures (respondent logit scores)
ranged from +2.07 to -0.82. Items 16 and 7 (“I have been influential in the founding of a
new PA program” and “I am in PA education because I found clinical practice to be too
demanding”) were the most difficult for respondents to endorse while item 57 (“A reason
for me to stay in PA education is my desire to help students become successful PAs”)
was the easiest to endorse.

Based on the observed spread of item difficulties and person measures, the pilot
instrument was deemed to adequately cover the construct (Fendrich, Smith, Pollack, &
Mackesy-Amiti, 2009). Furthermore, no major gaps were observed in either the
Figure 2. This person-item map shows 40 persons (each represented by an “X”) and 70 items from the pilot phase. \( M \) = mean; \( S \) = one standard deviation; \( T \) = two standard deviations. Theoretically, persons at the top (positive end) of the scale would have the most intention to stay while the persons positioned at the bottom (negative end) would have the least intention to stay. The items range from the most difficult to agree with at the top (+2.55 logits) to least difficult to agree with at the bottom (-2.47 logits). Persons and items are on the same scale. Thus, direct comparisons of persons, items and persons across items can be made.
distribution of the items or persons. If large gaps were noted, this would indicate construct under-representation and large differences in item difficulties; as a result, a person whose ability would fall where there was an item gap would not be precisely measured by the instrument and vice versa (Bagheai, 2008). This was not the case in the current study. As seen in Figure 2, there was only one small gap between items 14 and 10, thus the few respondents across from this gap on the scale might not have been precisely measured. Figure 2 also depicts a lack of persons represented at the low end of the measure. This was felt to likely be a result of the small pilot sample size, which may not have included any faculty with very low levels of “intention to stay in academia,” a problem which would potentially be resolved by the larger pool of respondents in Phase IV. However, overall the majority of persons and items were opposite each other on the person-item map (i.e. well-targeted), meaning that the instrument targeted the sample well (Bagheai, 2008).

Examination of the ordering of items along the logit scale revealed that the item hierarchy was fairly consistent overall with the hierarchy that was conceptualized in Phase II. As in the theorized item hierarchy, individual factors, intangible internal environmental factors, and tangible internal environmental factors were mixed and spread throughout the “intention to stay in academia” continuum. The meaning of the item hierarchy was examined more thoroughly in Phase IV.

**Summary of pilot testing.** Based on the good response rate to the pilot survey, the length and format of the electronic instrument were determined to be appropriate. Item 6 was discarded from the final survey due to its poor functioning in the pilot study, as discussed above. All of the other items were ultimately retained, although several
were slightly reworded as a result of participant comments or researcher review of item functioning. An additional item – “How likely are you to leave academia and return to clinical practice?” – was added to aid in the data analysis in Phase IV. Some items were also re-ordered (and thus re-numbered) to improve the flow of the questions in the instrument (see Appendix I for a copy of the instrument that was administered in Phase IV).

Overall, the pilot data analysis demonstrated strong evidence of content validity (as seen from pilot respondents’ comment on item quality, analysis of item fit statistics and item-measure correlations), initial evidence of substantive validity (provided by the analysis of person fit statistics and person-item map), and initial evidence of generalizability (inferred from high internal reliability estimates for persons and items). The item hierarchy closely replicated the theoretical item hierarchy. At the conclusion of Phase III, the instrument appeared to have the potential to provide a quantifiable measure of the construct of “intention to stay in academia” for PA faculty. Thus, after the minor alterations to the instrument noted above, the research progressed to the calibration and validation stage.

Results and Discussion of Phase IV: Calibration and Validation

The final phase of the study addressed the third and fourth research questions, along with the seven subquestions related to the fourth research question (as displayed in Table 2 in Chapter 3):

RQ 3. Is there a meaningful theoretical relationship among the items comprising the construct of “intention to stay in academia?”
RQ 4. Is there evidence that the items on the instrument provide a quantifiable measure of the construct of “intention to stay in academia?”

The response rate to the study and participant characteristics are discussed first, followed by the results of the Rasch analyses and discussion of those results in the context of the validation framework for the study. More than one Rasch analysis was conducted in an attempt to extract a meaningful linear measure of the PA faculty “intention to stay in academia.” The results of each analysis are presented separately.

**Response rate and participant characteristics.** A total of 481 of the 1002 participants completed the survey in Phase IV for an overall response rate of 48.0%. Three participants said they were not PA faculty and thus were not eligible for the study. Another participant was not a PA and therefore was not eligible either. Additionally, 21 surveys were undeliverable, making the gross response rate 49.3% \([(481+3)/(1002-21)]\). Furthermore, 19 returned surveys were incomplete, making the net response rate 47%. However, because the Rasch analysis can accommodate missing data, partially completed surveys were included in the analysis.

The respondents in this phase (see Table 8) were fairly similar demographically to the pilot phase respondents with the exception of age and tenure status. Only 22% of Phase IV respondents were under the age of 40, compared to 45% of Phase III respondents; 69.6% of Phase IV respondents were not on a tenure track, compared to 57.5% of Phase III respondents. However, when compared to the most recent PAEA (2012) annual report, the age and tenure status of Phase IV respondents were representative of the PA faculty population (63.5% vs. 62.8% between ages 40-59,
Table 8

*Characteristics of Phase IV Participants (N=480)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>168 (35%)</td>
</tr>
<tr>
<td>Female</td>
<td>294 (61.2%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt;40</td>
<td>106 (22%)</td>
</tr>
<tr>
<td>40-59</td>
<td>305 (63.5%)</td>
</tr>
<tr>
<td>&gt;60</td>
<td>58 (12%)</td>
</tr>
<tr>
<td>Years of Faculty Experience</td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>78 (16.2%)</td>
</tr>
<tr>
<td>3-10</td>
<td>203 (42.9%)</td>
</tr>
<tr>
<td>&gt;10</td>
<td>145 (30.2%)</td>
</tr>
<tr>
<td>Appointment</td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>430 (89.6%)</td>
</tr>
<tr>
<td>Part-time</td>
<td>33 (6.9%)</td>
</tr>
<tr>
<td>Tenure Status</td>
<td></td>
</tr>
<tr>
<td>Tenured</td>
<td>47 (9.8%)</td>
</tr>
<tr>
<td>Tenure track</td>
<td>78 (16.2%)</td>
</tr>
<tr>
<td>Non-tenure track</td>
<td>334 (69.6%)</td>
</tr>
<tr>
<td>Doctoral Status</td>
<td></td>
</tr>
<tr>
<td>Have a doctoral degree</td>
<td>95 (19.8%)</td>
</tr>
<tr>
<td>Pursuing or planning to pursue a doctoral degree</td>
<td>195 (40.6%)</td>
</tr>
<tr>
<td>Not planning to pursue a doctoral degree</td>
<td>171 (35.6%)</td>
</tr>
<tr>
<td>Program Director</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>86 (17.9%)</td>
</tr>
<tr>
<td>No</td>
<td>374 (77.9%)</td>
</tr>
<tr>
<td>How Likely to Leave Academia to Return to Clinical Practice</td>
<td></td>
</tr>
<tr>
<td>“Very likely”</td>
<td>26 (5.4%)</td>
</tr>
<tr>
<td>“Somewhat likely”</td>
<td>162 (33.7%)</td>
</tr>
<tr>
<td>“Not at all likely”</td>
<td>274 (57.1%)</td>
</tr>
</tbody>
</table>
respectively; 69.6% vs. 70.8% non-tenure track faculty). Phase IV participants were additionally representative of all PA faculty in terms of gender (61.2% vs. 56.3% female, respectively).

Results and discussion of initial Rasch analysis. The initial Rasch analysis included the data from all 480 eligible respondents and all 69 items on the instrument, 13 of which were reverse-scored (items 9, 10, 11, 21, 23, 30, 31, 32, 33, 44, 53, 57, 59).

Inspection of category functioning revealed that the 4-point rating scale was functioning appropriately: the average measures increased in size from -2.55 to +2.74 as the level of item endorsement increased from strongly disagree to strongly agree (see Table 9).

<table>
<thead>
<tr>
<th>Category Label</th>
<th>Observed Count</th>
<th>Average Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, “strongly disagree”</td>
<td>2866</td>
<td>-2.55</td>
</tr>
<tr>
<td>2, “disagree”</td>
<td>7086</td>
<td>-0.85</td>
</tr>
<tr>
<td>3, “agree”</td>
<td>13632</td>
<td>+0.74</td>
</tr>
<tr>
<td>4, “strongly agree”</td>
<td>8117</td>
<td>+2.74</td>
</tr>
</tbody>
</table>

Note. The observed count is the number of times that each response was chosen across all items. The average measure is the average of person measures in logits, calculated across all items, for persons who chose a particular response category (Bond & Fox, 2007, p. 223).

Internal reliability estimates (RQ 4.4) and analysis of DIF by doctoral preparation (RQ 4.5) provided evidence of the generalizability aspect of validity for the measure. Specifically, adequate reproducibility of person ordering in the sample was signified by an internal reliability estimate for persons of 0.86. Likewise, item reliability was 0.99, representing excellent reproducibility of the difficulty calibrations of the instrument. The DIF analysis by doctoral preparation revealed only three items on which scores differed
significantly for faculty who had or were pursuing a doctoral degree and those who were not. Items 37 and 40, dealing with career advancement and leadership aspirations were 0.51 logits (p=.0000) and 0.77 logits (p=.0000) more difficult for those in the latter subgroup when compared to the other subgroup, although their scores were not statistically different from the overall item mean. Item 64 – “I enjoy doing research” – was 0.58 logits (p=.0000) more difficult for those who did not plan to pursue a doctoral degree. Although statistically significant, these were not very large differences in item difficulty, and qualitatively, the differences made sense. The fact that the other 66 items functioned in the same way for both subgroups of PA faculty supported the generalizability of the instrument for all PA faculty, regardless of their doctoral status.

A person strata index was calculated in order to provide preliminary evidence of the external validity of the measure (RQ 4.6). For this analysis, the person strata index was calculated to be 3.62, meaning that at least three levels of the construct could be differentiated among respondents. As discussed in Chapter 3, this demonstration of the discriminatory ability of the instrument was the extent to which evidence of the external validity of the measure was sought within the limits of the current investigation.

Item-measure correlations were then inspected to ensure the technical quality of the items in the instrument, thus contributing evidence of the content validity of the measure. Item 6 – “I am in PA education because I found clinical practice to be too demanding” – had a negative correlation of -0.04. The rationale behind this item was that some PA faculty with very high intention to stay might have found clinical practice to be too demanding, and that could be a motivation for them to stay in academia. However, the Rasch analysis showed a small negative correlation between endorsement of this item
and scores on the measure overall indicating that this item was capturing something different. The remainder of the items had positive item-measure correlations, ranging from 0.11 to 0.59.

Analysis of item fit was an additional step in ensuring the technical quality of the items (and thus the content validity of the measure) as well as providing evidence of structural validity (RQ 4.1). Inspection of fit statistics revealed that several items on the instrument had unacceptable mean squares, indicating that they might not be measuring the same construct as the other items. Table 10 displays the most misfitting items. As stated in Chapter 3, 0.6-1.4 was used as an acceptable range for item fit. The five most misfitting items were all personal characteristics or experiences of faculty. There was possibly too much variability in these particular personal characteristics among PA faculty to make them useful items in a measure of intention to stay. For example, while involvement in the founding of a PA program (item 16) and some type of formal training in education (item 4) were common among Phase I interviewees and were generally felt by Phase II reviewers to be relevant to the construct, it may be that too few PA faculty had these experiences to make them useful observations. Misfit of items 55 and 54 – supervisor fairness and supervisor support – indicated that a PA faculty member’s feelings about his or her supervisor might also be an area of too much inconsistency to be useful in measuring intention to stay. (Interestingly, DIF analysis by gender revealed that item 55 [supervisor fairness] was 0.62 logits more difficult for females [p=.0000] than for males. The differential functioning of this item by gender might also have contributed to its failure to fit within the linear measure.) The last misfitting item 6 was previously discussed as having a negative item-measure correlation, and thus was not functioning as
intended in the instrument. The remaining 61 items in the instrument all had acceptable fit indices, indicating that they were potentially measuring the same construct. This was interpreted as preliminary evidence of the structural validity of the measure.

Table 10

*Misfit Items*

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item Label</th>
<th>Infit, mean square</th>
<th>Outfit, mean square</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Founding involvement</td>
<td>1.83</td>
<td>1.81</td>
</tr>
<tr>
<td>4</td>
<td>Formal teaching training</td>
<td>1.76</td>
<td>1.77</td>
</tr>
<tr>
<td>53</td>
<td>Clinical inexperience</td>
<td>1.56</td>
<td>1.59</td>
</tr>
<tr>
<td>2</td>
<td>Desire advance education</td>
<td>1.53</td>
<td>1.57</td>
</tr>
<tr>
<td>1</td>
<td>Intentionality to teach</td>
<td>1.49</td>
<td>1.53</td>
</tr>
<tr>
<td>55</td>
<td>Supervisor fairness</td>
<td>1.52</td>
<td>1.49</td>
</tr>
<tr>
<td>54</td>
<td>Supervisor support</td>
<td>1.49</td>
<td>1.40</td>
</tr>
<tr>
<td>6</td>
<td>Practice too demanding</td>
<td>1.39</td>
<td>1.47</td>
</tr>
</tbody>
</table>

Structural validity was further evaluated by means of the Rasch PCA of residuals (RQ 4.1). The PCA revealed that only 36.5% of the variance in the data could be explained by the measure. The strength of the first contrast was 5.2 eigenvalues, indicating a possible secondary dimension. The Pearson correlation between person measures on the positively loading items in the first contrast and the person measures on the negatively loading items in the first contrast was only 0.41, providing further evidence that the data represented more than one dimension. Removal of the eight most misfitting items (Table 10) did not result in any substantial improvement in the variance explained by the measure. The measure fell short in having structural validity due to the possibility of a secondary dimension in the data.

Finally, substantive validity of the measure was sought through the inspection of person fit indices, the construct coverage of the person-item map (RQ 4.2), the degree to which the progression of item difficulty reflected the construct map (RQ 4.3), and the
theoretical meaning of the item hierarchy (RQ 3). The person fit evaluation revealed that the most misfitting person had a mean squares infit of 3.82 and a mean squares outfit of 4.63, indicating many unexpected responses both near and distant from the respondent’s ability level (on the logit scale of the construct). Three other respondents had misfit statistics of >2.0, and 75 respondents had misfit statistics (either infit, outfit, or both) of >1.4. The remaining 401 respondents (83.5%) performed according to the expectations of the Rasch model. Therefore, person fit indices did provide some evidence for substantive validity of the measure, although as in the pilot study, there were outliers in the population.

The person-item map generated by the Rasch analysis is displayed in Figure 3. Based on the observed spread of item difficulties and person measures, the instrument was deemed to adequately cover the construct of “intention to stay in academia.” Person measures (in the left column) ranged from +2.88 to -0.80 logits and item measures (in the right column) ranged from +2.27 to -2.98 logits, with no major gaps in either the distribution of persons or items. Because the majority of items were opposite persons on the logit scale, the person-item targeting was adequate.

The item hierarchy produced by the Rasch analysis was further examined after the removal of the eight misfitting items listed in Table 10. Figure 4, which will be discussed in greater detail later in this section, displays the item hierarchy, progressing from “most difficult” to agree with at the top to “easiest” to agree with at the bottom of the figure. Overall, the progression of item difficulty in the data as displayed in Figure 4 reflected the theoretical item difficulty that was generated from the expert review of the items in Phase II of the study. Only 10 discrepancies were observed (see Table 11). The item
Figure 3. This person-item map shows 480 persons and 69 items. M = mean; S = one standard deviation; T = two standard deviations. Each “#” represents 3 persons, each “.” represents 1-2 persons, and each X represents an item. Theoretically, persons at the top (positive end) of the scale would have the most intention to stay while the persons positioned at the bottom (negative end) would have the least intention to stay. The items range from the most difficult to agree with at the top (+2.27 logits) to least difficult to agree with at the bottom (-2.98 logits).

The hierarchy was also noted to be quite stable when compared to the item difficulties of the pilot data from Phase III. Only a few items had substantial discrepancies in their positioning in the hierarchy between the two phases. (The most severe discrepancy was
Figure 4. This keyform illustrates the item hierarchy, omitting the eight most misfitting items in the instrument. The most difficult items are at the top; the easiest items are at the bottom. At the top and bottom of the graph is the logit scale, from -4 to +4. Within the graph, responses are represented as “1” = strongly disagree; “2” = disagree; “3” = agree; and “4” = strongly agree.

Group 1 responded “very likely” to question 71 on the survey: “How likely are you to leave academia and return to clinical practice?” Group 2 responded “somewhat likely”, and Group 3 responded “not at all likely.” M = mean; S = one standard deviation; T = two standard deviations. A vertical line is extended from the mean for Group 3 and the mean for Groups 1 and 2 combined to indicate the most likely response to an item for a person within that group. “:” indicates the threshold between two responses, where the response to the right of the “:” is just as likely as the response to the left.
for item 13, which dealt with having a mentor in PA education. This item was the 34\textsuperscript{th} most difficult [0.00 on the logit scale] in the Phase IV analysis while in Phase III it was an easier item [59\textsuperscript{th} most difficult, -0.92 on the logit scale]. Thus, the fact that the theoretical hierarchy replicated overall fairly well provided further evidence of substantive validity and indicated the potential that a measure had been constructed.

Table 11

*Discrepancies in Item Difficulty between Phases II and IV*

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item Label</th>
<th>Theorized item difficulty from Phase II</th>
<th>Placement of item on logit scale from Phase IV* (difficult, moderate, or easy end of the scale)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Pursuit of learning</td>
<td>moderate</td>
<td>-1.74 (easy)</td>
</tr>
<tr>
<td>22</td>
<td>Improve courses</td>
<td>moderate</td>
<td>-1.07 (easy)</td>
</tr>
<tr>
<td>68</td>
<td>Flexibility schedule</td>
<td>moderate</td>
<td>-0.91 (easy)</td>
</tr>
<tr>
<td>52</td>
<td>Adapted teaching</td>
<td>difficult</td>
<td>-0.66 (moderate-easy)</td>
</tr>
<tr>
<td>42</td>
<td>Identity as educator</td>
<td>difficult</td>
<td>-0.26 (moderate)</td>
</tr>
<tr>
<td>35</td>
<td>Change agent</td>
<td>moderate/difficult</td>
<td>-0.02 (moderate)</td>
</tr>
<tr>
<td>41</td>
<td>Administrative tasks</td>
<td>difficult</td>
<td>0.18 (moderate)</td>
</tr>
<tr>
<td>9</td>
<td>Encouragement</td>
<td>easy/moderate</td>
<td>0.33 (moderate)</td>
</tr>
<tr>
<td>33</td>
<td>Workload</td>
<td>moderate</td>
<td>1.15 (moderate-difficult)</td>
</tr>
<tr>
<td>14</td>
<td>Research mentor</td>
<td>moderate</td>
<td>1.83 (difficult)</td>
</tr>
</tbody>
</table>

*The range of the logit scale in this analysis was +2.27 (most difficult) to -2.98 (easiest)*

*Measure meaning and interpretability.* To continue investigating substantive validity of the measure, the theoretical meaning of the item hierarchy was explored further (RQ 3). Consistent with the conceptualization of “intention to stay in academia” in Phases I and II and with the pilot item hierarchy in Phase III, examination of the item hierarchy in Phase IV revealed that individual factors, intangible environmental factors, and tangible environmental factors were mixed and spread throughout the “intention to stay in academia” continuum. In other words, the items representing different factors did not form clusters that were arranged hierarchically. For example, the six most difficult
items (items 14, 11, 20, 4, 16, and 10) as well as the easiest item (item 24) were all individual factors.

At the same time, the item hierarchy was meaningful. For example, item 14 - “Early in my PA education career, I had [have] a research mentor who involved me in his or her research and/or assisted me with my early research projects” - was one of the most difficult items on the measure (located at +1.83 on the logit scale) while item 34 - “My position as a PA faculty member is more than just another PA job for me; it is a vocational calling” – was a moderately easy item (located at -0.61 logits). Theoretically, PA faculty, if they were to stay in academia, would be expected to feel that education was their vocational calling. Therefore, most PA faculty would agree with this item.

However, since most PA faculty do not have someone to mentor them through the research process and help them to establish their own research agendas, those that do have a mentor should have a higher probability of staying in academia. As another example, item 28 – “I receive recognition from the administration of my institution” – was a moderately difficult item on the measure (located at +0.59 logits) while item 17 – “I have good working relationships with my colleagues in the PA program” – was one of the easiest items (located at -1.19 logits). According to Phase I, almost all PA faculty, if they intended to stay in academia, would have good collegial relationships, making item 17 a statement that almost all PA faculty would endorse. However, since many PA faculty feel ignored or unappreciated by institutional administration, those that received recognition should have a higher probability of staying in academia.

In order to further investigate the meaning of the measure, participants were divided into three groups based on their response to the question: “How likely are you to
leave academia and return to clinical practice?” A Rasch analysis was conducted separately for each group, and the mean person measures were compared. The group that responded “very likely” (n=26) had a mean person measure of -0.04, while the group that responded “somewhat likely” (n=162) had a mean person measure of +0.54. When these two groups were combined (n=188), the mean person measure was +0.44. The group that responded that they were “not at all likely” to leave academia (n=274) had a mean person measure of +0.97. This pattern of increasing mean person measures with decreasing reported likelihood of leaving academia provided evidence that the instrument was assessing the intended construct of intention to stay in academia.

In Figure 4, a vertical dashed line is drawn through the mean person score of the respondents who were “not at all likely” to leave academia for clinical practice (Group 3). The position of this dashed line relative to responses for each item in the hierarchy shows the most likely response of persons in that group for each item. As an example, at the top of the item hierarchy, the vertical dashed line is just to the left of category “2” (“disagree”) for item 14. Thus, the most likely response to item 14 for a Group 3 respondent would be “disagree.” For item 29, the seventh most difficult item in the hierarchy, the vertical dashed line intersects just to the right of “:” that marks the midpoint between categories “2” (“disagree”) and “3” (“agree”). In the Rasch analysis, the symbol “:” represents the threshold between the two responses, where a response of “2” is equally likely as a response of “3.” Therefore, the most likely response to item 29 for Group 3 would be “agree.” A solid vertical line in Figure 4 extends from the mean person score for respondents who were either “somewhat likely” or “very likely” to leave academia (Groups 1 and 2). As illustrated in Figure 4, those respondents were likely to
disagree with item 29 as well as item 14. Similar statements can be made about every item on the instrument for every group and a detailed profile of each group could be developed.

Figure 4 was used to determine at what point on the measure all the respondents, as opposed to only those in Group 3 (PA faculty who were “not at all likely” to leave academia for clinical practice), were more likely to “agree” than “disagree” with the items. This was determined to occur between items 45 and 3 in the hierarchy; the most likely response to item 45 would be “agree” for Group 3, while Groups 1 and 2 would be just as likely to agree as to disagree with the item. However, all the respondents were more likely to agree than disagree with item 3 and all of the subsequent (less difficult) items on the hierarchy. Figure 5 depicts the separation into higher and lower levels of intention to stay by means of a horizontal line drawn between items 45 and 3. Items below the horizontal line were more likely to be endorsed by all the participants (i.e. were easier items) and thus theoretically reflected lower intention to stay, while items above the line reflected more of the construct. The participants who fell below the line would have lower levels of intention to stay than those who were above the line.

The person-item map in Figure 5 contributes evidence of the interpretability of the measure (RQ 4.7) in that it allows higher education administrators and other stakeholders in PA education to make some preliminary inferences about “intention to stay in academia” for PA faculty. Based on the item hierarchy displayed in Figure 5, profiles of PA faculty with higher and lower levels of “intention to stay in academia” can be created. PA faculty with lower levels of intention to stay would be expected to endorse most items below the horizontal line but would not be expected to endorse the items above this line.
Figure 5. This person-item map shows 480 persons and 61 items. M = mean; S = one standard deviation; T = two standard deviations. Each “#” represents 5 persons, each “.” represents 1-4 persons, and number is an item on the instrument. “*” indicates that the item is reverse scored. Theoretically, persons at the top of the scale have higher intention to stay while the persons positioned at the bottom have lower intention to stay.

Thus, these faculty are likely to want to help students (item 24), value daily interactions with students (item 48), and enjoy watching the transformation of PA students from the
first day of the program through graduation (item 25). They are likely to want to keep their medical knowledge updated (item 26) and enjoy the variety of their daily work as PA educators (item 67). They are also likely to have good relationships with their fellow faculty members (item 17) and consider themselves to be good teachers (item 60). Although the items closer to the horizontal line in Figure 5 become progressively more difficult, those with lower intention to stay are still more likely than not to endorse identifying themselves primarily as educators rather than clinicians (item 42), having a mentor within the field of PA education (item 13), and feeling part of an academic community at their institution (item 41).

PA faculty with the higher levels of “intention to stay in academia” would be expected to endorse all of the items below the horizontal line in Figure 5, as well as many or most of the items above that line. Thus, those with higher intention to stay are more likely to have had realistic expectations about the role of a PA faculty member when entering academia (items 10 and 11). They are not likely to feel overwhelmed by their workload (item 33) and have not recently considered returning to clinical practice due to time constraints (item 30). They are likely to feel that they have support from their institution to produce scholarly work (item 29). Those with the most intention to stay are also more likely than other faculty to enjoy research (item 64), to have had a research mentor (item 14), to be involved in PA education at the international level (item 20), and to be detail-oriented (item 23).

In addition to allowing for profiles of PA faculty with lower and higher levels of intention to stay, Figure 5 aids in interpretability of the measure by enabling researchers and administrators to make inferences about “intention to stay in academia” at the item
level. For example, item 24 - “I desire to help students become successful PAs” - and item 26 - “I enjoy continually learning and keeping up-to-date with medical knowledge” - were two of the easiest items on the instrument. Thus, it can be inferred that these characteristics, while desirable in any faculty member, do not help to differentiate those who intend to stay in academia from those who do not intend to stay. However, a desire for career advancement (item 37) and enjoyment of research (item 64) were more difficult items in the measure, and thus these attributes might help to distinguish PA faculty with higher levels of intention to stay. Many other similar inferences could be made based on the positioning of the items in Figure 5.

Unfortunately, although the positioning of the items within the hierarchy made theoretical sense and was consistent with the findings in Phase II, an overall meaning to the item hierarchy did not emerge in the analysis, thus limiting the degree to which the substantive validity of the measure could be established (RQ 3). In other words, it was difficult to identify types of items associated with varying levels of intention to stay. This limited the interpretability and qualitative meaningfulness of the measure and called for additional investigation of the data.

**Summary of initial Rasch analysis.** The initial data analysis of the instrument administered in Phase IV provided evidence of content validity for 61 of the 69 items (i.e. these items had positive item-measure correlations and acceptable fit), evidence of the generalizability of the measure (i.e. high reliability estimates and no DIF by doctoral status), and initial evidence of external validity (i.e. a sufficient person strata index). Additionally, the adequacy of person fit, the acceptable construct coverage, and the fact that the theoretical hierarchy replicated overall indicated that the measure had substantive
validity. This evidence further suggested that the construct of “intention to stay in academia” is, in fact, quantifiable and that the measure had the potential to have both quantitative and qualitative meaning. However, there were two fundamental areas of concern at the conclusion of the initial data analysis: 1) too much unexplained variance in the data, which limited the structural validity of the measure and 2) lack of global meaning in the item hierarchy, which limited its substantive validity. Although some potential interpretations of the measure were discussed above, these two concerns limited the interpretability aspect of validity for the measure and thus the extent to which inferences regarding the construct could be made. The first concern was supported by the PCA, which revealed that only 36.5% of the variance in the data could be explained by the measure and that a secondary dimension was likely present (i.e. that the 69-item measure did not represent a unidimensional construct). The second concern, the lack of an overall meaning to the item hierarchy, limited the usefulness of the instrument as a measure of “intention to stay in academia.” In order for the instrument to be a useful tool for decision-makers, there must be theoretical meaning to the item hierarchy; in other words, there must be types of items associated with each level of intention to stay. Therefore, further investigation was conducted to extract a more powerful set of items that would account for more variance and allow for a more meaningful interpretation of the construct of “intention to stay in academia” for PA faculty.

**Results and discussion of subsequent data analyses.** In order to further investigate whether a subset of the items could be found that would improve both structural validity and substantive validity of the measure, a number of additional analyses of the data were conducted using various combinations of items that made sense
together. At first, the analyses focused on the deletion of items that were not functioning as expected by the Rasch model or deletion of persons who might be outliers to see if they might have been the cause of some of the unexplained variance. However, removal of the most misfitting persons and items did not substantially increase the percentage of variance explained by the measure. Documentation of the various analyses performed is presented in Appendix J.

Additionally, Rasch DIF analyses of the entire data set were performed by gender, age, clinical experience, faculty experience, full versus part-time status, clinical practice status, program director status, and tenure status in an attempt to identify any items that did not function the same way for different groups of faculty. A significant DIF was found, for example, for item 17 dealing with faculty relationships and item 28 dealing with recognition by administration: faculty over 60 years of age found item 17 to be more difficult relative to younger faculty while item 28 was easier for them to endorse than for the younger faculty. A total of 24 items with differential functioning were identified. However, deletion of these items did not result in an improvement in the variance explained by the measure.

A DIF analysis was also performed based on response to question 71 on the survey - “How likely are you to leave academia and return to clinical practice?” - in an attempt to identify a set of items that might better differentiate respondents with varying levels of intention to stay in academia. Thirty-three items demonstrated differential functioning based on the response to question 71. However, analysis of these 33 items as a set did not reveal a more meaningful item hierarchy nor resulted in much improvement in the percentage of variance explained in the PCA.
Because the items were initially categorized in terms of individual and environmental indicators using the theoretical framework discussed in Chapter 2, a separate analysis was conducted with only the items in the individual category, but the variance explained did not improve. Similarly, the variance explained by the measure did not improve when all environmental items, only internal intangible environmental items, and only non-intangible environmental items were analyzed. Due to the lack of unidimensionality of these category subsets of items, the items were relabeled without individual and environmental designations. This allowed the researcher to evaluate the items with a fresh perspective and to explore different categorizations.

During this exploration, a few subsets of items from the instrument were identified that, as a set, could explain over 50% of the variance in the measure (a minimum requirement for linear measures). However, a global meaning to the item hierarchy in the subsets was still not apparent. For example, a subset of 14 items pertaining to feelings or attitudes was identified (items 6, 11, 57, 9, 66, 47, 32, 35, 42, 34, 7, 48, 25, and 24). The PCA analysis showed that the variance explained by the measure for this set of items was 58.5%, with no contrasts greater than 3 eigenvalues. However, when those 14 items were examined as a group, an overall meaning to the item hierarchy was not apparent. Therefore, while this set of items may have exhibited an improved quantitative structure, a greater qualitative meaning was elusive.

Supportive Environment subscale. One subset of items in the instrument was found to have both quantitative and qualitative meaning. Nineteen items describing aspects of a supportive academic environment were extracted from the 69-item
instrument. These items, labeled as the Supportive Environment subscale, are displayed in Table 12.

Table 12

*Items in the Supportive Environment Subscale*

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item Label</th>
<th>Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Institutional mentor</td>
<td>Institutional support</td>
</tr>
<tr>
<td>14</td>
<td>Research mentor</td>
<td>Workload</td>
</tr>
<tr>
<td>17</td>
<td>Faculty relationships</td>
<td>Relationships</td>
</tr>
<tr>
<td>18</td>
<td>Faculty motivate to stay</td>
<td>Relationships</td>
</tr>
<tr>
<td>24</td>
<td>Desire help students</td>
<td>Relationships</td>
</tr>
<tr>
<td>25</td>
<td>Student maturation</td>
<td>Relationships</td>
</tr>
<tr>
<td>28</td>
<td>Recognition administration</td>
<td>Institutional support</td>
</tr>
<tr>
<td>29</td>
<td>Support for research</td>
<td>Workload</td>
</tr>
<tr>
<td>30</td>
<td>*Time demands</td>
<td>Workload</td>
</tr>
<tr>
<td>33</td>
<td>*Overwhelmed by workload</td>
<td>Workload</td>
</tr>
<tr>
<td>41</td>
<td>Sense of community</td>
<td>Institutional support</td>
</tr>
<tr>
<td>43</td>
<td>Fair promotion process</td>
<td>Institutional support</td>
</tr>
<tr>
<td>46</td>
<td>Opportunity for creativity</td>
<td>Autonomy</td>
</tr>
<tr>
<td>36</td>
<td>Autonomy</td>
<td>Autonomy</td>
</tr>
<tr>
<td>48</td>
<td>Interact with students</td>
<td>Relationships</td>
</tr>
<tr>
<td>51</td>
<td>Feedback from graduates</td>
<td>Relationships</td>
</tr>
<tr>
<td>56</td>
<td>Support of administration</td>
<td>Institutional support</td>
</tr>
<tr>
<td>67</td>
<td>Appreciate variety of work</td>
<td>Autonomy</td>
</tr>
<tr>
<td>68</td>
<td>Flexibility in work schedule</td>
<td>Autonomy</td>
</tr>
</tbody>
</table>

*Note.* “*” indicates that the item is reverse-scored.

The generalizability of this subscale was supported by high internal reliability estimates and absence of DIF by doctoral preparation. The internal reliability estimate for persons was 0.80, signifying adequate reproducibility of person ordering in the sample, and item reliability was 1.00, representing excellent reproducibility of the difficulty calibrations of the items in the subscale. A Rasch DIF analysis revealed no differential item functioning by doctoral status. Furthermore, initial evidence of external validity was provided by the calculated person strata index of 3.0, meaning that three levels of the construct could be differentiated among respondents.
Examination of the fit statistics and PCA for the items on the Supportive Environment subscale revealed that all the items had infit mean squares <1.4, and thus were measuring the same construct, and explained 53.2% of the variance in the data (the size of the first contrast was <3.0 eigenvalues, making a secondary dimension unlikely). Therefore, there was quantitative evidence that the Supportive Environment subscale was measuring a unidimensional construct, supporting the structural validity of the subscale. In order to examine the substantive validity of the subscale, a person-item map was generated. This map, displayed in Figure 6, demonstrates an adequate spread of both persons and items, with person measures ranging from +5.65 to -1.80 logits and item measures ranging from +2.56 to -3.19 logits. This supported the substantive validity of the subscale. The fact that the majority of items were opposite persons on the measure indicated adequate targeting, although a few more difficult items may have improved targeting of persons at the upper end of the construct continuum, i.e. those with the most “intention to stay in academia.”

Figure 7 displays the keyform generated for the subscale based on responses to the question “How likely are you to leave academia and return to clinical practice?” As seen in Figure 7, those who felt that they were “very likely” to leave academia (Group 1) had a mean person measure of -0.15, while those who were “somewhat likely” to leave (Group 2) and “not at all likely” to leave (Group 3) had mean person measures of +0.72 and +1.40, respectively. The positioning of these means in the response keyform in Figure 7 was used to approximate divisions for high, moderate, and low levels of intention to stay in academia, as displayed by the dashed horizontal lines in Figure 6.
Figure 6. This person-item map shows 478 persons and 19 items in the Supportive Environment subscale. M = mean; S = one standard deviation; T = two standard deviations. Each “#” represents 4 persons and each “.” represents 1-3 persons. Theoretically, persons at the top (positive end) of the scale would have the most intention to stay while the persons positioned at the bottom (negative end) would have the least intention to stay. The items range from the most difficult to agree with at the top (+2.56 logits) to least difficult to agree with at the bottom (-3.19 logits). “*” indicates an item that is reverse-scored.

Qualitatively, the item hierarchy, as displayed in the person-item map in Figure 6 and in the keyform in Figure 7 had meaning. Intention to stay in academia appeared to be
nurtured in a supportive academic environment. The item hierarchy represented a spectrum of support for PA faculty contained within an academic environment and consisted of four clusters of items: relationships, autonomy, institutional support, and workload. All PA programs contain faculty and students. Therefore, it did not come as a surprise that relationships and interactions with students, graduates, and faculty
colleagues supported a PA faculty member’s intention to stay in academia. Those relational items were at the lower end of the scale indicating that most PA faculty could endorse these items. Those who could not endorse positive statements regarding students or colleagues would be the least likely to stay in academia.

Items relating to autonomy were a little more difficult to endorse than the relational items. This cluster of items described autonomy over schedule and type of work (variety and opportunity for creativity). Again, most PA faculty could endorse these items, but those who could not would be less likely to stay in academia. The next cluster of items described institutional support. Support from within an institution, such as having an institutional mentor, was associated with higher intention to stay than having autonomy and good relationships. Finally, the most difficult items in the hierarchy were related to workload and consisted of items dealing with feelings about workload and research support (an aspect of faculty workload). Only those with the most intention to stay would be expected to positively endorse (i.e. agree or strongly agree with) statements about workload (or not endorse negative statements, in the case of the reverse-scored items). This overall meaning to the item hierarchy supported the substantive validity of the subscale.

Figure 6 represents the most quantitatively and qualitatively meaningful set of items found in this study. The person-item map in Figure 6 allows higher education administrators and other stakeholders in PA education to make inferences about the construct of “intention to stay in academia” for PA faculty, thus providing evidence of the interpretability aspect of validity. The visual representation of high, moderate, and low levels of “intention to stay in academia” aids in creating profiles of PA faculty with
three varying levels of the construct: those with low intent to stay would be expected to only endorse items in the low section of the map, those with moderate intent to stay would be expected to additionally endorse items in the moderate section of the map, and those with the most intent to stay should endorse most or all items. Additionally, inferences can be made about the types of items in the instrument. For example, it can be stated that items dealing with relationships are relatively easy for PA faculty to endorse, whether they have moderately low, mid-range, or high levels of intention to stay. On the other hand, items regarding workload (including scholarly work) and institutional support reflect moderate to high levels of intention to stay; this provides some direction for higher education administrators concerned with PA faculty retention who are looking for areas on which to focus retention efforts.

In conclusion, the conceptualization phase of the current study supported that “intention to stay in academia” for PA faculty consisted of more than a supportive academic environment. Nevertheless, the 19-item Supportive Environment subscale met the minimum quantitative expectations for a measure and had qualitative meaning. The demonstration of content validity, substantive validity, structural validity, generalizability, external validity, and interpretability all contributed to the conclusion that this subscale constituted a promising valid measure. While more work, both theoretical and empirical, is necessary before the construct of “intention to stay in academia” can be confidently measured, results of the Supportive Environment subscale analysis provide evidence that meaningful measurement of the construct is possible and allow for some initial inferences to be made regarding the types of observations that comprise an intention to stay in academia.
Chapter Five

Conclusions and Implications

Summary and General Conclusions

Physician assistant faculty retention is a major concern for PA program administrators and other stakeholders in PA education (Lane, 2010; Miller & Glicken, 2007; Min, 2003; Orcutt, 2007). In order to begin to address the problem of inadequate PA faculty retention, this dissertation research was undertaken to determine whether the intention of PA faculty to stay in academia could be measured. This was deemed a logical first step. Having a meaningful measure of “intention to stay in academia” would assist decision-makers in understanding what it means for a PA faculty member to have an intention to stay in academia and would provide a stable frame of reference for assessing that intention in current faculty.

The importance and need for this study were argued on the basis of two concerns with regard to the existing knowledge base. First of all, reasons for which some PA faculty stay in academia while others leave are unknown. PA education is a relatively young discipline, and much of what is currently known about PA faculty is based on the descriptive statistics about the current PA faculty workforce that are published in the annual reports of the PAEA. Although research has been done on PA faculty job satisfaction (Boeve, 2007) and professional burnout (Forister & Blessing, 2007), none of the current literature on PA faculty truly advances the understanding of why some PAs persist in academic positions while others return to clinical practice. Having this understanding is critical for addressing the problem of inadequate faculty retention.
The second argument for the need of this study was the lack of an established methodology for measuring the construct of “intention to stay.” As described in Chapters 1 and 2, faculty retention studies in the higher education literature used a single item or a few items to operationalize an intention variable and then reported correlations with and predictions of responses to the intention variable. However, correlations and predictions are statistical tests, not measurement; a precedent for proper measurement of the construct of “intention to stay in academia” was not found.

This dissertation research was an attempt to develop a measure of “intention to stay in academia” for PA faculty that would have both quantitative and qualitative meaning, that is, a measure that could allow for making valid inferences about the construct. Qualitative meaning of the construct was sought in all four phases of the study, beginning with the literature review and expert interviews in Phase I, measure development in Phase II, survey pilot in Phase III, and national survey administration in Phase IV. Quantitative meaning was examined in Phases III and IV when the survey data were analyzed with a Rasch model to determine whether the data possessed a continuous and unidimensional quantitative structure.

In this dissertation, the researcher adopted Messick’s (1995) view of validity as “an overall evaluative judgment” (p. 741) and sought evidence of multiple aspects of validity as opposed to focusing on one particular “type” of validity. Six types of validity evidence were collected to answer four major research questions that were raised to determine if the construct of “intention to stay in academia” was measurable. The validity framework presented in Chapter 3 guided the researcher in reaching the general conclusions about the developed measure and allowed the researcher to identify the need
to further develop the theory of PA faculty “intention to stay in academia” in order to improve the validity of the measure.

In Phase I, Construct Conceptualization, content validity was demonstrated by the use of relevant literature and the involvement of 15 experienced PA faculty (content experts) in the conceptualization of the construct. This phase resulted in a list of 79 observable indicators of the construct. These indicators were qualitatively ordered by expert reviewers in Phase II, Measure Development, resulting in a continuum of observations deemed to represent “intention to stay in academia,” from those pertaining to a weak intention to stay to those related to a strong intention to stay. The input of the reviewers in Phase II on the technical quality of items provided further evidence of the content validity of the measure, while their confirmation of construct relevance contributed evidence of substantive validity.

In Phase III of the study, Pilot Testing, an instrument containing 70 items from Phase II was piloted to a convenience sample of 53 PA faculty, with a response rate of 75%. By demonstrating some evidence of structural and substantive validity, this phase provided preliminary evidence that the construct was quantifiable. The opportunity for the pilot respondents to leave comments on the survey about confusing or poor quality questions was another means of confirming the technical quality of the items necessary for arguing the content validity of the measure.

Survey administration to all PA faculty in the U.S. in Phase IV, Calibration and Validation, along with an adequate gross response rate of 49.3% contributed validity evidence by showing generalizability of the measure to all PA faculty. The high internal reliability estimates and the absence of differential item functioning by doctoral status
provided further evidence of the generalizability aspect of validity, while a sufficient person strata index gave initial evidence of external validity. Furthermore, the adequacy of person fit, the acceptable construct coverage, and the fact that the theoretical item hierarchy replicated overall from Phase II and Phase III indicated that the measure had some substantive validity. However, substantive validity was limited by the lack of a global meaning to the item hierarchy, and structural validity was limited by too much unexplained variance in the data (failure to meet the Rasch model expectations for unidimensionality). These two concerns limited the validity of inferences that could be drawn from the instrument as a whole.

Eight items on the instrument had unacceptable fit statistics, which signified construct irrelevance. These misfitting items all described personal experiences or characteristics of PA faculty, and, as discussed in Chapter 4, may simply not have been common enough experiences to be useful in measurement. One of the misfitting items was intentionality to teach (item 1), thus refuting the speculation in Chapter 1 that a lack of intentionality toward an academic career contributed to poor PA faculty retention. However, other speculated contributors to inadequate PA faculty retention discussed in Chapter 1 were supported in this research. These include: failure to endorse dissatisfaction with salary (item 31) and endorsement of a fair process for promotion and tenure (item 43). Both of these items were associated with moderate levels of “intention to stay in academia” in the Rasch analysis.

A series of empirical testing of different qualitatively meaningful subsets of items using the Phase IV data revealed a subset of 19 items, labeled as the Supportive Environment subscale, which functioned better than the entire set of 69 items. This
subscale contained four clusters (types) of items related to relationships, autonomy, institutional support, and workload. The inclusion of these is also supported in the literature on faculty retention in the health professions (see, for example, Romig, et al., 2011 and Spivey, et al., 2009; Chung, et al. 2010; Beavers, 2010; Lowenstein et al., 2007; Conklin & Desselle, 2007b). Some of the specific items within the clusters (e.g., the variety of the daily work of a PA educator and the opportunity to exercise creativity) were formulated as a result of the interviews of experienced PA faculty in Phase I of the study.

As discussed in Chapter 4, the clusters within the Supportive Environment subscale produced a meaningful progression of types of indicators of intention to stay in academia, represented an acceptable range of item difficulty, and reflected the theoretical item hierarchy, thus demonstrating substantive validity. Evidence of structural validity of this subscale was provided by the fact that 53.2% of the variance in the data was explained by the linear measure and no second dimension was found. The fact that three distinct groups of faculty with varying levels of intention to stay could be differentiated by this smaller measure provided some initial evidence of external validity as well. Based on the results of the Rasch analysis, the 19-item Supportive Environment subscale was considered to represent the best (so far) possible set of items that could be extracted to capture PA faculty “intention to stay in academia.” At the same time, it is important to note that measure calibration and validation is an ongoing process. This research represents just the first step in this process.
Continuing Measure Calibration and Validation

The major conclusion of this study is that the construct of “intention to stay in academia” is measurable. According to Michell (2003), this should be established before one would attempt further development of an instrument. This dissertation provided evidence that the construct of “intention to stay in academia” was quantifiable and conducted the first iteration of an instrument for measuring the construct, with the understanding that development of a perfectly functioning measure from one administration of an instrument was unlikely (even in the physical sciences, measurement requires multiple iterations before an instrument is adequately calibrated and validated [Bond & Fox, 2007; Michell, 2003]).

Several findings of this research point to the need of additional iterations and calibration of this instrument. The fact that 79 potential observable indicators of “intention to stay in academia” for PA faculty emerged in Phase I of the study and that the construct relevance of items developed from these indicators was confirmed in Phase II suggests that there must be additional indicators that, along with the indicators in the Supportive Environment subscale, comprise intention to stay in academia. It is possible that reworking and rewording some of the items in the instrument may improve their fit to the construct and thus enhance the structural validity of the measure.

Other explanations for the inadequate structural validity of the overall measure include both the possibility that PA faculty with low levels of intention to stay in academia may have been underrepresented in the survey respondents and the presence of a secondary dimension in the data. Regarding the former, only 5% of all Phase IV participants responded that they were “very likely” to leave academia and return to full-
time clinical practice. Thus, the presence of a non-response bias cannot be ruled out, as some PA faculty who were planning to leave academia may not have been motivated to respond to the survey. Participation by more faculty with the lower levels of intention to stay in academia may improve the variance explained by the measure, and thus its structural validity. Regarding the latter explanation, the secondary dimension in the data (as evidenced by a first contrast of greater than 3 eigenvalues in the PCA) indicated that some items on the instrument were measuring a different construct, signifying a weakness in the construct theory regarding “intention to stay in academia” for PA faculty.

The lack of a strong theory regarding PA faculty “intention to stay” may also be a possible explanation for the limited substantive validity of the measure. The theoretical framework adopted in the current study, that a wide range of observable environmental and individual indicators comprise the construct of “intention to stay in academia,” may not have been sufficient for measure development. Further theory development work is needed to guide future iterations of the instrument in an attempt to calibrate and validate a more meaningful measure of “intention to stay in academia” for PA faculty. As stated by Bond and Fox (2007): “Discrepancies between anticipated findings and the actual empirical outcomes are mutually informative: Theory informs practice – and practice informs theory” (p. 217).

**Contribution to the Higher Education Literature and the PA Profession**

This study addressed a gap in the existing higher education literature by providing a precedent for the construction of a meaningful measure of the construct of “intention to stay in academia.” As outlined in Chapters 1 and 2, higher education researchers have primarily studied faculty turnover intentions by conducting regression or other
correlational statistical analyses at the item level, and those studies frequently and inappropriately assumed ordinal response data to be interval (see for example, Barnes, et al., 1998; Heckert & Farabee, 2006; Zhou & Volkwein, 2004). This study illustrated an alternative method for studying faculty turnover intentions, by constructing a linear measure of “intention to stay in academia” that allowed for understanding of what comprised that intention using a stable frame of reference (a “ruler” of intention to stay). By converting ordinal response data into an interval scale and evaluating the unidimensionality of the measure, the Rasch model used in the development and calibration of the measure in the current research allowed for proper interval measurement of intention to stay, a psychological construct that was not directly observable. The four phases of this study – Conceptualization, Measure Development, Pilot Testing, and Calibration/Validation – represent a sequence that researchers interested in faculty retention could follow in studying either “intention to stay” or “intention to leave” in a broader higher education faculty population or in another specific discipline of faculty.

Informed by the works of Barnes, Agago, and Coombs (1998), Johnsrud and Rosser (2002), Matier (1990), Rosser (2004), Smart (1990), and Xu (2008a), this research began by adopting the theoretical framework that faculty turnover intentions were influenced by a broad range of individual, structural and contextual factors, with the caveat that the aforementioned researchers were attempting to explain faculty intention to leave. Thus, in the current study, a broad range of factors was included in the conceptualization of intention to stay in academia. However, it was aspects of the academic environment (the Supportive Environment subscale) that functioned best as
indicators of intention to stay for PA faculty. This study found that intention to stay in academia, for PA faculty in particular, could be described in terms of the relationships, autonomy, institutional support, and workload issues within the academic environment.

The role of academic environmental factors in faculty retention has been supported by the works of the aforementioned higher education researchers. For example, Smart (1990) included a few work environment variables (e.g., governance participation and influence) in his model of faculty intention to leave, and Johnsrud and Rosser (2002) studied the influence of faculty perceptions about multiple aspects of faculty worklife (e.g., administrative support and administrative relations) in their model of faculty morale and intention to leave. As described in Chapter 2, Barnes et al. (1998), who developed the only theoretical model for explaining faculty intent to leave academia (as opposed to current position), found that time commitment and lack of a sense of community were the two most important predictors of intention to leave academia. This finding parallels two indicators of intention to stay in academia in the Supportive Environment subscale in the current study. These indicators reflected moderately high intention to stay: (a) endorsement of feeling a part of a wider academic community at an institution and (b) failure to endorse frustration with the time demands of faculty work. Additionally, the importance of intangible environmental factors to retention, as demonstrated by Matier (1990), was confirmed by the current study, as the majority of the indicators of “intention to stay in academia” in the Supportive Environment subscale could be described as intangible support present within an academic environment.

In addition to environmental variables, many higher education researchers have included demographic variables in their conceptual models for explaining faculty
turnover intentions (see, for example, Johnsrud and Rosser, 2002; Smart, 1990). Demographic variables were not part of the actual measure in the current study (although demographic questions were included in the survey for the purposes of describing participants and assessing DIF) because the ultimate goal was development of a measure that could be used to assess PA faculty intention to stay, regardless of gender, age, or other demographic characteristics. Although personal characteristics, motivations, and experiences of individual faculty members were included in the conceptualization of “intention to stay in academia,” the Supportive Environment subscale that emerged from the Rasch analysis consisted mainly of aspects of the academic environment. Whether individual experiences and motivations should be incorporated into a measure of intention to stay remains to be empirically tested; however, individual factors may be less useful indicators of intention because they are less amenable (theoretically) to intervention.

Although this study makes a methodologic contribution to higher education research, the utility of the measure developed in this study for other faculty groups is unknown. The generalizability of the measure to all higher education faculty may be affected by the uniqueness of PA education, in that PA faculty typically enter academia directly from a professional clinical practice (often of many years duration) and have easy mobility back to non-academic clinical roles. As such, “intention to stay in academia” may be operationalized differently for PA faculty than for faculty in more traditional academic disciplines. Even within the specific disciplines of the health professions in higher education, PA faculty are possibly unique from other faculty because of the recent rapid expansion of the profession, as discussed in Chapter 1.
Nonetheless, as stated previously, many of the indicators in the Supportive Environment subscale were identified in the literature on health professions faculty retention, and the current study provides a precedent for developing a measure of intention to stay for other faculty populations.

As the first study of the intention of PA faculty to stay in academia (as well as one of the few studies to date that addressed the issue of PA faculty retention), this research makes an important theoretical and methodological contribution to the PA profession. The methodology presented here for studying PA faculty intention to stay in academia can be used as a framework for further PA faculty retention research; recommendations for future research and measure refinement are presented at the end of this chapter. This research also allows higher education administrators and other stakeholders in PA education to begin to address the problem of inadequate PA faculty retention. Implications for these groups are discussed next.

**Implications for Higher Education Administrators**

In order to retain PA faculty, it is important for higher education administrators who oversee PA programs to understand what comprises PA faculty “intention to stay in academia.” The strong demand for institutions of higher learning to offer PA education and the resulting recent proliferation of PA programs (Accreditation Review Commission on Education for the Physician Assistant, 2012), all in an era in which clinical jobs are readily available (U.S. Bureau of Labor Statistics, 2012), necessitates that higher education administrators work to retain PA faculty in academia. To this end, administrators need to cultivate the types of environments and experiences that support an intention to stay. Ideally, a measure of “intention to stay in academia,” when
administered to PA faculty within a program, would inform a higher education administrator regarding the level of intention to stay of the faculty within that program and assess the need for focused retention efforts. This was the ultimate goal of the measure development process initiated in this study. However, further research and iterations of the measure are required before the measure can be used practically in that way.

The most valid inferences that higher education administrators can make about PA faculty intention to stay in academia come from the Supportive Environment subscale. According to the results of this investigation, relationship and autonomy items reflect low to moderate levels of “intention to stay in academia.” This means that almost all PA faculty should endorse positive statements regarding relationships and only faculty with the very low levels of intention to stay would be unlikely to endorse these items. An awareness of the role of relationships in “intention to stay in academia” may encourage higher education administrators to support these relationships, either by ensuring adequate time and structure within the program for faculty to personally interact with students, by providing more mechanisms for the faculty to receive positive feedback from students and graduates, or by encouraging a collegial atmosphere among PA program faculty. In regards to autonomy, this study informs higher education administrators that autonomy in scheduling, work flow, and type of work supports intention to stay. The administrators should strive to allow these advantages of the academic environment to flourish. Faculty who feel that they are micromanaged may have less intention to stay.

The institutional support items within the Supportive Environment subscale reflect moderate to high levels of “intention to stay in academia” and represent the area in
which higher education administrators have the most potential to intervene. Because most PA faculty enter academia directly from clinical practice (Glicken, 2008), they are often unprepared for the culture and expectations of academia. Higher education administrators can better support this transition and foster the faculty member’s intention to stay by helping the PA faculty member to become involved in the wider academic community at the institution, by making the expectations of academia explicit, by ensuring that the promotion and tenure process is fair and attainable for PA faculty, and by helping new faculty to identify a mentor who can help them navigate the institutional culture. Administrators above the level of the PA program director can further support intention to stay by making it clear that the PA program is supported by upper level administration and by recognizing faculty for their efforts.

Finally, this research informs higher education administrators that PA faculty with the most intention to stay in academia are unlikely to feel overwhelmed by their workload and are specifically likely to feel supported in the research aspect of their workload. Thus, higher education administrators can support PA faculty intention to stay by ensuring that workload is equitable, by matching work assignments to the faculty strengths, and by providing needed support to complete work, including the release time or resources to conduct scholarly work. Additionally, because having a research mentor was the item that reflected the most intention to stay in the measure, higher education administrators can support the intention of PA faculty to stay in academia by connecting them with a research mentor, particularly in institutions where research is an expectation for PA faculty. Reports of peer research mentoring programs that use minimal
institutional resources have been published (see, for example, Varkey, et al., 2012) and provide administrators with the procedures and assessment tools for such programs.

As previously stated, this study represents an important first step towards understanding how to better retain PA faculty in a systematic way. Higher education administrators also face difficulties retaining faculty in other health professions (Association of Academic Health Centers, 2011). The inability to adequately retain faculty is costly for educational institutions, not only in the sense of loss of human capital, but also in the sense of financial resources and time required to recruit new faculty (Ambrose, et al., 2005; Hacker, 2003; Harrigan, 1999; Johnsrud & Rosser, 2002; Shollen, et al., 2009; Xu, 2008a). Inadequate faculty retention is a severe problem in the areas of pharmacy (American Association of Colleges of Pharmacy, 2012; Spivey, et al., 2009), nursing (Dunham-Taylor, et al., 2008; Moskowitz, 2007; Tracy & Fang, 2011), and dentistry (Haden, et al., 2008; John, et al., 2011). Faculty retention is also suboptimal in medicine (Alexander & Lang, 2008; Bickel & Brown, 2005) and many other allied health programs (Association of Academic Health Centers, 2011; Moskowitz, 2007). Because these professions are similar to the PA profession in that the faculty in these professions have easy mobility between academia and clinical practice, the construct of “intention to stay in academia” for PA faculty may have a similar meaning in these other health professions. Therefore, this study may have additional implications for higher education administrators because it demonstrates a methodology for studying faculty “intention to stay in academia” and provides a preliminary version of an instrument that could be tested in other faculty populations.
Implications for Other Stakeholders in PA Education

This investigation can also inform other stakeholders in PA education who are interested in addressing the problem of inadequate PA faculty retention. Although the Supportive Environment subscale mostly reflects aspects of a supportive academic environment, the PAEA, the AAPA, and senior PA educators and leaders could support PA faculty intention to stay in academia by helping to foster research within the PA faculty community. The fact that the most difficult item to endorse in the measure dealt with having a research mentor early in an academic career indicates that this is an uncommon experience among PA faculty. Given that the discipline of PA education is relatively young, that the terminal degree of the profession is a master’s degree, and that most PA faculty have minimal research or writing experience (Hegmann & Axelson, 2012), this is not surprising. The PAEA has made initial efforts in this direction by establishing a research mentorship program (PAEA, 2011). This dissertation supports the need for that program and as well as for other efforts to foster research mentorship relationships among PA faculty. In addition to the research mentorship program, the Research Committee of the PAEA could promote the development of research partnerships between programs (such as research partnerships within geographic consortia) in order to facilitate collaboration between PA faculty who are experienced researchers and newer faculty without research experience. Increased efforts could also be made to encourage seasoned PA educators to reach out to newer PA faculty in their programs to involve them in research projects and other scholarly activities.

Although the item regarding support for research (item 29) in the Supportive Environment subscale dealt with support at the institutional level, it would be reasonable
to extrapolate that support for research from other sources would also be helpful in fostering PA faculty intention to stay. The AAPA, the PAEA, and other PA organizations should consider what they can do to support research within the PA community, whether with increased grant funding, workshops, collaboration efforts, administrative support, or recognition of research conducted by PAs. These recommendations are consistent with the conclusions of a recent study of PA faculty scholarly productivity by Hegmann and Axelson (2012), who identified the need for continuing national efforts to assist PA faculty in becoming more productive in research and publication.

**Recommendations for Future Research**

In order to improve the validity of the measure of “intention to stay in academia” for PA faculty developed in this study and thereby improve its usefulness in decision-making regarding PA faculty retention, the following recommendations are offered to guide future refinement of the instrument. First, a stronger overall theory regarding PA faculty “intention to stay in academia” should be sought through further qualitative investigation. The richness of the qualitative data obtained in this study, combined with the very positive reception of the research from the Phase I experts indicates that the area of faculty retention is ripe for qualitative investigation. Now that the researcher knows how items functioned in the current study and has a better understanding of the process of psychometric development, follow-up interviews could be conducted with Phase I experts or other experienced PA faculty in an attempt to develop a stronger theory. Rather than focusing on indicators of the construct that would inform individual item development, the interviews should focus on extracting a broader theory regarding
“intention to stay in academia,” such as a progression that faculty move through psychologically as intention strengthens or weakens. A stronger theory regarding PA faculty intention to stay could then guide the refinement of the instrument and the addition, deletion, or revision of items.

Additionally, it is possible that other meaningful subsets can be extracted from the 70 items used in Phase IV. These items could be discussed with experienced PA faculty to see if another theoretically meaningful subset or a secondary dimension could be extracted, or to identify improvements in item wording. This type of investigation may lend itself better to a focus-group format, which would allow for the exchange of ideas among several participants simultaneously.

Although the exclusion of PAs who have left academia was a delimitation (i.e. a purposeful limitation) of the current study, further qualitative work could involve these faculty to identify their reasons for not staying in academia. This may help to identify types of items on an instrument for measuring intention to stay in academia that could better differentiate faculty with varying levels of this intention. Those who had left academia should theoretically be able to endorse very few items on the instrument, and their input into the wording of items may be very helpful.

Further iterations of the instrument could also be conducted using the items that were developed in Phase II but not tested in the current study. At the conclusion of Phase II, 34 construct-relevant items were not included in the instrument in order to keep it at a manageable size. Some of those items would fit the Supportive Environment subscale and as such might represent additional items that could be calibrated and validated in the measure. Additionally, a question asking how likely the participant was to stay in
academia long-term could be used in place of the question asking how likely the participant was to leave academia and return to clinical practice. A Rasch DIF analysis by response to such a question may help to identify items that can better separate out faculty with varying levels of intention to stay.

Finally, once it is demonstrated that the measure of “intention to stay in academia” has strong substantive and structural validity, it could be tested on non-PA faculty (with a few minor revisions to item wording) to determine if the measure functions for other faculty groups. This dissertation focused on faculty in PA programs who were themselves physician assistants, however 22% of current PA program faculty are non-PAs (PAEA, 2012). Additionally, many other health professions struggle with faculty retention, as noted previously. Therefore, further investigation would be warranted to determine if a measure of “intention to stay in academia” for PA faculty can be applied more broadly, whether or not a faculty member is a physician assistant.
References


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Appendix A

Interview Protocol

The purpose of my research is to develop a measure of “intention to stay in academia” for PA faculty. I’m defining “intention to stay in academia” as the anticipation or willingness to stay in the academic role. The purpose of the interviews is to identify some observable indicators of a PA’s intention to stay in academia, which I could then use to write survey items. This interview will take between 60-90 minutes. I would like to record the interview, but I won’t record any personal information and your name and institution will not be mentioned in my research.

Do you agree to participate and to allow me to record the interview?

Do you have any questions about this research before we begin?

I’ll begin with a few background questions:

- How long have you been a full-time PA faculty member?
- What PA programs have you worked for?
- Are you certified and able to practice clinically as a PA?

(Note: this is a semi-structured interview protocol. Dark bullet points are the main questions, which will be asked as written. Light bullet points are probes, which will be used flexibly within the context of the interview conversation. More general probes, such as “What do you mean by ____” and “Can you give me an example of ____” will also be employed as needed.)
Background/personal intention to stay in academia

- Tell me about your choice to become a full-time PA faculty member.
  - Did you have prior experiences, either in PA school or before PA school that influenced your eventual choice to become involved in PA education?

- Tell me about your choice to continue in PA education for ___ years
  - What motivates you to continue in PA education?
  - What are the most influential factors in your persistence in this job?
  - What aspects of the academic role keep you in this job?
  - Are there any aspects of your personal life that keep you in this job?

- Do you feel that you will remain in academia for the remainder of your career?
  - Why?
  - Why not?

- Have you ever had second thoughts about your academic career and considered returning to clinical practice?
  - How did you overcome these doubts?
  - Why did you stay in academia despite _____?
Perception of others’ intention to stay in academia

- Think about PA faculty who you have interacted with over the years who have been in academia long-term and will likely persist in academia until retirement. How would you describe them?
  - Can you think of some general phrases that would describe them?
  - Do they have any common personal characteristics?
  - Have they had any common experiences in academia?
  - Have they had any common experiences outside of academia? *(If needed, give examples of external factors such as family, geography, etc.)*
  - Do they have any common motivators that keep them in academia?

- Think about PA faculty who you have interacted with over the years who only stayed in academia for a few years and then returned to clinical practice. What do these PAs have in common?
  - Do they have any common personal characteristics?
  - Have they had any common experiences in academia?
  - Have they had any common experiences outside of academia? *(If needed, give examples of external factors such as family, geography, etc.)*
  - What aspects of the academic role or of the academic environment did these PAs like the least?
  - What reasons have PAs given you for returning to clinical practice? Or what do you suspect were the major reasons?
• Can you think of anything else that differentiates those PAs who stay in academia long-term from those who return to clinical practice after a few years?
  o Any personal characteristics?
  o Any experiences in academia?
  o Any experiences outside of academia?
  o Any motivational differences?
  o What aspects of the academic role do those who stay enjoy much more than those who leave?
  o Are there any benefits to being in an academic environment that those who stay appreciate much more than those who leave?

• Can you think of things that all PA faculty have in common, whether they stay in academia long-term or return to clinical practice after a few years?
  o Imagine a survey with a list of statements that PA faculty are asked to agree or disagree with. Can you think of some examples of statements about the academic role that all or most PA faculty would agree with?

Final question

• Is there anything else you could tell me that would help me understand a PA’s willingness to continue in PA education?
Appendix B

Institutional Review Board Approval

To: Svetlana Beltyukova, Ph.D. and Karen Graham
Department of Educational Foundations and Leadership

From: Barbara K. Chesney, Ph.D., Chair
Kamala London, Ph.D., Vice Chair
Walter Edinger, Ph.D., Chair Designee

Signed: [Signature]
Date: 11/07/11

Subject: IRB #107439
Title: Development and Validation of a Measure of Intention to Stay in Academia for Physician Assistant Faculty

On 11/07/11, the above research was reviewed and approved as Exempt (category #2b) by the Chair and Vice Chair of the University of Toledo (UT) Social Behavioral & Educational Institutional Review Board (IRB). The requirement to obtain a signed consent/authorization for use and disclosure of protected health information form has been waived as this research is determined to be minimal risk and a signed consent/authorization document would be the only record linking the subject to the data. It was determined that this waiver for signed consent/authorization will not adversely affect the rights and welfare of the participants. This action will be reported to the committee at its next scheduled meeting.

Please Note: A consent form is not required for this study. However an Information Sheet regarding the study should be distributed to potential participants. This Information Sheet should include the name and telephone number of a contact person in case the subjects need additional information. It is also strongly encouraged that the study be explained verbally to potential subjects.

Items Reviewed:
- IRB Application Requesting Exempt Review
- Survey
- Email Consent

Designated as EXEMPT RESEARCH on: 11/07/11

Please read the following attachment detailing Principal Investigator responsibilities.
Appendix C

Email Informed Consent

Dear Participant:

You are invited to participate in a dissertation research study entitled, *Development and Validation of a Measure of Intention to Stay in Academia for Physician Assistant Faculty*, which is being conducted at the University of Toledo under the direction of Svetlana Beltyukova, PhD and Karen Graham, MPAS, PA-C. As you may know, faculty retention is an area of concern in our growing profession. The purpose of this study is to develop an instrument to measure the intention of PA faculty to stay in academia.

This study consists of an electronic survey that will take approximately 15 minutes of your time. The only direct benefit to you if you participate in this research may be that you will learn more about the intention of PA faculty to stay in education. Others within the PA profession or higher education who are concerned with faculty retention may also benefit from this research.

Your participation in this study is voluntary and confidential. There are no known risks to participating. Your refusal to participate will not affect your relationship with the University Of Toledo, and you have the right to stop participating at any point in the survey. Your reply will be held in the strictest confidence, so please do not include your name or any other identifying information on the questionnaire. By completing this survey, you are implying your consent to participate in this study. If you consent to participate, please complete the questionnaire by clicking here ________________________.

If you have questions or concerns at any time regarding this survey or wish to be informed of the results, please call Karen Graham at 608-406-5658 or Svetlana Beltyukova at 419-530-4204. If you have questions beyond those answered by the researchers or about your rights as a research subject, the Chairperson of the SBE Institutional Review Board may be contacted through the Office of Research at 419-530-2844.

Thank you for your time and assistance in this research,

Sincerely,

Svetlana Beltyukova, PhD
Principal Investigator
Svetlana.beltyukova@utoledo.edu

Karen Graham, MPAS, PA-C
PhD candidate
Karen.graham@rockets.utoledo.edu
Appendix D

Pilot Instrument

1. When I was in PA school, I knew that someday I would be teaching in a PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

2. Prior to becoming a PA faculty member, I had a desire to advance my education beyond the degree that I received in PA school.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

3. Prior to becoming a PA faculty member, I was encouraged to consider going into PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

4. I had formal training in teaching (such as courses in education or a teaching fellowship) prior to becoming a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

5. I had positive experiences with precepting students prior to becoming a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

6. I had positive experiences in a part-time role in PA education prior to accepting a full-time faculty position.
   a. strongly agree
   b. agree
   c. disagree
7. I am in PA education because I found clinical practice to be too demanding.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

8. Patient education is [was] one of my favorite aspects of clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

9. I prefer the immediate feedback that I receive in clinical practice to the delayed feedback that I receive in PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

10. When I first entered PA education, I thought that the majority of my time would be spent teaching students in the classroom or small-group setting.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

11. When I first entered PA education, I did not realize what the daily life of a PA educator was really like.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

12. Early in my PA education career, I had [have] a mentor within my institution who helped me to understand the academic role and institutional culture.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

13. Early in my PA education career, I had [have] a mentor in PA education who I could go to with questions.
    a. strongly agree
14. Early in my PA education career, I had [have] a research mentor who involved me in his or her research and/or assisted me with my early research projects.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

15. If I need to get advice about a problem or a situation in my PA program, I have a mentor in another PA program who I can call to talk to about the situation.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

16. I have been influential in the founding of a new PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

17. I currently receive high ratings on my course evaluations from PA students.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

18. I have good working relationships with my fellow faculty members within the PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

19. My family would prefer that I was in full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

20. I am encouraged by my PA program to continue to practice clinically while being a PA faculty member.
   a. strongly agree
b. agree
c. disagree
d. strongly disagree

21. There have been times in the classroom in the past year when I felt I didn’t have enough clinical experience to be an effective PA educator.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

22. I have recently adapted my teaching in response to changes outside of my control (for example: new accreditation standards, changes in program faculty, advancements in medicine, etc.)
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

23. I am currently serving as a mentor to at least one other PA who is new to PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

24. I am active within the PA profession on an international level.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

25. I make changes every year to the courses that I teach.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

26. I prefer to focus on my teaching and try to avoid getting bogged down in the details of academia.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
27. I am frustrated by how long it takes to institute a change in my program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

28. I have been successful so far in fulfilling the requirements of my institution for faculty scholarly work.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

29. Other faculty within my program would identify me as the person on our faculty who is a problem-solver in student issues.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

30. I am an expert in the content area that I teach in the PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

31. I aspire to a position of leadership within my institution (or did aspire, if currently in a leadership position).
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

32. I consider organizational skills to be one of my strengths.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

33. I feel that my PA program is supported by the institutional administration.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
34. My immediate supervisor supports me and treats me as a valued colleague.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

35. My immediate supervisor treats faculty in an even-handed way.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

36. I feel that I am not only a part of the PA program but also a member of the wider academic community at my institution.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

37. I understand the culture and governance structure of my institution.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

38. If a question regarding a change in curriculum comes up in a faculty meeting, I will have an opinion about the change and will be sure that my opinion is heard.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

39. My primary identity is that of a PA educator rather than a clinical PA.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

40. I enjoy the administrative tasks that are part of my job as a PA educator.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

41. I have difficulty accepting the non-teaching responsibilities of a PA faculty member.
42. I enjoy the process of measuring and evaluating the outcomes of PA student learning.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

43. I enjoy the fact that I find teaching PA students more challenging than clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

44. I enjoy doing research.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

45. I have more opportunities to exercise my creativity in my academic role than I did in full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

46. I feel that I impact more patients as a PA educator than I did when I was practicing clinically full-time.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

47. I have adequate support from my institution to produce scholarly work.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
48. In the past year, the amount of faculty work that I have had to take home has made me seriously consider going back to full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

49. In the past year, dissatisfaction with my faculty salary has made me seriously consider going back to full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

50. I am considering returning to full-time clinical practice because I miss having daily interactions with patients.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

51. I am currently feeling overwhelmed by my faculty workload.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

52. In PA education, I have more potential to positively affect society than I had in clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

53. My position as a PA faculty member is more than just another PA job for me; it is a vocational calling.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

54. Students consider me to be a good teacher.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
55. Service on committees is a tedious and unnecessary part of my job as a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

56. The process for promotion (and tenure, if available) of faculty in my department is fair.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

For the questions 57-70, please indicate your level of agreement or disagreement with the following as reasons for you to stay in PA education.

A reason for me to stay in PA education is:

57. My desire to help students become successful PAs
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

58. The ability to move up the academic ladder or to gain importance within an academic institution.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

59. The relationships that I have developed with my fellow faculty members within the PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

60. Flexibility in my personal schedule.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
61. The opportunity that my job as a PA faculty member affords me to continually learn and keep up-to-date with medical knowledge.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

62. The recognition that I receive from my colleagues in PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

63. The recognition that I receive from the administration of my institution.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

64. Watching the transformation that takes place in PA students from the first day of the program through graduation day.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

65. The variety of my daily work as a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

66. The ability this career affords me to achieve a balance between my work and my personal life.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

67. The opportunity I have here to give back to the PA profession.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
68. The autonomy that I have over my person schedule (i.e. the freedom to manage my time throughout the day as I see fit.)
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

69. The positive feedback that I receive from students after they graduate.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

70. The opportunity to interact with PA students daily on a personal level.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

71. Are you a PA?
   a. yes
   b. no

72. Please select your gender.
   a. male
   b. female

73. Please enter your age. ___

74. Please enter the number of years that you worked as a clinical PA only prior to becoming a PA faculty member. ___

75. Please enter the number of years that you have worked as a PA faculty member. ___

76. What is your current PA faculty status?
   a. full-time
   b. part-time

77. What is your current tenure status?
   a. tenured
   b. tenure track
c. non-tenure track

78. What is your current academic rank?
   a. professor
   b. associate professor
   c. assistant professor
   d. lecturer/instructor
   e. other

79. What is the highest degree that you have earned?
   a. PhD
   b. MD/DO
   c. Other doctorate
   d. Master’s
   e. Bachelor’s
   f. Associate
   g. Other

80. Are you currently pursuing a doctoral degree?
   a. yes
   b. no, but I am planning to pursue a doctoral degree
   c. no, and I am not planning to pursue a doctoral degree

81. Are you a program director?
   a. yes
   b. no

82. Do you currently practice clinically?
   a. no
   b. yes, <8 hours per week
   c. yes, 8-16 hours per week
   d. yes, >16 hours per week
# Appendix E

## Interview Data Analysis

*Note.* Categories include: external environmental factors, tangible internal environmental factors, intangible internal environmental factors, and individual factors. Total code count is the total number of times that the code was identified in the interviews, while interview code count is the number of distinct interviews in which the code was identified. The statement column contains a paraphrase or direct quotation from the participant that represents a potential indicator of “intention to stay in academia” for PA faculty. Interview number identifies which interview (1-15) the statement was extracted from.

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<tr>
<th>Code</th>
<th>Category</th>
<th>Total Code Count</th>
<th>Interview Code Count</th>
<th>Statement</th>
<th>Interview Number</th>
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<td>Administrative tasks</td>
<td>Internal/intangible</td>
<td>9</td>
<td>6</td>
<td>enjoy positions that use his administrative skills</td>
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<td></td>
<td>enjoys paperwork and the day-to-day operations of the program</td>
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<td>enjoys the mix of teaching and administration</td>
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<td>had a desire to move into more administrative work, to do more than just teaching</td>
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<td>those who leave do not enjoy the paperwork, writing objectives, etc.</td>
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<td></td>
<td>feels an affinity for administrative work</td>
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</tr>
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<td></td>
<td></td>
<td></td>
<td>those who leave &quot;do not like the administrative piece&quot;</td>
<td>10</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>for me, &quot;that is all just part of the work&quot; - regarding the paperwork, student advising, etc. - &quot;it all rolls into what, ultimately, the students are going to get…&quot;</td>
<td>15</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>those who leave don't like the paperwork - they didn't anticipate that</td>
<td>15</td>
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<tr>
<td>Admissions</td>
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<td>1</td>
<td>enjoys the PA school admissions process</td>
<td>2</td>
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<tr>
<td>Altruism</td>
<td>Individual</td>
<td>8</td>
<td>4</td>
<td>&quot;it's the pay-it-forward concept, people helped me so why wouldn't I want to help them?&quot; as a motivation for being in PA education</td>
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<td>those who stay care about the welfare of the students</td>
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<td>faculty who stay are extremely altruistic - &quot;it's not about them, it's about the students&quot;</td>
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<td>feels a sense of responsibility to the students to stay, especially to the minority students</td>
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<td>all PA faculty feel an obligation to provide a service</td>
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<td>Type</td>
<td>Rating</td>
<td>Comments</td>
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<td></td>
<td>Assessment</td>
<td></td>
<td>those who stay &quot;have an obligation to more than themselves&quot;</td>
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<td></td>
<td></td>
<td>10</td>
<td>&quot;...I think it's all about the higher being. They place value on the ultimate endgame, which is patient care...the motivation is higher than myself...&quot;</td>
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<td>all PA faculty &quot;really want to take care of people&quot;</td>
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<td></td>
<td>Assessment</td>
<td>6</td>
<td>those who leave often do not enjoy course assessment and evaluation</td>
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<td></td>
<td></td>
<td>5</td>
<td>those who leave may have an aversion to the accreditation process</td>
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<td>he really enjoys assessing outcomes of student learning</td>
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<td>4</td>
<td>those who leave do not enjoy the accreditation aspect</td>
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<td>7</td>
<td>those who leave do not like measuring student outcomes</td>
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<td>10</td>
<td>enjoys programmatic assessment</td>
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<td></td>
<td>Autonomy</td>
<td>5</td>
<td>&quot;I get a lot, a lot of autonomy&quot;</td>
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<td>5</td>
<td>early on, had freedom in developing the program</td>
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<td></td>
<td>&quot;freedom to manage your life&quot; compensates for salary difference</td>
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<td></td>
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<td></td>
<td>&quot;the ownership of my time&quot; is a perk of academia that I wouldn't have in clinical practice</td>
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<td>10</td>
<td>appreciates the ability to do his work from home in academia</td>
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<td></td>
<td>Best of both</td>
<td>1</td>
<td>&quot;...if I stay, I can have the best of both worlds...&quot; (clinical and academic)</td>
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<td></td>
<td>Calling</td>
<td>6</td>
<td>&quot;I feel that I've been called to do this [PA education]&quot;</td>
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<td></td>
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<td>5</td>
<td>those who stay &quot;view their job as a higher order...to have an impact on patient care...with how I teach my students&quot;</td>
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<td>had a sense of &quot;calling&quot; to be in PA education; &quot;there was just a sense that it was right to be here, that it was something that was a good fit, that I felt really called to be in that position...&quot;</td>
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<td>8</td>
<td>those who stay have a vision and an obligation &quot;higher than themselves&quot;</td>
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<td>10</td>
<td>to those who stay, &quot;it's not just a job&quot;</td>
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<td>15</td>
<td>&quot;at some level, those of us who stay in this really feel that at some level it fits who we are. We're doing a job that we feel is the job we're meant to be doing. I think it's a connection with the work.&quot;</td>
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<td></td>
<td>Calm</td>
<td>2</td>
<td>those who stay are not easily flustered, they stay calm in the face of student emergencies</td>
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<td>2</td>
<td>those who leave get easily flustered and overwhelmed when things go wrong</td>
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<tr>
<td>Career advancement</td>
<td>Internal/intangible</td>
<td>5</td>
<td>4</td>
<td>appreciates the career advancement opportunities in academia</td>
<td>2</td>
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<td></td>
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<td></td>
<td>&quot;as a PA, the physician is always going to be your boss no matter what&quot;; lack of ability to &quot;move up&quot; above just being the senior PA in clinical practice</td>
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<td></td>
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<td>&quot;[academia] is one of the few places where you can remain a PA but continue to move up in rank…&quot;</td>
<td>3</td>
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<td>early on I &quot;aspired to move up the academic ladder&quot;</td>
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<td></td>
<td>those who stay want to advance their careers, either in education or in the profession</td>
<td>6</td>
</tr>
<tr>
<td>Challenge</td>
<td>Individual</td>
<td>4</td>
<td>4</td>
<td>&quot;It was a challenge…I do like challenges.&quot; - why stayed</td>
<td>6</td>
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<td>he liked the challenge of being able &quot;to teach anybody anything&quot;</td>
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<td>&quot;I love the challenge&quot; of building a good PA program</td>
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<td>&quot;I enjoy a challenging environment&quot; - all PA faculty would agree with</td>
<td>13</td>
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<tr>
<td>Change agent</td>
<td>Internal/intangible</td>
<td>4</td>
<td>2</td>
<td>likes the potential in academia for a faculty member for &quot;being a unit of social change&quot;</td>
<td>9</td>
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<td>&quot;the opportunity to effect change&quot; has motivated her to continue in PA education</td>
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<td></td>
<td>those who stay appreciate the &quot;ability to effect change on a big scale&quot;</td>
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<td></td>
<td>all PA faculty believe that we can effect change through education</td>
<td>15</td>
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<tr>
<td>Clinical</td>
<td>Individual</td>
<td>16</td>
<td>8</td>
<td>still practicing clinically one day per week helps with keeping current, staying credible with students, and supplementing salary</td>
<td>1</td>
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<tr>
<td>participation</td>
<td></td>
<td></td>
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<td>still practicing clinically keeps her in academia because she doesn't feel like she's &quot;missing out on the outside world&quot;</td>
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<td>working clinically one day per week benefits him personally, professionally, and financially</td>
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<td>being able to still practice clinically one day per week while on faculty helps with retention of PA faculty</td>
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<td></td>
<td>has a clinical practice day per week which keeps him from feeling like he is missing out on the clinical world</td>
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<td>having a clinical practice day helps me to not lose clinical skills and keeps me connected with patients</td>
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<td>those who leave are often too inexperienced clinically, so they feel disadvantaged in the classroom</td>
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<td>those who leave may have an &quot;idealistic view&quot; of what full-time clinical practice is like because they are removed from it</td>
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<td>having a clinical practice day is very important to the retention and</td>
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<td>job satisfaction of faculty across the country</td>
<td>continues to practice clinically</td>
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<td>having a clinical practice day &quot;gives us balance&quot;</td>
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<td>having a clinical practice day with retained income helps to balance the clinical practice days</td>
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<td>having a clinical practice day enhances credibility with students</td>
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<td></td>
<td>all PA faculty would agree that clinical experience enhances teaching and vice versa</td>
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<td>continued to practice clinically during the early part of her academic career</td>
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<td></td>
<td>having a clinical practice day is important to retention because otherwise people feel farther away from practicing, becomes more difficult to maintain certification, etc.</td>
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<td></td>
<td>relationships built with other faculty are a motivation to stay</td>
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<td></td>
<td>&quot;I don't think PAEA or my college have ever saved a faculty member for, but people in my department have. I think that internal support is the best.&quot;</td>
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<td>relationships with colleagues are vital for PA faculty retention</td>
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<td></td>
<td>&quot;I have really great people working with me&quot;</td>
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<td></td>
<td>enjoys being around colleagues in academia, work with them on projects and see them have success</td>
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<td>relationships with colleagues in the program are important</td>
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<td>has worked with good, supportive people</td>
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<td></td>
<td>the people who she works with are her friends</td>
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<td>&quot;I stayed for great people&quot; at a time when she wasn't making a lot of money</td>
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<td>&quot;people stay for relationships not for money&quot;</td>
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<td></td>
<td>people who stay have &quot;great working environments that allowed them to develop good relationships&quot;</td>
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<td></td>
<td>faculty who stay work well with their colleagues</td>
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<td>those who leave do not have support and mentoring from colleagues</td>
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<td>some who leave may have had an experience with a &quot;bully&quot; on faculty</td>
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<td>those who leave do not have support and mentoring from colleagues</td>
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<td>some have left because of poor relationships with colleagues</td>
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<td>those who leave may have difficulty with interpersonal relationships with colleagues</td>
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<tr>
<td>Colleagues/clinical</td>
<td>Individual</td>
<td>1</td>
<td>1</td>
<td>those who stay have relationships with the community clinically-practicing PAs</td>
<td>11</td>
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<tr>
<td>Colleagues/national</td>
<td>Internal/intangible</td>
<td>13</td>
<td>4</td>
<td>those who stay have a network of peers across the country</td>
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<td>those who stay develop camaraderie with PA faculty at other programs</td>
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<td>his relationships with other PA program directors are important to him, considers them great friends</td>
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<td>has a large network of colleagues in PA education &quot;we have kept each other afloat over the years&quot; they were each others’ friends, mentors, etc.</td>
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<td>one of the keys to success is to have relationships with PA educators in other PA programs</td>
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<td>relationships with colleagues nationally are important for retention</td>
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<td>early on, developed relationships with PA educators across the country</td>
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<td>gets satisfaction from her interactions with established PA educators across the country</td>
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<td>those who stay have relationships with other PA program faculty</td>
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<td>&quot;I just think the key thing is that you need those external connections…[with PA faculty in other programs]&quot;</td>
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<td>those who stay may enjoy relationships built with PA faculty from other programs</td>
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<td>those who stay appreciate the relationships that they build within the PA teaching community</td>
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<td>those who stay feel supported by the larger PA education community</td>
<td>14</td>
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<td>Community involvement</td>
<td>Individual</td>
<td>2</td>
<td>2</td>
<td>community involvement influences her to stay because she has more opportunity to be involved</td>
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<td>stays involved in community outreach with students</td>
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<tr>
<td>Content mastery</td>
<td>Individual</td>
<td>7</td>
<td>6</td>
<td>those who leave are not confident in their clinical/medical knowledge</td>
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<td>those who leave have a lack of confidence in their medical/clinical knowledge</td>
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<td>those who leave are always afraid that the students will ask them a question that they don't know the answer to, or that they won't be able to explain something</td>
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<td>people who stay have to reach a point where they feel like they own the content and the course that they are teaching, have to be very</td>
<td>5</td>
</tr>
</tbody>
</table>
"I began to realize…that I became an 'expert' in different areas and that was rewarding in a lot of ways…"

those who stay have developed their area of specialization and they feel very comfortable in that" - they like feeling like experts in what they are doing

faculty who stay are "confident and well-versed in their subjects"

Creativity | Internal/intangible | 3 | 3 |
-----|-------------------|---|---|
"The thing I like about education…I get to use my creativity…"

"I find creativity in my day-to-day activities"

those who stay appreciate the ability to use their creativity - there are more opportunities for this in academia than in clinical practice

Curriculum | Internal/intangible | 5 | 3 |
-----|-------------------|---|---|
enjoys curriculum projects

"I love curriculum development and innovation"

she is motivated by the ability to incorporated things that she feels are important into the curriculum of whatever program she is teaching in

"...I wanted to play a role to shift or to expand the training of PAs to approach the patient from a more holistic viewpoint…"

had a very clear view when she went into education that she wanted to change the model of PA education

Delayed gratification | Individual | 3 | 3 |
those who stay are willing to delay gratification - *i.e.* not getting immediate feedback like you do from patients in clinical practice, but maybe not hearing good feedback until the students graduate

those who stay are "okay with delayed gratification" because the appreciation often doesn't come until after graduation

those who stay don't need a lot of immediate positive feedback

Demands of clinic | Individual | 4 | 4 |
clinical practice wanted him to take more call and drive further for same pay

academia is not as physically demanding as clinical practice

her first clinical practice in an HIV clinic; she lost a substantial number of patients in the first 3 years and needed a break from that

there are those who stay because they don't want to be in clinical practice anymore, and their options are limited

Detail-oriented | Individual | 6 | 5 |
those who stay are "pretty detail-oriented"

those who stay are "type A and OCD", "way overachievers"

those who stay "get things done" - they finish assignments

faculty who stay are very detail-oriented
<table>
<thead>
<tr>
<th align="left">Faculty who stay are &quot;almost OCD&quot; - they have the attention to detail and get things done</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left">all PA faculty are a little OCD</td>
<td>13</td>
</tr>
<tr>
<td align="left"><strong>Doctoral degree</strong></td>
<td><strong>Individual</strong></td>
</tr>
<tr>
<td align="left">always had the intention of getting a doctoral degree</td>
<td>1</td>
</tr>
<tr>
<td align="left">many of those who leave do not have the time or money to pursue a doctoral degree</td>
<td>1</td>
</tr>
<tr>
<td align="left">accepted from the beginning that she would have to pursue a doctoral degree</td>
<td>1</td>
</tr>
<tr>
<td align="left">doctoral degree in education helped him to &quot;learn the language and culture of higher ed&quot;, a frame of reference for understanding culture</td>
<td>2</td>
</tr>
<tr>
<td align="left">had a young family when began doctoral degree, wanted to get it done before children were older</td>
<td>2</td>
</tr>
<tr>
<td align="left">those who leave may not have understood requirements for advanced degree</td>
<td>5</td>
</tr>
<tr>
<td align="left">time invested in getting her doctoral degree helped to keep her in academia</td>
<td>6</td>
</tr>
<tr>
<td align="left">pursued the doctorate because he needed it for his position in academia</td>
<td>8</td>
</tr>
<tr>
<td align="left">those who leave may not be willing to pursue an advanced degree</td>
<td>14</td>
</tr>
<tr>
<td align="left"><strong>Drive</strong></td>
<td><strong>Individual</strong></td>
</tr>
<tr>
<td align="left">those who stay are very driven people</td>
<td>10</td>
</tr>
<tr>
<td align="left">those who stay are overachievers</td>
<td>10</td>
</tr>
<tr>
<td align="left"><strong>Early in career</strong></td>
<td><strong>Individual</strong></td>
</tr>
<tr>
<td align="left">those who stay likely entered academia early in their career, often in the first 5 years (it is &quot;too much of a culture shock&quot; for someone who has been in clinical practice for many years)</td>
<td>2</td>
</tr>
<tr>
<td align="left"><strong>Early leadership</strong></td>
<td><strong>Individual</strong></td>
</tr>
<tr>
<td align="left">became program director early on in his career</td>
<td>3</td>
</tr>
<tr>
<td align="left">became program director 14 months into his academic career</td>
<td>4</td>
</tr>
<tr>
<td align="left"><strong>Educational advancement</strong></td>
<td><strong>Individual</strong></td>
</tr>
<tr>
<td align="left">those who stay appreciate the opportunity to further their education; those who do not stay regard it as a burden</td>
<td>2</td>
</tr>
<tr>
<td align="left">wanted to go back to school and get more education</td>
<td>5</td>
</tr>
<tr>
<td align="left">some of those who leave may be unwilling to get advanced degrees or to continue their education</td>
<td>8</td>
</tr>
<tr>
<td align="left">in mid-90s she went back to get her MBA</td>
<td>13</td>
</tr>
<tr>
<td align="left">had obtained two other degrees since PA degree (bachelor's and master's)</td>
<td>14</td>
</tr>
<tr>
<td align="left">motivation for obtaining a master's degree was that he saw that PA education was moving that way</td>
<td>14</td>
</tr>
<tr>
<td align="left">Emergencies</td>
<td>Internal/intangible</td>
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<td align="left">Encouragement</td>
<td>Individual</td>
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<td align="left">Engagement</td>
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<tr>
<td align="left">Enjoyed PA school</td>
<td>Individual</td>
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<tr>
<td align="left">Excellence</td>
<td>Individual</td>
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<tr>
<td align="left">Excitement</td>
<td>Individual</td>
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<tr>
<td align="left">Expectations</td>
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<tr>
<td align="left">those who leave have unrealistic expectations about how demanding academia is</td>
<td>12</td>
</tr>
<tr>
<td align="left">those who leave did not realize how much non-classroom teaching work there is</td>
<td>12</td>
</tr>
<tr>
<td align="left">those who leave often do not have &quot;appropriate expectations coming into it&quot;</td>
<td>14</td>
</tr>
<tr>
<td align="left">those who leave did not realize &quot;how much of it is not teaching&quot;</td>
<td>15</td>
</tr>
<tr>
<td align="left">those who leave have not been shown how to teach - shown how to do learning objectives, evaluations, accreditation, etc.</td>
<td>11</td>
</tr>
<tr>
<td align="left">those who stay may have access to faculty development programs or activities at their institutions</td>
<td>14</td>
</tr>
<tr>
<td align="left">those who leave have a lack of support - there is no faculty development process in place</td>
<td>15</td>
</tr>
<tr>
<td align="left">those who leave sometimes leave for family reasons (to raise children, spouse relocating, etc.)</td>
<td>2</td>
</tr>
<tr>
<td align="left">those who leave academia often had to relocate for family reasons</td>
<td>6</td>
</tr>
<tr>
<td align="left">&quot;That really kept me in academia - being a single parent.&quot;</td>
<td>11</td>
</tr>
<tr>
<td align="left">family has to be supportive of how many hours PA faculty put into the job</td>
<td>1</td>
</tr>
<tr>
<td align="left">family is supportive of &quot;work bleeding into home life&quot;, <em>i.e.</em> taking work home, nights/weekends, etc.</td>
<td>2</td>
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<tr>
<td align="left">family (wife) was supportive of his career through the difficult times in academia</td>
<td>2</td>
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<tr>
<td align="left">family relationships are important because &quot;it is more than a job &quot;and families have to be able to cope with that, the long hours and bringing the work home</td>
<td>7</td>
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<tr>
<td align="left">spouse has to be supportive of life in academia and living on the academic salary in order for someone to stay</td>
<td>9</td>
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<tr>
<td align="left">enjoys getting feedback from graduates</td>
<td>5</td>
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<tr>
<td align="left">gets satisfaction from hearing from graduates</td>
<td>9</td>
</tr>
<tr>
<td align="left">enjoys watching her graduates succeed professionally</td>
<td>11</td>
</tr>
<tr>
<td align="left">&quot;I do get a lot of appreciation from the students&quot;</td>
<td>3</td>
</tr>
<tr>
<td align="left">those who leave get more positive feedback in their clinical practice than they do in the classroom</td>
<td>3</td>
</tr>
<tr>
<td align="left">those who leave get poor nonverbal feedback from students in the</td>
<td>3</td>
</tr>
</tbody>
</table>
Those who leave get poor verbal feedback from students in the classroom.

Those who stay get good course evaluations from students.

Those who leave may have students complain to other faculty about their teaching.

Those who stay get good verbal and nonverbal feedback from students in the classroom.

Those who stay get good verbal and nonverbal feedback from students in the classroom (restated).

Faculty who stay have received positive feedback from the students.

Positive feedback from students about what she was doing influenced her to stay early on.

Those who leave have are not able to handle negative feedback from students early on.

Finds it rewarding when the students appreciate your effort and the work put into the program.

Those who leave have had bad experiences with early course evaluations.

Those who stay get good teaching evaluations from teaching.

He thinks that scathing evaluations in the first couple years might influence people to go back to clinical practice.

He has the confidence that he is a successful teacher, because of years of feedback from students.

Those who leave have poor evaluations from students.

Got "fabulous teaching evaluations."

Knows that some who have left have been severely criticized by students and not able to handle that.

Financed doctoral degree | Internal/tangible | 2 | 2 | Institution financed the doctoral degree | 2
--- | --- | --- | --- | --- | ---
Administration financially supported her to get her doctorate | | | | | 11

Flexibility/personal | Individual | 11 | 6 | Those who stay are able to be flexible with schedule changes, teaching assignments, etc. | 2
--- | --- | --- | --- | --- | ---
Those who leave are often inflexible with change (for example, the change in schedule and workload semester to semester, or even week to week) | | | | | 2
those who stay have an open-mind about the academic role and accept things that are a part of it, rather than having a closed mind like "this is the way it's going to be"

came in with an open mind about the academic role, that she was not just there to teach

faculty who stay "really embrace all of academia" - they are happy with all of it

there is a lot of pressure to change all the time as far as changes in the profession and accreditation standards

there is a lot of pressure to change all the time - change of knowledge

those who stay have adaptability when things go wrong - *i.e.* adapts to technology changes, different types of students, different learning styles, etc.

those who stay are more flexible in regards to the non-teaching aspects of the academic role

those who stay do not have a rigid perspective or personality, they are more flexible to the demands of the academic role, changes in program direction, changes in budget, etc.

she looks at all the other things we do in academia as an integral part of the work of being a PA educator

### Flexibility/schedule

<table>
<thead>
<tr>
<th>Flexibility/schedule</th>
<th>Internal/tangible</th>
<th>18</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>those who stay may appreciate the schedule flexibility of academia that allows for attending events, appointments, etc. for children</td>
<td>lifestyle flexibility that academia allows is a motivating factor in staying</td>
<td>1</td>
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<tr>
<td>with young children, flexibility to attend kids' events during the day</td>
<td>those who stay may be motivated by the schedule flexibility because they have young families</td>
<td>2</td>
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<tr>
<td>the schedule is more flexible as far as being able to work from home, etc. but he puts in more hours than in clinical practice</td>
<td>enjoys getting to set his own schedule in academia</td>
<td>4</td>
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<tr>
<td>those who stay may be attracted by the schedule flexibility of academia as opposed to clinical practice</td>
<td>academia allows for a better work-life balance due to the schedule flexibility, gives you a sense of balance</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>there is more schedule flexibility in academia than in clinical practice</td>
<td>schedule flexibility is important for those with children - PA faculty</td>
<td>8</td>
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<tr>
<td>Founding involvement</td>
<td>Individual</td>
<td>10</td>
<td>9</td>
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<tr>
<td>How people learn</td>
<td>Individual</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Identity as educator</td>
<td>Individual</td>
<td>10</td>
<td>5</td>
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</tbody>
</table>
eventually find ways to be an educator inside of a clinician, and probably not be as good of a clinician as I should be because I would be distracted by being an educator...

"I'm an educator, and that's all there is too it."

he reached a point where he didn't want to go back to clinical practice

got to the point where she could no longer see herself going back to clinical practice full-time

academia is "where I'm meant to be; that's where my work is."

"I'm a teacher to my core, it's who I am. I'm doing the work I feel like I was meant to do."

those who stay feel that this is the job that reflects who they are

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Individual</th>
<th>6</th>
<th>5</th>
<th>have put work into developing teaching/classroom skills over the years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>those who stay work on the development of their classroom skills</td>
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<td>those who stay are always trying to improve their courses</td>
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<td>those who stay get better at administrative skills over time</td>
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<td>those who stay have continued to develop over time</td>
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<td>those who stay still have the &quot;spark,&quot; they are still trying new things, trying to improve&quot;</td>
</tr>
</tbody>
</table>

| Initial motivation | Individual | 3  | 2  | many of those who leave took the PA faculty position to "try it out" rather than having a real desire to be in academia |
|                    |            |    |    | those who look at academia as a "career to take them into retirement" are not likely to stay |
|                    |            |    |    | those who look at academia as "something to try out" are not likely to stay |

| Institutional culture | Internal/intangible | 11 | 4  | had to learn to meet the expectations of the higher education community/culture, what is respected in academia |
|                      |                    |    |    | "I'm sick of the politics" is a common reason given for leaving PA education |
|                      |                    |    |    | those who leave struggle with the culture and politics of the university |
|                      |                    |    |    | struggling with understanding the culture of higher education is a source of dissatisfaction for PA faculty |
|                      |                    |    |    | struggled with the fact that PA education seemed to be different from traditional higher ed disciplines within the college |
|                      |                    |    |    | learned that "doing everything I was supposed to do for the program director" was not the same as "doing everything I was supposed to do |

| (null) | (null) | 207 |
from the dean's perspective"

<table>
<thead>
<tr>
<th>Intelligence</th>
<th>Intentionality</th>
<th>Interpersonal skills</th>
<th>Job security</th>
<th>Leadership experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>those who leave may get frustrated with the &quot;layers of bureaucracy&quot; in academia - the time it takes for decisions to get made</td>
<td>those who leave may also be frustrated by the institutional structure and culture</td>
<td>those who leave &quot;didn't understand the culture of the academic setting&quot;</td>
<td>those who leave do not like the hierarchy of academia</td>
<td>those who leave do not like the bureaucracy of academia; &quot;if you had those things in clinic your patient would be dead&quot;</td>
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<tr>
<td>those who leave do not like the hierarchy of academia</td>
<td>those who leave do not like the bureaucracy of academia; &quot;if you had those things in clinic your patient would be dead&quot;</td>
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</tbody>
</table>

Intelligence | Individual | 1 | 1 | those who stay are "brighter than the average PAs" |
|-------------|------------|---|---|---------------------------------|

Intentionality | Individual | 10 | 7 | took some undergraduate classes in education before knowing would be a PA |
|---------------|------------|----|----|---------------------------------|

Job security | Internal/intangible | 1 | 1 | those who stay may appreciate the job security available in academia, if they can get tenure |
|--------------|---------------------|---|---|---------------------------------|

Leadership experience | Individual | 4 | 4 | class president in PA school |
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<tr>
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</thead>
<tbody>
<tr>
<td>Leadership opportunity</td>
<td>Internal/intangible</td>
<td>7</td>
<td>6</td>
<td>those who stay may have been involved in leadership positions in PA school</td>
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<td>had the opportunity to work with leadership in PA education as a student</td>
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<td>worked toward a position of leadership within his clinical practice</td>
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<tr>
<td>Leadership opportunity</td>
<td>Internal/intangible</td>
<td>7</td>
<td>6</td>
<td>enjoy leadership position, which is a motivation to stay</td>
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<td>enjoys positions that use his leadership skills</td>
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<td>&quot;I like being in charge… I'm kidding, but that's part of it…&quot;; he</td>
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<td>enjoys the leadership role</td>
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<td>those who stay aspire to some type of leadership position</td>
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<td>enjoys having the opportunity to have leadership roles with AAPA</td>
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<td>enjoys the ability to be involved in policy-making</td>
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<tr>
<td>Malpractice</td>
<td>Internal/intangible</td>
<td>1</td>
<td>1</td>
<td>those who stay may appreciate the lower risk of malpractice in academia as opposed to clinical practice</td>
</tr>
<tr>
<td>Mentor</td>
<td>Individual</td>
<td>22</td>
<td>12</td>
<td>one of her PA mentors who she shadowed before PA school moved into academia; she had multiple conversations with him about the transition between clinical practice and academia</td>
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<td>those who stay have a mentor who helps them to navigate academia, either within their own institution or within PA education in general</td>
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<td>mentorship relationship (with program director) continued after becoming faculty, &quot;I would bounce questions off of him all the time…&quot;</td>
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<td>early in academic career had the opportunity to work with some of the leaders in PA education</td>
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<td>had a mentor who was very experienced as a &quot;sounding board&quot; early in his career</td>
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<td>internal mentorship, particularly within the program, is key for faculty to develop scholarly work</td>
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<td>those who stay have a mentor, either internal or external to their institution</td>
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<td>had a mentor who guided her through the process of the expectations of the academic role</td>
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<td></td>
<td>had a mentor</td>
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<td>peer mentoring is important for retention</td>
</tr>
</tbody>
</table>
her husband was an academic and helped her to navigate the academic culture | 9
those who stay have mentors in PA education | 10
those who leave have not been mentored | 11
you need a mentor from within the program and externally | 11
thinks that it is essential for retention that a faculty member has a mentor | 12
those who leave do not have support and mentoring from colleagues | 12
program director was a mentor to her, which kept her from going back into clinical practice | 13
it was a mentor, program director, who influenced her to go back to get her doctoral degree | 13
those who stay had a good mentor "somewhere along the line" | 13
she had mentors that encouraged her to get involved in service at a national level | 15
a new faculty's experience with how they are mentored early on will influence whether they will stay long-term | 15
those who leave did not have a mentor identified | 15

| Mentor others | Internal/intangible | 9 | 6 | enjoys the faculty development aspect of his job | 5
| | | | | enjoys being a part of the experience of new faculty in academia and "showing them how they can have a good time in academia, and stay, and survive" | 6
| | | | | "I'm interested in determining what makes a good PA faculty and how to develop them" | 7
| | | | | those who stay end up being mentors to new faculty early on in their career | 7
| | | | | enjoys working with other faculty, watching them grow in their role and working to retain them | 9
| | | | | enjoys being a mentor to other faculty, in her own program and across the country | 9
| | | | | those who stay "are active mentors of junior faculty, and they find that rewarding" | 9
| | | | | enjoys mentoring new faculty and watching their transformation into PA educators | 13
| | | | | now she is more a teacher to other faculty than to students | 15
| Multiplication effect | Internal/intangible | 12 | 9 | appreciates the ability to teach multiple students at a time, "a bigger | 4
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>ramification for healthcare than teaching one student at a time&quot;</td>
<td>those who stay &quot;view their job as a higher order…to have an impact on patient care…with how I teach my students&quot;</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>&quot;Every once in a while I get a student or a graduate coming that they remember something that I taught them and they use it in their clinical care. So a piece of me is in that clinical encounter and I'm indirectly impacting patient care. That's an awesome responsibility.&quot;</td>
<td>5</td>
<td></td>
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<tr>
<td>those who stay &quot;view their job as a higher order…to have an impact on patient care…with how I teach my students&quot;</td>
<td>5</td>
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<tr>
<td>the rewards of watching the impact of graduates has been influential in his retention</td>
<td>7</td>
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<tr>
<td>&quot;being a part of something bigger than themselves&quot; is a motivation for those who stay in academia - the widened sphere of influence as compared to clinical practice</td>
<td>8</td>
<td></td>
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<tr>
<td>wants students to &quot;make a difference in the world&quot;</td>
<td>9</td>
<td></td>
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<tr>
<td>is motivated by having a role in the &quot;success of the profession&quot; and a piece in good care that happens</td>
<td>10</td>
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<tr>
<td>finds it satisfying when her graduates go into academia, because the scope of her influence is expanded</td>
<td>11</td>
<td></td>
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<tr>
<td>&quot;I feel like I touch more patients by producing more providers than I'd ever be able to touch just working clinically.&quot;</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>she is motivated by being able to have students take with them the things that she feels are important, how &quot;influential they can be in patients' lives&quot;</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the reach of influence is far greater in academia than in clinical practice</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multitasking</td>
<td>Individual</td>
<td>2 2</td>
<td>those who leave are not good multi-taskers</td>
</tr>
<tr>
<td></td>
<td>enjoys and has a natural inclination for doing &quot;more than one thing at a time&quot;</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>National involvement</td>
<td>Internal/tangible</td>
<td>8 5</td>
<td>those who stay are invested in academic work from a national perspective</td>
</tr>
<tr>
<td></td>
<td>those who stay are involved in committees on a national level</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>those who stay have been active in PAEA</td>
<td>9</td>
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</tr>
<tr>
<td></td>
<td>her program has supported her involvement in national professional organizations</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>was involved in professional organizations prior to entering academia</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
some of those who have stayed long term have evolved beyond just PA education, they have agendas in other areas, such as global health administrative was supportive of her involvement with national PA organizations she had mentors that encouraged her to get involved in service at a national level

<table>
<thead>
<tr>
<th>Natural teacher</th>
<th>Individual</th>
<th>2</th>
<th>2</th>
<th>considers himself a &quot;natural teacher&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;there are some of us who are natural-born teachers&quot;</td>
</tr>
</tbody>
</table>

| Negative examples | Personal  | 8 | 4 | "I thought I could do it better…I sit in class and I'm thinking... these people are the worst teachers…” I learned what I shouldn't do… |
|                  |           |   |   | he has heard others say that they thought in PA school that they could do it better as well |
|                  |           |   |   | when she trained, PA faculty were "less than ideal" and most of them were not PAs |
|                  |           |   |   | as a student, she thought "I could do this better" |
|                  |           |   |   | was very dissatisfied with his professors in PA school - unprepared and disorganized |
|                  |           |   |   | "Much of what I do today is avoiding things that I thought were wrong or inappropriate from the professors that I had."
|                  |           |   |   | felt that there was "pieces that were missing" in her PA education |
|                  |           |   |   | was not content with her education in PA school - didn't think that PA educators really understood education, how to put courses together, write exams, etc. |

| Networking | Internal/intangible  | 2 | 2 | enjoys networking with the community, hospital/clinical leaders, university leaders, etc. |
|            |                     |   |   | liked the opportunity to meet people, network |

<p>| Next generation | Internal/intangible  | 8 | 6 | those who stay care more about the quality of PA education and the quality of PA graduates |
|                |                     |   |   | &quot;impacting the next generation&quot; is something that all PA faculty would agree with |
|                |                     |   |   | wanting to influence future healthcare providers is something that all PA faculty would agree with |
|                |                     |   |   | those who stay have a vision for the future of the profession and see themselves as a gatekeeper to the profession |
|                |                     |   |   | appreciates being able to impact who enters the profession through the program admissions process |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Role</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational skills</td>
<td>Individual</td>
<td>4</td>
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<tr>
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<td>3</td>
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<td>12</td>
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<tr>
<td>Ownership</td>
<td>Individual</td>
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<td>12</td>
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<tr>
<td>Parents</td>
<td>Individual</td>
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<td>9</td>
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<tr>
<td>Part-time</td>
<td>Individual</td>
<td>6</td>
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<td>13</td>
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<tr>
<td>Patience</td>
<td>Individual</td>
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<td>13</td>
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<td>15</td>
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</tbody>
</table>
example, getting a curriculum change through the curriculum committee)

<p>| those who leave expect that &quot;everything will come to them really fast&quot; | 3 |
| teaching skills | 3 |
| those who stay are patient with the process of promotion within academia | 3 |
| those who stay are patient with the process skill development within academia | 3 |
| those who leave are impatient in the sense that they are unrealistic about how quickly they will become successful in academia | 3 |
| those who need things &quot;tied up faster&quot; or need results at the end of the week or the end of the month will not do well in academia | 7 |
| those who stay have the ability to &quot;think in terms of years, rather than weeks or months…they like looking at things on a year to year basis…&quot; | 7 |
| those who stay are patient with how slowly things move in academia | 8 |
| those who leave become impatient with the slow pace of academia, i.e. the time it takes for curricular changes | 8 |
| those who stay have to be patient, &quot;You're not going to be good in the first few years; it takes time.&quot; | 12 |
| faculty who stay are patient with students | 12 |
| those who stay in academia may become frustrated with things less easily | 14 |
| Patient education | Individual | 6 | 5 |
| all PA faculty enjoyed patient education in their clinical practice and probably had some sort of positive feedback related to that | 3 |
| when he was in family medicine, he loved the patient education aspect of medicine; he did not like the chronic disease care | 5 |
| enjoyed the patient education part of primary care as a clinician | 7 |
| &quot;I teach every day, on a one-on-one basis with patients…&quot;; she enjoyed that aspect of clinical practice | 10 |
| &quot;I think there are a lot of similarities between the teaching you do with students and the teaching you do with patients, and I really enjoyed that part of clinical practice…&quot; | 14 |
| on inpatient service, he would frequently go back and do teaching with patients and families when he sensed that the physician &quot;talked over their heads&quot; | 14 |</p>
<table>
<thead>
<tr>
<th>Patient interaction</th>
<th>Individual</th>
<th>8</th>
<th>5</th>
<th>those who leave miss the daily interaction with patients</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>those who leave may be dissatisfied because of lack of ability to practice clinically</td>
<td>2</td>
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<tr>
<td></td>
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<td></td>
<td>those who leave miss the daily clinical interaction with patients</td>
<td>3</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>miss clinical life but not enough to want to do it full-time</td>
<td>4</td>
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<td></td>
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<td></td>
<td>those who leave miss the daily patient interactions</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>those who leave often just missed clinical practice</td>
<td>9</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>those who leave miss the patient interactions</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>those who leave may feel that they are too far removed from clinical practice</td>
<td>14</td>
</tr>
<tr>
<td>Positive feelings about job</td>
<td>Individual</td>
<td>3</td>
<td>3</td>
<td>my previous clinical work got to be, &quot;just a job&quot; but I can't wait to come here every day</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;I love what I do&quot;</td>
<td>10</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>those of us who stay can truly come home at the end of the day and say that we love our job</td>
<td>15</td>
</tr>
<tr>
<td>Preceptor</td>
<td>Individual</td>
<td>10</td>
<td>9</td>
<td>precepted students as a clinically practicing PA</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>precepted PA students early in clinical career</td>
<td>2</td>
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<tr>
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<td></td>
<td>was a clinical preceptor but doesn't think that influenced decision to enter academia</td>
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<td></td>
<td>was a clinical preceptor for 4-5 years prior to entering academia</td>
<td>4</td>
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<tr>
<td></td>
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<td></td>
<td>had desire to do more teaching than he could as a clinical preceptor</td>
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<td></td>
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<td></td>
<td>precepted a student in his first year of practice</td>
<td>5</td>
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<td></td>
<td>precepted NP students as a clinical PA</td>
<td>6</td>
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<tr>
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<td></td>
<td>in clinical practice, students gravitated to him because he liked teaching</td>
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<td></td>
<td>was a preceptor for PA students prior to becoming faculty</td>
<td>12</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>enjoyed precepting PA students for years prior to entering academia</td>
<td>14</td>
</tr>
<tr>
<td>Pre-pa</td>
<td>Internal/intangible</td>
<td>1</td>
<td>1</td>
<td>enjoys working with pre-PAs, people who want to get into PA programs</td>
<td>11</td>
</tr>
<tr>
<td>Preparation time</td>
<td>Individual</td>
<td>8</td>
<td>8</td>
<td>those who leave are usually shocked at the amount of prep outside of the classroom that teaching required</td>
<td>1</td>
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<td></td>
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<td>those who leave are often inadequately prepared for class, for example, they do not put enough time into lecture preparation</td>
<td>3</td>
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<td>those who leave are surprised by the amount of course preparation necessary</td>
<td>4</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>faculty who stay really put preparation time into their lectures</td>
<td>6</td>
</tr>
</tbody>
</table>
those who leave do not realize the preparatory time required and that clinical experience is not enough preparation to teach

faculty who leave do not work as hard and the students notice this

those who stay "are putting in extra hours to make sure that the materials that they are deliver are of the highest quality…"

those who leave may find that teaching is harder than they thought it would be - preparation time

<table>
<thead>
<tr>
<th>Previous research experience</th>
<th>Individual</th>
<th>2</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>had spent a year as a research assistant prior to PA school</td>
<td>7</td>
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</table>

<table>
<thead>
<tr>
<th>Previous teaching experience</th>
<th>Individual</th>
<th>16</th>
<th>11</th>
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<tbody>
<tr>
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<tr>
<td>had worked in a research lab for a couple years prior to PA school</td>
<td>12</td>
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<tr>
<td>enjoyed teaching in previous job as a nuclear med tech</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>taught one course part-time before becoming full-time PA faculty</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tutored people in undergrad and in PA school</td>
<td>1</td>
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<tr>
<td>had been a teaching assistant and lab proctor as an undergraduate student</td>
<td>2</td>
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<tr>
<td>knew that enjoyed teaching prior to becoming a PA</td>
<td>2</td>
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<tr>
<td>first gave lectures then taught a whole course before going full-time</td>
<td>3</td>
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<tr>
<td>started out as adjunct faculty before going full-time</td>
<td>4</td>
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<tr>
<td>in previous career as a med tech he had taught med tech students</td>
<td>4</td>
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<tr>
<td>those who stay &quot;all started small…lecturing in their area of expertise…and had positive experiences&quot;</td>
<td>4</td>
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<tr>
<td>enjoyed the teaching aspects (such as orientation) of his job as a navy corpsman</td>
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<tr>
<td>was also a music teacher prior to becoming a PA</td>
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<tr>
<td>degree before went to PA school was in education</td>
<td>8</td>
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<tr>
<td>was a childbirth educator before becoming a PA, which was a good experience</td>
<td>9</td>
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<tr>
<td>prior to becoming a PA, she was involved in teaching in a pharmacy tech program in the military</td>
<td>13</td>
<td></td>
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<tr>
<td>worked in academic environments clinically, which made him more likely to go into academia</td>
<td>14</td>
<td></td>
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<tr>
<td>first degree was in education, &quot;I left education to become a PA&quot;</td>
<td>15</td>
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<table>
<thead>
<tr>
<th>Problem-solving</th>
<th>Individual</th>
<th>8</th>
<th>6</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>those who stay have problem-solving skills to help students, not a &quot;if they don't make it, too bad&quot; attitude</td>
<td>1</td>
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<tr>
<td>those who leave tend not to be actively involved in problem-solving</td>
<td>1</td>
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</table>
within the program

| those who stay are passionate about their opinions regarding programmatic improvements | 3 |
| those who stay have problem-solving skills with students | 6 |
| rather than becoming frustrated by problems with students, she looks for ways to change things | 9 |
| those who stay can problem-solve when problems come up in the program | 10 |
| good at problem-solving when there are issues or problems in the program | 12 |
| faculty who stay give problem-solving input | 12 |

| Profession | Individual | 19 | 7 |
| all PA faculty have a desire to give back to the PA profession | 1 |
| a desire to promote the PA profession is something that all PA faculty would agree with | 2 |
| all PA faculty have respect for the PA profession | 4 |
| all PA faculty are proud of the PA profession and want to promote it | 4 |
| promotes the PA profession internationally now | 9 |
| all PA faculty believe in the potential of the PA profession | 9 |
| feels an obligation to the profession | 10 |
| feels that education is a way to "give back to the profession" | 10 |
| is motivated by having a role in the "success of the profession" and a piece in good care that happens | 10 |
| those who stay have a "deep down obligation or commitment to the profession" - it's about the profession and about patient care rather than about personal satisfaction | 10 |
| those who stay have experiences in advancing the profession | 10 |
| those who stay take pride in the successes of the profession and advancement of the profession | 10 |
| all PA faculty go into it wanting to make an impact on the profession by teaching | 10 |
| all PA faculty would agree that PAs have an important role in educating PAs | 10 |
| those who stay love the PA profession | 11 |
| all PA faculty are "PAs at heart and we want the profession to do well" | 11 |
| all PA faculty are committed to high-quality care of patients | 13 |
| Projects | Individual | 2 | 2 | all PA faculty are concerned about the quality of the profession | 13 |
| Projects | Individual |faculty who stay on projects | 6 |
| Projects | Individual |faculty who stay volunteer to help with projects | 12 |
| Promotion process | Internal/intangible | 8 | 8 | all PA faculty are very committed to the PA profession | 13 |
| Promotion process | Internal/intangible | those who stay understand the promotion and tenure process at their institution | 1 |
| Promotion process | Internal/intangible | those with a low intention to stay may not understand the expectations for promotion within their institution | 2 |
| Promotion process | Internal/intangible | those who stay appreciate the opportunities for promotion in academia that are not available in the clinical world | 3 |
| Promotion process | Internal/intangible | those who leave don't like the requirements of promotion and tenure | 4 |
| Promotion process | Internal/intangible | those who stay are motivated by the prospect of academic promotion | 7 |
| Promotion process | Internal/intangible | those who leave "didn't learn the game," "they didn't understand how to survive in academia" - promotion, tenure, rank | 11 |
| Promotion process | Internal/intangible | promotion is important to retention | 12 |
| Promotion process | Internal/intangible | those who leave may not have anticipated the promotion process | 14 |
| Public speaking | Individual | 2 | 2 | all PA faculty enjoy learning | 1 |
| Public speaking | Individual | all PA faculty enjoy learning | 1 |
| Public speaking | Individual | all PA faculty are committed to continuing education | 1 |
| Public speaking | Individual | those who stay enjoy learning and continual education | 2 |
| Public speaking | Individual | those who stay enjoy the challenge of continual learning and staying current on a wide range of areas | 2 |
| Public speaking | Individual | enjoying being on the "cutting edge" of patient treatment (knowing the latest treatments, etc.) is something that all PA faculty would agree that they enjoy | 2 |
| Pursuit of learning | Internal/intangible | 17 | 9 | all PA faculty are intrinsically curious, or life-long learners | 9 |
| Pursuit of learning | Internal/intangible | those who stay are curious | 7 |
| Pursuit of learning | Internal/intangible | all PA faculty are intrinsically curious, or life-long learners | 9 |
| Pursuit of learning | Internal/intangible | all PA faculty enjoy learning | 1 |
| Pursuit of learning | Internal/intangible | those who stay are curious | 7 |
enjoys the challenge of trying to stay up-to-date with medicine 10
appreciates the ability for continuing education in an academia setting 11
"I'm a very curious person. I like to understand things to the nth degree." - gets great satisfaction from learning and organizing information to the level needed in order to teach 12
appreciates the time available in academia to completely understand things, which he didn't have in clinical practice 12
appreciates the time to learn about things that he did not have time to learn about in clinical practice 12
"I want to contribute new knowledge" - all PA faculty would agree with 13

<table>
<thead>
<tr>
<th>Recognition from administration</th>
<th>Internal/intangible</th>
<th>6</th>
<th>4</th>
<th>those who stay are motivated by the respect and recognition that they receive within their institution</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>finds it rewarding to be appreciated by administration</td>
<td>8</td>
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<td></td>
<td>finds it rewarding to be recognized by administration</td>
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<td>recognition from administration, to know that work is valued is important to retention</td>
<td>12</td>
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<td>he enjoys the title of professor</td>
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<td></td>
<td>he feels like his opinion is valued in the institution: &quot;I feel like I'm heard when I'm at a meeting….and it is accepted as advice.&quot;</td>
<td>14</td>
</tr>
</tbody>
</table>

| Recognition from colleagues | Internal/intangible | 1 | 1 | those who stay are motivated by success and recognition from their peers in PA education, at a national or state level | 7 |

| Recognition from community | Internal/intangible | 1 | 1 | likes the recognition from the community that comes with her position | 6 |

<table>
<thead>
<tr>
<th>Relationships with students</th>
<th>Internal/intangible</th>
<th>39</th>
<th>15</th>
<th>&quot;I'm here for the students… I wanted to be an active participant in their education&quot;</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>those who stay display more empathy with students than those who leave</td>
<td>1</td>
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<td>interacting with students is a different type of interpersonal interaction than you get in clinical practice</td>
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<td>those who stay find it easier to motivate students than to motivate patients</td>
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<td>all PA faculty enjoy interpersonal interaction with students</td>
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<td>all PA faculty enjoy the enthusiasm of PA students</td>
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<td>all PA faculty enjoy being around &quot;young people&quot;</td>
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<td>enjoy connecting with the students, the informal interactions</td>
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<td>I would miss the students too much to leave academia</td>
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<td>all PA faculty enjoy mentoring and developing talents in students</td>
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<tr>
<td>all PA faculty care about the students</td>
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<td>likes having a new group of students each year</td>
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<td>the students &quot;keep me young&quot; - feeds off their energy and excitement</td>
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<td>those who stay &quot;always have students in their office asking questions…students feel comfortable coming to them&quot;</td>
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<td>those who stay make themselves available to students at all hours and work with them outside of class</td>
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<td>those who leave &quot;couldn't separate out 'I'm the teacher, you're the student' and tried to be best buddies with the students&quot;</td>
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<td>those who stay are very &quot;student centered&quot;</td>
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<td>&quot;The students are a joy and when they really get to be a pain in the butt, they're gone. You have a new crop...&quot; as opposed to chronic patients</td>
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<td>the students are &quot;like little sponges,&quot; very interested in what you have to say, taking it all in</td>
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<td>faculty who stay understand the students but also know that they are not here to be their friends</td>
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<td>faculty who stay have had a positive interaction with a student, either changing outcome, being a confidant, etc.</td>
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<td>faculty who stay look at the program and the students as their family</td>
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<td>those who stay enjoy building relationships in cohorts, as opposed to building relationships by diseases</td>
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<td>those who stay share &quot;a sense that people can improve and learn from mistakes and recover from things, that there's a hopefulness in those who become educators...&quot;</td>
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<td>those who leave may have difficulty in handling &quot;disagreeable students&quot;</td>
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<td>people are very vulnerable to going back to clinical practice when dealing with a difficult situation with a student</td>
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<td>those who stay get better at dealing with difficult student situations</td>
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<td>student interactions keep her in the job</td>
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<td>staying involved with students as much as possible helps to minimize her frustration with menial administrative tasks</td>
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<td>those who leave cannot adjust to being challenged by students</td>
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</table>
those who stay demand excellence out of every student  
those who stay make the students the #1 priority  
faculty who stay "interact well with students"  
all PA faculty would agree that we should be student advocates  
those who stay are "student-centered"  
likes interacting with the students  
those who leave may feel that they have more control over patient interactions than they do with student interactions  
those who stay in academia may be motivated by the ability to "dramatically alter young lives"  
"I deeply honor the roll of teacher" appreciates the influence that she has on students  

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<tr>
<th>Role</th>
<th>Type</th>
<th>Count 1</th>
<th>Count 2</th>
<th>Description</th>
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<tbody>
<tr>
<td>Research mentor</td>
<td>Individual</td>
<td>4</td>
<td>4</td>
<td>my first experience in research was circumstantial - the opportunity presented to do research with the doctor I was working with internal mentorship, particularly within the program, is key for faculty to develop scholarly work had a mentor for doing research mentor involved her in research that he was doing</td>
</tr>
<tr>
<td>Retirement</td>
<td>Internal/intangible</td>
<td>1</td>
<td>1</td>
<td>academic environments allow people to continue to be productive into their retirement years</td>
</tr>
<tr>
<td>Rewarding</td>
<td>Individual</td>
<td>4</td>
<td>4</td>
<td>&quot;Those who stay feel like they are achieving something and that they're getting something besides a paycheck.&quot; all PA faculty would agree that it is a fulfilling job those who stay have some type of internal motivation for staying in academia, there is something that they find gratifying all PA faculty would agree that teaching in PA programs is a rewarding experience</td>
</tr>
<tr>
<td>Role model</td>
<td>Individual</td>
<td>5</td>
<td>4</td>
<td>those who stay may have had a role model in PA education, someone who they are trying to emulate had good teachers who were role models in PA school had some instructors who were &quot;good at what they did... and made it look attractive as something I would want to pursue…” &quot;I think my first thought that I might go into education came as a student, and I think it was directly, I'm sure it was directly attributable to the mentoring that I got…” as a SAAAPA/APAP liaison developed mentors in PA school who encouraged her interest in</td>
</tr>
<tr>
<td>Sabbatical</td>
<td>Internal/tangible</td>
<td>1</td>
<td>1</td>
<td>was eligible for a sabbatical recently and took advantage of that to travel and develop clinical sites</td>
</tr>
<tr>
<td>Salary</td>
<td>Internal/tangible</td>
<td>4</td>
<td>4</td>
<td>offered more money in academia</td>
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<td>those who leave are susceptible to leaving when job market is good and when clinical salaries go up</td>
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<td>thinks money is a big motivator in those who leave academia</td>
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<td></td>
<td>many who leave may have to do so for financial reasons, salary not enough in academia</td>
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<tr>
<td>Scholarship</td>
<td>Internal/intangible</td>
<td>22</td>
<td>10</td>
<td>those who leave are often unable or unwilling to participate in research to meet requirement of tenure track</td>
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<td>has been involved in writing and administering grants</td>
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<td>developing my own research agenda has been a motivating factor for me to stay in academia</td>
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<td>those who stay appreciate the opportunity to do research</td>
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<td></td>
<td>those who stay appreciate the opportunity to do research (reiterated)</td>
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<td>PAs who develop their own research agenda are very likely to make PA education a career</td>
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<td>those who stay may have an innate interest in asking a research question and discovering the answer to that question</td>
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<td>those who leave are surprised by the scholarly requirements</td>
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<td>those who leave are &quot;scared&quot; by the scholarship requirements</td>
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<td>support in terms of time away from teaching to write grants or conduct research is key to success in scholarship</td>
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<td></td>
<td>those who leave may not have understood requirements for scholarship</td>
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<td></td>
<td>those who leave do not enjoy research</td>
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<td>had a desire to move into more scholarly work</td>
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<td>devised a very successful research project, which got him started in research (while he was part-time faculty)</td>
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<td>found it fun and rewarding to do research</td>
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<td></td>
<td>published articles early in his career</td>
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<td>those who stay are publishing</td>
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<td></td>
<td></td>
<td>likes &quot;writing things that are published&quot;</td>
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<td></td>
<td></td>
<td>likes writing</td>
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<td>those who have stayed long-term have done research about the PA</td>
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</tbody>
</table>
profession; they "found out that they were researchers"

<table>
<thead>
<tr>
<th>Scholarly work</th>
<th>15</th>
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<tbody>
<tr>
<td>those who stay pursue research or grants</td>
<td>15</td>
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</table>

<table>
<thead>
<tr>
<th>Self-starter</th>
<th>Individual</th>
<th>1</th>
<th>1</th>
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<tbody>
<tr>
<td>those who leave may not be a self-starter, or able to be an independent worker</td>
<td>8</td>
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<thead>
<tr>
<th>Sense of community</th>
<th>Internal/intangible</th>
<th>3</th>
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<tbody>
<tr>
<td>those who leave tend to not attend school/college/university meetings</td>
<td>1</td>
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<tr>
<td>those who stay become &quot;more connected to the university family&quot; and enjoy a university-wide collegiality</td>
<td>12</td>
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<tr>
<td>he feels &quot;a part of the college or university and part of the academic environment&quot;</td>
<td>14</td>
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<thead>
<tr>
<th>Service</th>
<th>Internal/intangible</th>
<th>14</th>
<th>8</th>
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<tbody>
<tr>
<td>those who leave tend to not get involved in faculty governance</td>
<td>1</td>
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<tr>
<td>being in academia allows me to serve my profession more than if I was in FT clinical practice (state organization leadership positions)</td>
<td>2</td>
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<tr>
<td>institution supports my involvement in community and counts it as service - school board, community presentations, etc.</td>
<td>2</td>
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<tr>
<td>enjoys serving on university committees (senate, finance, grad council, curriculum committee, etc.)</td>
<td>2</td>
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<tr>
<td>those who leave are often unable or unwilling to meet the service requirements</td>
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<tr>
<td>those who stay may appreciate the opportunity to be involved in committees and governance</td>
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<tr>
<td>those who leave are surprised about the service requirements</td>
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<tr>
<td>those who leave are &quot;scared&quot; by the service requirements</td>
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<tr>
<td>those who leave may not have understood requirements for service</td>
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<td>those who leave &quot;did not grasp the concept that you have to perform service&quot;</td>
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<td>those who leave like the service component of the academic role the least, &quot;they don't like going to all the meetings…&quot;</td>
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<tr>
<td>enjoys working on committees</td>
<td>11</td>
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<tr>
<td>likes being included in school-wide committees</td>
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<tr>
<td>those who leave may not have anticipated the committee work required</td>
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<tr>
<th>Student maturation</th>
<th>Internal/intangible</th>
<th>15</th>
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<tbody>
<tr>
<td>those who stay have to be motivated from seeing students succeed</td>
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<td>is motivated by witnessing transformations of students from beginning semester to graduation</td>
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<td>Support of administration</td>
<td>Internal/intangible</td>
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<td>Support of administration</td>
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<tr>
<td>Support of supervisor</td>
<td>Internal/intangible</td>
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<td>Teaching</td>
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<td>36</td>
<td>14</td>
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and grow

"I have found my niche in teaching….I have now found my niche and am able to teach the topics or classes that I enjoy most"

those who stay have excellent classroom skills

those who leave are not successful in the classroom

those who leave have trouble getting students to participate in class

all PA faculty come in with the desire to be in the classroom

all PA faculty come in with the desire to be in the classroom (reiterated)

I would miss the classroom teaching too much to leave academia

those who stay retain "that drive and desire to educate"

those who stay are willing to spend extra time even with students who really don't need the extra help (*i.e.* they will pass anyway)

those who stay "don't ever let a teaching moment pass by"

teaching students how to clinically reason and think is an aspect of the academic role that he really enjoys

those who stay get excited about student learning, about "the light bulb coming on"

enjoys the "teaching part" and teaching the subjects that he enjoys

"once you're good at it [teaching], you like it even more"

all PA faculty enjoy the classroom environment

those who leave did not perform well in lecture and understand that you are accountable for your course

those who leave do not want to do anything except the teaching

all PA faculty would agree with "I'm interested in determining what makes a good PA and how to teach them that."

enjoys classroom teaching

those who leave may have discovered that they are just not good teachers

those who stay are able to make boring topics interesting

"I get great enjoyment watching the light bulbs go off, the 'ah-ha' phenomenon…that's satisfying to me"

faculty who stay are "comfortable in the classroom"

teaching something that you are interested in increases chance of staying

"I love teaching" as initial answer to what keeps her in academia
"I was good in and enjoyed the classroom setting and the small group setting"

those who stay long-term are "committed to teaching"

knows one person who went back to clinical practice because "just not a very good teacher"

enjoys "seeing the light bulb go on as they get a concept or make a connection...to pull facts together...something finally makes sense"

"it's just kind of a feedback loop for me" - enjoying seeing students learn

"teaching may not have been a good fit for them" - those who leave

finds it rewarding to have students make sense of things - students wanting the information that she has to give, a "two-way street"

all PA faculty are team players

faculty who stay "have good computer skills"

enjoys his access to technology in academia

those who stay are "very thoughtful people, "intentional about what they do, i.e... they study or think about things before they do them"

faculty who stay - "it's not just an 8-4 job, they're here on the weekends, maybe at night...they go over and beyond what is expected of the position..."

those who leave did not expect the hours in academia

faculty who stay "stay late if they need to" - put in long hours

thinks that those who leave come in with a misperception "that those of us in the 'ivory tower' work 8-5, no call, no weekends"; not realizing the long hours

"in medicine...usually...your evenings and weekends are free...but that's not the case in education. You don't get your work done in the office because there's way too many interruptions. You wind up doing it at night at home after being in the office all day or you wind up doing it on the weekends...the work is always on your mind...[the work] doesn't ever leave you."

having to take work home is what she hears people complain about the most

all PA faculty could agree that student issues are more time-consuming than anticipated

was a secondary education teacher prior to becoming a PA
education

degree before went to PA school was in education 8
first degree was in education, "I left education to become a PA" 14

Travel

Travel Internal/tangible 5 4 faculty position has allowed national and international travel that he would have never been able to do in clinical practice 2
those who stay appreciate the opportunity to travel; those who do not stay regard travel as a burden 2
enjoys the freedom to travel that she has in an academic role 11
financial support to travel to conferences, etc. is important to retention 14
her travel for service was supported by her superiors 15

Tutoring experience

Tutoring experience Individual 3 2 tutored a classmate in PA school and his grades went up as a result of tutoring someone else 5
gave first lecture as a PA student - taught them about blood gasses 12
did some teaching on his clinical rotation as a PA student 12

tutoring experience

Unfinished work

Unfinished work Internal/intangible 4 3 those who stay "can live with things being incomplete and work being unfinished…being a perpetual graduate students, there's always something that's not quite done…" 7
those who leave are tired of the "high-work load unfinished things on their plate and they finally just decide that they're not going to work that hard…anymore" 7
there's always something more, it's hard to go home from academia and feel that the work is done 8
those who leave are frustrated that "the job's never done" 10

Variety

Variety Internal/intangible 10 6 the academic role offers more variety than the clinical role 2
thrive in the daily variety that a faculty position allows 2
enjoys the variety of academia, "no two days are the same here" 3
clinical practice is seeing the "same kind of patient over and over," the days are a lot alike 3
those who stay appreciate the variety of the academic role 3
there is a good variety to days in academic life 4
"The thing I like about education is that it's a different day every day. I get to use my creativity…" 5
enjoys the mix of teaching and administration 5
academic life is very diverse, never routine 10
likes the variety of her life in academia: "…when I get sick of one thing I can go do policy, when I get sick of policy I can do clinic," 11
when I get sick of clinic I can go back to teaching…helps me to keep this balance in my life…”

<table>
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<tr>
<th>Vision</th>
<th>Individual</th>
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<th>2</th>
<th>those who stay have projected what their future will look like in academia</th>
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<th>those who stay can envision themselves in academia in the future - they have a vision of what they will be, that there is a place for them in the future</th>
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<th>Work-life balance</th>
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<th>those who return to clinical practice never found the work/life balance; they feel that they are taking work home all the time and work is never done, whereas there are clinical jobs that do not follow you home</th>
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<th>Workload</th>
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<th>those who leave are surprised by the workload (hours required)</th>
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<th>Workload</th>
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<th>3</th>
<th>those who leave are tired of the &quot;high-work load unfinished things on their plate and they finally just decide that they're not going to work that hard…anymore&quot;</th>
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<th>for some people, academia does not work because the workload is too much and they don't have enough time with family</th>
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<th>those who leave have unrealistic expectations about the workload</th>
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<th>those who leave are &quot;clueless&quot; about the workload in academia</th>
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<th>3</th>
<th>those who do not stay - &quot;this is more than they want to do…” the workload is too much</th>
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<tr>
<th>Workload</th>
<th>Internal/tangible</th>
<th>7</th>
<th>4</th>
<th>those who leave have the wrong expectations about workload</th>
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Appendix F

Expert Review Form

Instructions: The purpose of my research is to develop a measure of “intention to stay in academia” for PA faculty using the Rasch method. “Intention to stay in academia” is defined as the anticipation or willingness to persist in the academic role. The purpose of this review is to evaluate potential survey items to determine which should be retained for the pilot instrument. These items are based on 79 potential observable indicators of “intention to stay in academia” for PA faculty discovered through a literature review and interviews of PA faculty. Your input on the difficulty of these items will contribute to theory about the construct of “intention to stay in academia” for PA faculty and ensure that a range of easy, moderate, and difficult items is included in the instrument in order to capture high, moderate, and low levels of “intention to stay in academia” in the PA faculty population.

The purpose of this review is three-fold: 1) to assess the relevance of each item to the construct of “intention to stay in academia,” 2) to assess the item difficulty level, and 3) to evaluate item quality. Therefore, please respond to the following for each item:

1) Relevant? Please check “yes” if you feel that this item is relevant to the construct of “intention to stay in academia” for PA faculty. Please check “no” if you feel that this item is irrelevant to a PA’s intention to stay in academia.

2) Difficulty? Please check the difficulty level that you feel this item best represents. Item difficulty in this context refers to difficulty that PA faculty will have endorsing an item.

“Easy” items are the easiest for PA faculty to agree with; most or all PA faculty could endorse these items.

“Difficult” items are the most difficult for PA faculty to agree with; only PA faculty with the most “intention to stay in academia” could endorse these items.

“Moderate” items are those with a mid-range difficulty; PA faculty with a ≥moderate level of “intention to stay in academia” could endorse these items.

3) Comment on item quality. Please check the item wording for clarity, accuracy, conciseness, lack of bias, and appropriateness. Please comment on any concerns and offer suggestion for alternative wording, if possible. If you feel that the item could be misinterpreted, please explain. If you have no concerns about the quality of the item, please check the box for “no concern.”
Please click on the box to select your choice for item relevance and difficulty. Please click the comment box to type in comments about the items as necessary. If you have no comment, please click on the box for “no concern.” Remember to save your changes to this document, and please email it back to me (kgraham@uwlax.edu) when you have completed the review.

1. Prior to going to PA school, I knew that I would be an educator someday.
   a) strongly agree  
   b) agree  
   c) disagree  
   d) strongly disagree
   Relevant?  
   □ yes  
   □ no
   Difficulty?  
   □ easy (for PA faculty to agree with)  
   □ moderate  
   □ difficult (for PA faculty to agree with)
   No concern  
   □  
   or  
   Comment

2. When I was in PA school, I knew that someday I would be teaching in a PA program.
   a) strongly agree  
   b) agree  
   c) disagree  
   d) strongly disagree
   Relevant?  
   □ yes  
   □ no
   Difficulty?  
   □ easy (for PA faculty to agree with)  
   □ moderate  
   □ difficult (for PA faculty to agree with)
   No concern  
   □  
   or  
   Comment

3. When I was in PA school, I held a position of leadership within my class.
   a) strongly agree  
   b) agree  
   c) disagree  
   d) strongly disagree
   Relevant?  
   □ yes  
   □ no
   Difficulty?  
   □ easy (for PA faculty to agree with)  
   □ moderate  
   □ difficult (for PA faculty to agree with)
   No concern  
   □  
   or  
   Comment
4. When I was in PA school, I thought that I could do a better job of educating students than my faculty were doing.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
   Relevant?  [ ] yes  [ ] no
   Difficulty?  [ ] easy (for PA faculty to agree with)
   [ ] moderate
   [ ] difficult (for PA faculty to agree with)
   No concern  [ ] or  Comment

5. Prior to becoming a PA faculty member, I had a desire to advance my education beyond the degree that I received in PA school.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
   Relevant?  [ ] yes  [ ] no
   Difficulty?  [ ] easy (for PA faculty to agree with)
   [ ] moderate
   [ ] difficult (for PA faculty to agree with)
   No concern  [ ] or  Comment

6. Prior to becoming a PA faculty member, I was encouraged to consider going into PA education.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
   Relevant?  [ ] yes  [ ] no
   Difficulty?  [ ] easy (for PA faculty to agree with)
   [ ] moderate
   [ ] difficult (for PA faculty to agree with)
   No concern  [ ] or  Comment

7. I had valuable experience in classroom teaching prior to becoming a PA faculty member.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
   Relevant?  [ ] yes  [ ] no
   Difficulty?  [ ] easy (for PA faculty to agree with)
8. I had formal training in teaching prior to becoming a PA faculty member.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?   □ yes   □ no

   Difficulty?   □ easy (for PA faculty to agree with)   □ moderate   □ difficult (for PA faculty to agree with)

   No concern   □ or   Comment

9. Prior to becoming a PA faculty member, I had a role model in PA education who I wanted to emulate.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?   □ yes   □ no

   Difficulty?   □ easy (for PA faculty to agree with)   □ moderate   □ difficult (for PA faculty to agree with)

   No concern   □ or   Comment

10. I had positive experiences with precepting students prior to becoming a PA faculty member.
    a) strongly agree   b) agree   c) disagree   d) strongly disagree

    Relevant?   □ yes   □ no

    Difficulty?   □ easy (for PA faculty to agree with)   □ moderate   □ difficult (for PA faculty to agree with)

    No concern   □ or   Comment

11. I had positive experiences in a part-time role in PA education prior to accepting a full-time faculty position.
12. I am in PA education because I found clinical practice to be too demanding (either emotionally, physically, or both).
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant? □ yes  □ no

   Difficulty? □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

   No concern □ or  Comment

13. Patient education was one of my favorite aspects of clinical practice.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant? □ yes  □ no

   Difficulty? □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

   No concern □ or  Comment

14. When I took my first position in PA education, I was surprised by the amount of preparation time required to give a good lecture.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant? □ yes  □ no

   Difficulty? □ easy (for PA faculty to agree with)  □ moderate
15. When I just started as a PA faculty member, I was surprised at the workload required of the job.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no
   Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

   No concern  □ or  Comment

16. I received high ratings on course evaluations from students in my first year in PA education.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  e) not applicable

   Relevant?  □ yes  □ no
   Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

   No concern  □ or  Comment

17. Early in my PA education career, I had [have] a mentor within my institution who helped me to understand the academic role and institutional culture.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no
   Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

   No concern  □ or  Comment
18. Early in my PA education career, I had [have] a mentor in PA education who I could go to with questions.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to agree with)
                 □ moderate
                 □ difficult (for PA faculty to agree with)

   No concern  □  or  Comment

19. Early in my PA education career, I had [have] a research mentor who involved me in his (or her) research and/or assisted me with my early research projects.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to agree with)
                 □ moderate
                 □ difficult (for PA faculty to agree with)

   No concern  □  or  Comment

20. My program or institution has provided me with adequate faculty development opportunities to enhance my understanding of educational processes.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to agree with)
                 □ moderate
                 □ difficult (for PA faculty to agree with)

   No concern  □  or  Comment

21. I have been influential in the founding of a new PA program.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to agree with)
22. I currently receive high ratings on my course evaluations from PA students.
a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)
□ moderate
□ difficult (for PA faculty to agree with)

No concern  □ or  Comment

23. I have good working relationships with my fellow faculty members within the PA program.
a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)
□ moderate
□ difficult (for PA faculty to agree with)

No concern  □ or  Comment

24. I consider most of my fellow faculty members in the PA program to be my friends.
a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)
□ moderate
□ difficult (for PA faculty to agree with)

No concern  □ or  Comment

25. I interact with PA faculty from other programs across the country on a regular basis.
a) strongly agree  b) agree  c) disagree  d) strongly disagree

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26. If I need to get advice about a problem or a situation in my PA program, I have a mentor in another PA program who I can call to talk about the situation.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

27. I am encouraged by my PA program to continue to practice clinically while being a PA faculty member.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

28. I am intellectually stimulated by my interactions with my faculty colleagues.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
29. I have recently adapted my teaching in response to changes outside of my control – *i.e.* new accreditation standards, changes in program faculty, advancements in medicine, etc.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

No concern  □ or  Comment

30. I have family obligations that make the schedule flexibility in PA education very important to me.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

No concern  □ or  Comment

31. I am currently serving as a mentor to at least one other PA who is new to PA education.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

No concern  □ or  Comment

32. I am active within the PA profession on a national level.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no
33. I am active within the PA profession on an international level.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

34. I make changes every year to the courses I teach.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

35. I have been successful so far in fulfilling the requirements of my institution for faculty scholarly work.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
36. Other faculty within my program would identify me as the person on our faculty who is a problem-solver in student issues.  
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  
   Relevant?  □ yes  □ no  
   Difficulty?  □ easy (for PA faculty to agree with)  
               □ moderate  
               □ difficult (for PA faculty to agree with)  
   No concern  □ or  Comment

37. In PA education, I have more potential to positively affect society than I had in clinical practice.  
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  
   Relevant?  □ yes  □ no  
   Difficulty?  □ easy (for PA faculty to agree with)  
               □ moderate  
               □ difficult (for PA faculty to agree with)  
   No concern  □ or  Comment

38. I am an expert in the content area that I teach in the PA program.  
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  
   Relevant?  □ yes  □ no  
   Difficulty?  □ easy (for PA faculty to agree with)  
               □ moderate  
               □ difficult (for PA faculty to agree with)  
   No concern  □ or  Comment

39. My position as a PA faculty member is more than just another PA job for me; it is a vocational calling.  
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  
   Relevant?  □ yes  □ no
40. The students in my PA program appreciate what I am doing for them.
   a) strongly agree  
   b) agree  
   c) disagree  
   d) strongly disagree

Relevant?  
   □ yes  
   □ no

Difficulty?  
   □ easy (for PA faculty to agree with)  
   □ moderate  
   □ difficult (for PA faculty to agree with)

No concern  
   □  
   or  
   Comment

41. I aspire to a position of leadership within my institution (or did aspire, if currently in a leadership position).
   a) strongly agree  
   b) agree  
   c) disagree  
   d) strongly disagree

Relevant?  
   □ yes  
   □ no

Difficulty?  
   □ easy (for PA faculty to agree with)  
   □ moderate  
   □ difficult (for PA faculty to agree with)

No concern  
   □  
   or  
   Comment

42. I aspire to a position of state or national leadership within the PA profession (or did aspire, if currently in a leadership position).
   a) strongly agree  
   b) agree  
   c) disagree  
   d) strongly disagree

Relevant?  
   □ yes  
   □ no

Difficulty?  
   □ easy (for PA faculty to agree with)  
   □ moderate  
   □ difficult (for PA faculty to agree with)

No concern  
   □  
   or  
   Comment
43. Even at the end of a bad day, I can still come home and say that I love my job as a PA faculty.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no

   Difficulty?  easy (for PA faculty to agree with)  moderate  difficult (for PA faculty to agree with)

   No concern  or  Comment

44. I consider organizational skills to be one of my strengths.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no

   Difficulty?  easy (for PA faculty to agree with)  moderate  difficult (for PA faculty to agree with)

   No concern  or  Comment

45. I consider the PA program that I am currently working in to be my program and feel responsible for the program outcomes.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no

   Difficulty?  easy (for PA faculty to agree with)  moderate  difficult (for PA faculty to agree with)

   No concern  or  Comment

46. I feel that my PA program is supported by the institutional administration.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no

   Difficulty?  easy (for PA faculty to agree with)  moderate
47. My immediate supervisor supports me and treats me as a valued colleague.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  
             □ moderate  
             □ difficult (for PA faculty to agree with)  

No concern  □  or  Comment

48. My immediate supervisor treats faculty in an even-handed way.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  
             □ moderate  
             □ difficult (for PA faculty to agree with)  

No concern  □  or  Comment

49. I receive useful feedback from my immediate supervisor regarding my performance and/or 
career progression.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  
             □ moderate  
             □ difficult (for PA faculty to agree with)  

No concern  □  or  Comment

50. I feel that I am not only a part of the PA program but also a member of the wider academic 
community at my institution.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
51. I would miss classroom teaching if I returned to full-time clinical practice.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

52. Students consider me to be a good teacher.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

53. I have a good understanding of the culture and governance structure of my institution.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
54. If a question regarding a change in curriculum comes up in a faculty meeting, I will have an opinion about the change and will be sure that my opinion is heard.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  [ ] yes  [ ] no

   Difficulty?  [ ] easy (for PA faculty to agree with)
                [ ] moderate
                [ ] difficult (for PA faculty to agree with)

   No concern  [ ] or  Comment

55. I find academia just as exciting, if not more exciting, than clinical practice.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  [ ] yes  [ ] no

   Difficulty?  [ ] easy (for PA faculty to agree with)
                [ ] moderate
                [ ] difficult (for PA faculty to agree with)

   No concern  [ ] or  Comment

56. My primary identity is that of a PA educator rather than a clinical PA.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  [ ] yes  [ ] no

   Difficulty?  [ ] easy (for PA faculty to agree with)
                [ ] moderate
                [ ] difficult (for PA faculty to agree with)

   No concern  [ ] or  Comment

57. I understand what is required to receive a promotion in academic rank at my institution.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  [ ] yes  [ ] no

   Difficulty?  [ ] easy (for PA faculty to agree with)
                [ ] moderate
                [ ] difficult (for PA faculty to agree with)
58. I enjoy the administrative tasks that are part of my job as a PA educator.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no

   Difficulty?  easy (for PA faculty to agree with)  moderate  difficult (for PA faculty to agree with)

   No concern  or  Comment

59. I enjoy the process of measuring and evaluating the outcomes of PA student learning.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no

   Difficulty?  easy (for PA faculty to agree with)  moderate  difficult (for PA faculty to agree with)

   No concern  or  Comment

60. I enjoy the fact that I find teaching PA students more challenging than clinical practice.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no

   Difficulty?  easy (for PA faculty to agree with)  moderate  difficult (for PA faculty to agree with)

   No concern  or  Comment

61. I enjoy the process of developing and improving the PA program curriculum.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  yes  no
62. I enjoy doing research.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

63. I love the physician assistant profession.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

64. I have more opportunities to exercise my creativity in my academic role than I did in full-time clinical practice.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  e) not applicable
65. I feel that I impact more patients as a PA educator than I did when I was practicing clinically full-time.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  e) not applicable

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

No concern  □ or  Comment

66. My current salary is sufficient to support my desired lifestyle.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

No concern  □ or  Comment

67. The process for promotion and tenure of faculty in my department is fair.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  □ moderate  □ difficult (for PA faculty to agree with)

No concern  □ or  Comment

68. I have adequate support from my institution to produce scholarly work.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)  □ moderate
69. Teaching PA students is a rewarding experience.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

Relevant?  □ yes   □ no

Difficulty?  □ easy (for PA faculty to agree with)
               □ moderate
               □ difficult (for PA faculty to agree with)

No concern   □ or   Comment

70. A doctoral degree is a valuable asset to a PA faculty member.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

Relevant?  □ yes   □ no

Difficulty?  □ easy (for PA faculty to agree with)
               □ moderate
               □ difficult (for PA faculty to agree with)

No concern   □ or   Comment

71. A reason for me to stay in PA education is my desire to help students become successful PAs.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

Relevant?  □ yes   □ no

Difficulty?  □ easy (for PA faculty to agree with)
               □ moderate
               □ difficult (for PA faculty to agree with)

No concern   □ or   Comment

72. A reason for me to stay in PA education is the ability to move up the academic ladder and gain importance within an academic institution.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree
73. A reason for me to stay in PA education is the relationships that I have developed with my fellow faculty members within the PA program.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

74. A reason for me to stay in PA education is the fact that the type of “life and death” emergencies that can occur in clinical practice do not happen in education.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

75. A reason for me to stay in PA education is positive feedback from students who I am currently teaching.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
76. A reason for me to stay in PA education is flexibility in my personal schedule.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to agree with)
               □ moderate
               □ difficult (for PA faculty to agree with)

   No concern  □  or  Comment

77. A reason for me to stay in PA education is the opportunity that my job as a PA faculty member affords me to continually learn and keep up-to-date with medical knowledge.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to agree with)
               □ moderate
               □ difficult (for PA faculty to agree with)

   No concern  □  or  Comment

78. A reason for me to stay in PA education is the opportunity to mentor other PA faculty and watch them succeed in academia.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to agree with)
               □ moderate
               □ difficult (for PA faculty to agree with)

   No concern  □  or  Comment

79. A reason for me to stay in PA education is the opportunity to care for more patients by training PAs than I would be able to care for individually in clinical practice.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
80. A reason for me to stay in PA education is the ability to be a gatekeeper to the PA profession.  
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

81. A reason for me to stay in PA education is the recognition that I receive from my colleagues in PA education.  
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

82. A reason for me to stay in PA education is the recognition that I receive from the administration of my institution.  
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
83. A reason for me to stay in PA education is the opportunity to do research and get my work published.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?   yes  no

   Difficulty?   easy (for PA faculty to agree with)   moderate   difficult (for PA faculty to agree with)

   No concern   or   Comment

84. A reason for me to stay in PA education is the opportunity to take part in service to my institution, my community, and/or my profession.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?   yes  no

   Difficulty?   easy (for PA faculty to agree with)   moderate   difficult (for PA faculty to agree with)

   No concern   or   Comment

85. A reason for me to stay in PA education is watching the transformation that takes place in PA students from the first day of the program through graduation day.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?   yes  no

   Difficulty?   easy (for PA faculty to agree with)   moderate   difficult (for PA faculty to agree with)

   No concern   or   Comment

86. A reason for me to stay in PA education is the travel opportunities that I have as a PA faculty member.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?   yes  no
87. A reason for me to stay in PA education is the variety of my daily work as a PA faculty member.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

88. A reason for me to stay in PA education is the ability this career affords me to achieve a balance between my work and my personal life.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

89. A reason for me to stay in PA education is the opportunity to be a part of an academic community in higher education.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
90. A reason for me to stay in PA education is the opportunity for long-term job security.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to agree with) □ moderate □ difficult (for PA faculty to agree with)

   No concern □ or Comment

91. A reason for me to stay in PA education is the gratification I feel when a PA student grasps a
   concept that I am teaching.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to agree with) □ moderate □ difficult (for PA faculty to agree with)

   No concern □ or Comment

92. A reason for me to stay in PA education is the high quality of PA students.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to agree with) □ moderate □ difficult (for PA faculty to agree with)

   No concern □ or Comment

93. A reason for me to stay in PA education is the opportunity I have here to give back to the PA
   profession.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to agree with)
94. A reason for me to stay in PA education is the autonomy that I have over my personal schedule (i.e. the freedom to manage my time throughout the day as I see fit).
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  e) not applicable

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)
            □ moderate
            □ difficult (for PA faculty to agree with)

No concern  □  or  Comment

95. A reason for me to stay in PA education is positive feedback that I receive from students after they graduate.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  e) not applicable

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)
            □ moderate
            □ difficult (for PA faculty to agree with)

No concern  □  or  Comment

96. A reason for me to stay in PA education is the opportunity to interact with PA students daily on a personal level.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree  e) not applicable

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to agree with)
            □ moderate
            □ difficult (for PA faculty to agree with)
The following items are meant to be reverse-scored. Therefore, “easy” items are those that most PA faculty would not endorse, or would disagree with. “Difficult” items are those items that most PA faculty would agree with. In other words, only the PA faculty with the most “intention to stay in academia” would disagree with difficult items. Items of “moderate” difficulty have a mid-range difficulty.

97. When I first entered PA education, I thought that the majority of my time would be spent teaching students in the classroom or small-group setting.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to disagree with)  □ moderate  □ difficult (for PA faculty to disagree with)

   No concern  □ or  Comment

98. When I first entered PA education, I did not realize what the daily life of a PA educator was really like.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to disagree with)  □ moderate  □ difficult (for PA faculty to disagree with)

   No concern  □ or  Comment

99. There have been times in the classroom in the past year when I felt I didn’t have enough clinical experience to be an effective PA educator.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant?  □ yes  □ no

   Difficulty?  □ easy (for PA faculty to disagree with)  □ moderate
100. In the past year, the amount of faculty work that I have had to take home has made me seriously consider going back to full-time clinical practice.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?  □ yes  □ no
   Difficulty?  □ easy (for PA faculty to disagree with)
                 □ moderate
                 □ difficult (for PA faculty to disagree with)

   No concern  □ or  Comment

101. In the past year, a difficult interaction with a student has made me seriously consider going back to full-time clinical practice.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?  □ yes  □ no
   Difficulty?  □ easy (for PA faculty to disagree with)
                 □ moderate
                 □ difficult (for PA faculty to disagree with)

   No concern  □ or  Comment

102. In the past year, dissatisfaction with my faculty salary has made me seriously consider going back to full-time clinical practice.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree

   Relevant?  □ yes  □ no
   Difficulty?  □ easy (for PA faculty to disagree with)
                 □ moderate
                 □ difficult (for PA faculty to disagree with)

   No concern  □ or  Comment
103. I frequently feel lonely or isolated at work.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to disagree with)
   □ moderate
   □ difficult (for PA faculty to disagree with)

   No concern □ or Comment

104. I have difficulty accepting the non-teaching responsibilities of a PA faculty member.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to disagree with)
   □ moderate
   □ difficult (for PA faculty to disagree with)

   No concern □ or Comment

105. I can envision myself returning to full-time clinical practice sometime in the future.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to disagree with)
   □ moderate
   □ difficult (for PA faculty to disagree with)

   No concern □ or Comment

106. I am considering returning to full-time clinical practice because I miss having daily
    interactions with patients.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

   Relevant? □ yes □ no

   Difficulty? □ easy (for PA faculty to disagree with)
   □ moderate
   □ difficult (for PA faculty to disagree with)
107. My family would prefer that I was in full-time clinical practice.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree
   Relevant?   □ yes   □ no
   Difficulty?   □ easy (for PA faculty to disagree with)
                 □ moderate
                 □ difficult (for PA faculty to disagree with)
   No concern   □ or   Comment

108. I may need to leave PA education in the near future to care for a dependent child and/or adult family member.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree
   Relevant?   □ yes   □ no
   Difficulty?   □ easy (for PA faculty to disagree with)
                 □ moderate
                 □ difficult (for PA faculty to disagree with)
   No concern   □ or   Comment

109. I am easily frustrated by institutional politics.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree
   Relevant?   □ yes   □ no
   Difficulty?   □ easy (for PA faculty to disagree with)
                 □ moderate
                 □ difficult (for PA faculty to disagree with)
   No concern   □ or   Comment

110. I prefer the immediate feedback that I receive in clinical practice to the delayed feedback that I receive in PA education.
   a) strongly agree   b) agree   c) disagree   d) strongly disagree
111. I prefer to focus on my teaching and try to avoid getting bogged down in the details of academia.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

112. Service on committees is a tedious and unnecessary part of my job as a PA faculty member.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree

113. I am frustrated by how long it takes to institute a change in my program.
   a) strongly agree  b) agree  c) disagree  d) strongly disagree
114. I am currently feeling overwhelmed by my faculty workload.
a) strongly agree  b) agree  c) disagree  d) strongly disagree

Relevant?  □ yes  □ no

Difficulty?  □ easy (for PA faculty to disagree with)  □ moderate  □ difficult (for PA faculty to disagree with)

No concern  □  or  Comment

THE END – Thank you! Please save this document and email it back to me at kgraham@uwlax.edu
Appendix G

Results of Expert Review

Note: Each item received at least four votes for relevance to the construct of “intention to stay in academia” for PA faculty. (N = 6 reviewers)

Key to Level of Difficulty Column:  E = agreement that item is “easy” (≥3 votes); E/M = tied for “easy” and “moderate” (3 votes for each category); M = agreement that item is “moderate” (≥3 votes); M/D = tied for ”moderate and “difficult” (3 votes for each category); D = consensus that item is “difficult” (≥3 votes); N = no agreement on level of difficulty

<table>
<thead>
<tr>
<th>Item</th>
<th>Level of Difficulty</th>
<th>Reviewer Comments</th>
<th>Item Discarded (X)</th>
<th>Item Included in Pilot (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prior to going to PA school, I knew that I would be an educator someday.</td>
<td>M</td>
<td>1) It may be better stated, prior to PA school, I had an interest in becoming an educator some day.</td>
<td></td>
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<tr>
<td>2. When I was in PA school, I knew that someday I would be teaching in a PA program.</td>
<td>M</td>
<td>1) Again, “had interest in becoming”</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3. When I was in PA school, I held a position of leadership within my class.</td>
<td>M</td>
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<tr>
<td>4. When I was in PA school, I thought that I could do a better job of educating students than my faculty were doing.</td>
<td>M/D</td>
<td>1) Interesting. Some MIGHT think that but their thoughts might not translate into academia or good teachers themselves. 2) That comes across harshly, not sure if it can be worded a little better then it may be more relevant. 3) I am trying to determine if a student who felt they could do a better job of teaching a specific topic matter would then be a precipitant for becoming an educator ….. I am not sure that this is good indicator/predictor? I think the thought that an individual could &quot;do&quot; a better job may be based on delivery, would eliminate what the student felt was unnecessary but not necessarily factual….</td>
<td></td>
<td>X</td>
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<tr>
<td>5. Prior to becoming a PA faculty member, I had a desire to advance my education beyond the degree that I received</td>
<td>M</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
6. Prior to becoming a PA faculty member, I was encouraged to consider going into PA education.  

7. I had valuable experience in classroom teaching prior to becoming a PA faculty member.  
   *REVISION:* I had positive experiences in classroom teaching prior to becoming a PA faculty member.  

8. I had formal training in teaching prior to becoming a PA faculty member.  
   *REVISION:* I had formal training in teaching (such as courses in education or a teaching fellowship) prior to becoming a PA faculty member.  

9. Prior to becoming a PA faculty member, I had a role model in PA education who I wanted to emulate.  

10. I had positive experiences with precepting students prior to becoming a PA faculty member.  

11. I had positive experiences in a part-time role in PA education prior to accepting a full-time faculty position.  

12. I am in PA education because I found clinical practice to be too demanding (either emotionally, physically, or both).  
   *REVISION:* I am in PA education because I found clinical practice to be too demanding.  

13. Patient education is [was] one of my favorite aspects of clinical practice.  

14. When I took my first position in PA education, I was surprised by the amount of preparation time required to give a good lecture.  

<table>
<thead>
<tr>
<th>Question</th>
<th>E/M</th>
<th>D</th>
<th>M</th>
<th>N</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Prior to becoming a PA faculty member, I was encouraged to consider going into PA education.</td>
<td>E/M</td>
<td>D</td>
<td>M</td>
<td>N</td>
<td>X</td>
</tr>
<tr>
<td>7. I had valuable experience in classroom teaching prior to becoming a PA faculty member.</td>
<td>1) I am not sure &quot;valuable&quot; needs to be in the question, just whether or not they had experience prior.</td>
<td>X</td>
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<tr>
<td>8. I had formal training in teaching prior to becoming a PA faculty member.</td>
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<td>9. Prior to becoming a PA faculty member, I had a role model in PA education who I wanted to emulate.</td>
<td>X</td>
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<td>10. I had positive experiences with precepting students prior to becoming a PA faculty member.</td>
<td>X</td>
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<td>11. I had positive experiences in a part-time role in PA education prior to accepting a full-time faculty position.</td>
<td>X</td>
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<td>12. I am in PA education because I found clinical practice to be too demanding (either emotionally, physically, or both).</td>
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<tr>
<td>13. Patient education is [was] one of my favorite aspects of clinical practice.</td>
<td>X</td>
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<td>14. When I took my first position in PA education, I was surprised by the amount of preparation time required to give a good lecture.</td>
<td>X</td>
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<td>15. When I just started as a PA faculty member, I was surprised at the workload required of the job.</td>
<td>E/M</td>
<td>1) Same comment as #14</td>
<td></td>
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<tr>
<td>16. I received high ratings on course evaluations from students in my first year in PA education.</td>
<td>E</td>
<td>1) Some receive poorer ratings but stick with it so it might scare some away and others still like the teaching in spite of poorer evals.</td>
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<tr>
<td>17. Early in my PA education career, I had [have] a mentor within my institution who helped me to understand the academic role and institutional culture.</td>
<td>M</td>
<td></td>
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<tr>
<td>18. Early in my PA education career, I had [have] a mentor in PA education who I could go to with questions.</td>
<td>M</td>
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<tr>
<td>19. Early in my PA education career, I had [have] a research mentor who involved me in his (or her) research and/or assisted me with my early research projects.</td>
<td>M</td>
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<tr>
<td>20. My program or institution has provided me with adequate faculty development opportunities to enhance my understanding of educational processes.</td>
<td>M</td>
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<tr>
<td>21. I have been influential in the founding of a new PA program.</td>
<td>D</td>
<td>1) Not sure how that fits with this survey. 2) There are individuals whose main purpose and goal is to be a &quot;start-up&quot; Program Director and eventually move on to the next start-up - is this a indicator that they are engaged in education or engaged in the monetary rewards for being a consultant, interim program director, etc.</td>
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<td>22. I currently receive high ratings on my course evaluations from PA students.</td>
<td>M</td>
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<tr>
<td>23. I have good working relationships with my fellow faculty members within the PA program.</td>
<td>E</td>
<td></td>
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<tr>
<td>24. I consider most of my fellow faculty members in the PA program to be my friends.</td>
<td>M</td>
<td>1) Not sure how to classify friends and &quot;most&quot;</td>
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<tr>
<td>25. I interact with PA faculty from other</td>
<td>M</td>
<td>1) What about other programs in the same state?</td>
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</tr>
<tr>
<td>Question</td>
<td>Code</td>
<td>Revision</td>
<td>X</td>
<td></td>
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<td>------------------------------------------------------------------------</td>
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<tr>
<td>programs across the country on a regular basis.</td>
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<tr>
<td>REVISION: I interact with PA faculty from other programs on a regular basis.</td>
<td></td>
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</tr>
<tr>
<td>26. If I need to get advice about a problem or a situation in my PA program, I have a mentor in another PA program who I can call to talk to about the situation.</td>
<td>D</td>
<td>1) Who I can call about the situation - too many verbs.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REVISION: If I need to get advice about a problem or a situation in my PA program, I have a mentor in another PA program who I can talk to about the situation.</td>
<td></td>
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</tr>
<tr>
<td>27. I am encouraged by my PA program to continue to practice clinically while being a PA faculty member.</td>
<td>M</td>
<td>1) How many days per week?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. I am intellectually stimulated by my interactions with my faculty colleagues.</td>
<td>M</td>
<td>1) Not sure if &quot;intellectually&quot; can be quantified and processed consistently among respondents as well as &quot;stimulated&quot; - however if this is to determine the faculty members employment climate - then there is relevancy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. I have recently adapted my teaching in response to changes outside of my control – i.e. new accreditation standards, changes in program faculty, advancements in medicine, etc.</td>
<td>D</td>
<td>1) Changes in students? maturity? preparation for PA school? 2) Too many variables in one question - separate it out specifically with what you want answered.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REVISION: I have recently adapted my teaching in response to changes outside of my control (for example: new accreditation standards, changes in program faculty, advancements in medicine, etc.) Consider additional item: I have recently adapted my teaching in response to changes in the maturity and preparation of incoming PA students.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>30. I have family obligations that make the schedule flexibility in PA education very important to me.</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. I am currently serving as a mentor to</td>
<td>M</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
at least one other PA who is new to PA education.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>32.</td>
<td>I am active within the PA profession on a national level. <strong>REVISION:</strong> I am active within the PA profession at the state or national level.</td>
<td>M</td>
</tr>
<tr>
<td>33.</td>
<td>I am active within the PA profession on an international level.</td>
<td>M/D</td>
</tr>
<tr>
<td>34.</td>
<td>I make changes every year to the courses I teach.</td>
<td>M</td>
</tr>
</tbody>
</table>
| 35. | I have been successful so far in fulfilling the requirements of my institution for faculty scholarly work. | M | 1) I have been successful (delete "so far")
2) This question may have some ambiguity with the meaning of scholarly - but whatever type - scholarly is scholarly works….. | X |
| 36. | Other faculty within my program would identify me as the person on our faculty who is a problem-solver in student issues. | M | X |
| 37. | In PA education, I have more potential to positively affect society than I had in clinical practice. | M/D | X |
| 38. | I am an expert in the content area that I teach in the PA program. | M | X |
| 39. | My position as a PA faculty member is more than just another PA job for me; it is a vocational calling. | M | X |
| 40. | The students in my PA program appreciate what I am doing for them. **REVISION:** Could add the following as a more difficult version of this item. I would stay in PA education even if I did not feel that PA students appreciate what I am doing for them. | M | 1) Sometimes the positive feedback comes from grads rather than current students. Students are often so stressed that they do not provide the positive feedback
2) If you stay even if students DON’T seem to appreciate… that's the keeper faculty |
| 41. | I aspire to a position of leadership within my institution (or did aspire, if currently in a leadership position). | M | X |
| 42. | I aspire to a position of state or | M |   |
national leadership within the PA profession (or did aspire, if currently in a leadership position).

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Alignable (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>43. Even at the end of a bad day, I can still come home and say that I love my job as a PA faculty.</td>
<td>N</td>
<td>X</td>
</tr>
<tr>
<td>44. I consider organizational skills to be one of my strengths.</td>
<td>M</td>
<td>X</td>
</tr>
<tr>
<td>45. I consider the PA program that I am currently working in to be my program and feel responsible for the program outcomes.</td>
<td>N</td>
<td>X</td>
</tr>
<tr>
<td>46. I feel that my PA program is supported by the institutional administration.</td>
<td>M</td>
<td>X</td>
</tr>
<tr>
<td>47. My immediate supervisor supports me and treats me as a valued colleague.</td>
<td>M</td>
<td>X</td>
</tr>
<tr>
<td>48. My immediate supervisor treats faculty in an even-handed way.</td>
<td>M</td>
<td>X</td>
</tr>
<tr>
<td>49. I receive useful feedback from my immediate supervisor regarding my performance and/or career progression.</td>
<td>M</td>
<td>X</td>
</tr>
<tr>
<td>50. I feel that I am not only a part of the PA program but also a member of the wider academic community at my institution.</td>
<td>M</td>
<td>X</td>
</tr>
<tr>
<td>51. I would miss classroom teaching if I returned to full-time clinical practice.</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>52. Students consider me to be a good teacher.</td>
<td>E</td>
<td>X</td>
</tr>
<tr>
<td>53. I have a good understanding of the culture and governance structure of my institution.</td>
<td>M</td>
<td>1) The quantifier of GOOD may cause those folk to feel that they know enough but is good knowing ALL and answer this question with skewed responses.</td>
</tr>
<tr>
<td>REVISION: I understand the culture and governance structure of my institution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. If a question regarding a change in curriculum comes up in a faculty meeting, I will have an opinion about the change</td>
<td>M</td>
<td>X</td>
</tr>
</tbody>
</table>
and will be sure that my opinion is heard.

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>55. I find academia just as exciting, if not more exciting, than clinical practice.</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>56. My primary identity is that of a PA educator rather than a clinical PA.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>57. I understand what is required to receive a promotion in academic rank at my institution.</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>58. I enjoy the administrative tasks that are part of my job as a PA educator.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>59. I enjoy the process of measuring and evaluating the outcomes of PA student learning.</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>60. I enjoy the fact that I find teaching PA students more challenging than clinical practice.</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>61. I enjoy the process of developing and improving the PA program curriculum.</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>62. I enjoy doing research.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>63. I love the physician assistant profession.</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>64. I have more opportunities to exercise my creativity in my academic role than I did in full-time clinical practice.</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>65. I feel that I impact more patients as a PA educator than I did when I was practicing clinically full-time.</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>66. My current salary is sufficient to support my desired lifestyle.</td>
<td>M/D</td>
<td></td>
</tr>
<tr>
<td>67. The process for promotion and tenure of faculty in my department is fair. <strong>REVISION:</strong> The process for promotion (and tenure, if available) of faculty in my department is fair.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>68. I have adequate support from my</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

1) I may be looking at this backwards… that my salary is notably lower but is sufficient (ie. money is not my motivator for being in academia)

1) Given that a study from a couple of years ago only found about 25% of PA faculty are tenure track positions, you may want a preface to this question.
<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>institution to produce scholarly work.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>69. Teaching PA students is a rewarding experience.</strong></td>
<td>M</td>
<td></td>
</tr>
<tr>
<td><strong>70. A doctoral degree is a valuable asset to a PA faculty member.</strong></td>
<td>M</td>
<td>1) You may want to specify what you mean by doctorate (PA doctorate or EdD/PhD?).</td>
</tr>
<tr>
<td><strong>71. A reason for me to stay in PA education is my desire to help students become successful PAs.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>REVISION:</strong> For items retained with this stem: Please indicate your level of agreement or disagreement with the following as reasons for you to stay in PA education. <strong>A reason for me to stay in PA education is:</strong> My desire to help students become successful PAs. Etc....</td>
<td>E</td>
<td>1) The next several questions begin with &quot;A reason for me to stay&quot; and I wonder if you might make this one question and list out the variables in a different manner and categorize some of them versus having such a long list (i.e. lifestyle, higher education, recognition, family life, etc…).</td>
</tr>
<tr>
<td><strong>72. A reason for me to stay in PA education is the ability to move up the academic ladder and gain importance within an academic institution.</strong></td>
<td>M</td>
<td>1) Two separate issues - academic ladder and gaining importance - separate.</td>
</tr>
<tr>
<td><strong>73. A reason for me to stay in PA education is the relationships that I have developed with my fellow faculty members within the PA program.</strong></td>
<td>M</td>
<td></td>
</tr>
<tr>
<td><strong>74. A reason for me to stay in PA education is the fact that the type of “life and death” emergencies that can occur in clinical practice do not happen in education.</strong></td>
<td>M</td>
<td>1) Would that be what keeps them in PA education, or what drove them from clinical practice? Or, both. Not sure the question would discriminate. 2) To quantify &quot;life and death&quot; emergencies in life are very similar to those that are in the clinical practice…so may have a degree of ambiguity</td>
</tr>
<tr>
<td><strong>75. A reason for me to stay in PA education is positive feedback from</strong></td>
<td>M</td>
<td>1) Dealing with the negative and still perserving is a keeper. Easy to stay when students are very postive/happy.</td>
</tr>
</tbody>
</table>

271
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>students who I am currently teaching.</td>
<td>2) Currently teaching, but really it could be past students as well.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76. A reason for me to stay in PA education is flexibility in my personal schedule.</td>
<td>M</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>77. A reason for me to stay in PA education is the opportunity that my job as a PA faculty member affords me to continually learn and keep up-to-date with medical knowledge.</td>
<td>M</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>78. A reason for me to stay in PA education is the opportunity to mentor other PA faculty and watch them succeed in academia.</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79. A reason for me to stay in PA education is the opportunity to care for more patients by training PAs than I would be able to care for individually in clinical practice.</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80. A reason for me to stay in PA education is the ability to be a gatekeeper to the PA profession.</td>
<td>N</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>81. A reason for me to stay in PA education is the recognition that I receive from my colleagues in PA education.</td>
<td>M</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>82. A reason for me to stay in PA education is the recognition that I receive from the administration of my institution.</td>
<td>M/D</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>83. A reason for me to stay in PA education is the opportunity to do research and get my work published.</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>84. A reason for me to stay in PA education is the opportunity to take part in service to my institution, my community, and/or my profession.</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85. A reason for me to stay in PA education is watching the transformation</td>
<td>E</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
that takes place in PA students from the first day of the program through graduation day.

<p>| 86. A reason for me to stay in PA education is the travel opportunities that I have as a PA faculty member. | M | 1) This is assuming you have them. What if you don't… seems like the wording does not mean what you want it to depending upon if you have good opportunity to travel or not… the underlying assumption changes how one can answer the item | X |
| 87. A reason for me to stay in PA education is the variety of my daily work as a PA faculty member. | M |  | X |
| 88. A reason for me to stay in PA education is the ability this career affords me to achieve a balance between my work and my personal life. | E/M |  | X |
| 89. A reason for me to stay in PA education is the opportunity to be a part of an academic community in higher education. | M |  |  |
| 90. A reason for me to stay in PA education is the opportunity for long-term job security. | M | 1) Depends upon if one has tenure or not? | X |
| 91. A reason for me to stay in PA education is the gratification I feel when a PA student grasps a concept that I am teaching. | E |  |  |
| 92. A reason for me to stay in PA education is the high quality of PA students. | M |  |  |
| 93. A reason for me to stay in PA education is the opportunity I have here to give back to the PA profession. | M |  | X |
| 94. A reason for me to stay in PA education is the autonomy that I have over my personal schedule (i.e. the freedom to manage my time throughout the day as I see fit). | M |  | X |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Text</th>
<th>Score</th>
<th>Reverse Scored</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>95.</td>
<td>A reason for me to stay in PA education is positive feedback that I receive from students after they graduate.</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96.</td>
<td>A reason for me to stay in PA education is the opportunity to interact with PA students daily on a personal level.</td>
<td>E/M</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Begin Reverse-Scored Items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>97.</td>
<td>When I first entered PA education, I thought that the majority of my time would be spent teaching students in the classroom or small-group setting.</td>
<td>D</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>98.</td>
<td>When I first entered PA education, I did not realize what the daily life of a PA educator was really like.</td>
<td>M/D</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>99.</td>
<td>There have been times in the classroom in the past year when I felt I didn’t have enough clinical experience to be an effective PA educator.</td>
<td>M</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>100.</td>
<td>In the past year, the amount of faculty work that I have had to take home has made me seriously consider going back to full-time clinical practice.</td>
<td>M</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>101.</td>
<td>In the past year, a difficult interaction with a student has made me seriously consider going back to full-time clinical practice.</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102.</td>
<td>In the past year, dissatisfaction with my faculty salary has made me seriously consider going back to full-time clinical practice.</td>
<td>M/D</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>103.</td>
<td>I frequently feel lonely or isolated at work.</td>
<td>E/M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>104.</td>
<td>I have difficulty accepting the non-teaching responsibilities of a PA faculty member.</td>
<td>M</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>105.</td>
<td>I can envision myself returning to full-time clinical practice sometime in the</td>
<td>M</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>106. I am considering returning to full-time clinical practice because I miss having daily interactions with patients.</td>
<td>M</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>107. My family would prefer that I was in full-time clinical practice.</td>
<td>M</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>108. I may need to leave PA education in the near future to care for a dependent child and/or adult family member.</td>
<td>M</td>
<td>1) Not sure if the person would also leave the clinical job for this responsibility too or if you mean clinical would accommodate this responsibility</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>109. I am easily frustrated by institutional politics.</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110. I prefer the immediate feedback that I receive in clinical practice to the delayed feedback that I receive in PA education.</td>
<td>M</td>
<td>1) Presumes that most feedback in clinical practice is immediate</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>111. I prefer to focus on my teaching and try to avoid getting bogged down in the details of academia.</td>
<td>M</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>112. Service on committees is a tedious and unnecessary part of my job as a PA faculty member.</td>
<td>D</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>113. I am frustrated by how long it takes to institute a change in my program.</td>
<td>M/D</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>114. I am currently feeling overwhelmed by my faculty workload.</td>
<td>M</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix H

### Pilot Item Statistics in Correlational Order

<table>
<thead>
<tr>
<th>ENTRY NUMBER</th>
<th>TOTAL SCORE</th>
<th>TOTAL COUNT</th>
<th>MEASURE</th>
<th>MODEL S.E.</th>
<th>INFIT MNSQ</th>
<th>ZSTD</th>
<th>OUTFIT MNSQ</th>
<th>ZSTD</th>
<th>PT-MEASURE CORR.</th>
<th>EXP.</th>
<th>TOTAL OBS%</th>
<th>MATCH EXP%</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>150</td>
<td>26</td>
<td>.34</td>
<td>-1.20</td>
<td>-2.79</td>
<td>3.98</td>
<td>-1.47</td>
<td>-1.5</td>
<td>6.72</td>
<td>50.8</td>
<td>55.3</td>
<td>46.2</td>
<td>Ext/Work-life balance</td>
</tr>
<tr>
<td>2</td>
<td>150</td>
<td>26</td>
<td>.34</td>
<td>-1.20</td>
<td>-2.79</td>
<td>3.98</td>
<td>-1.47</td>
<td>-1.5</td>
<td>6.72</td>
<td>50.8</td>
<td>55.3</td>
<td>46.2</td>
<td>Ext/Work-life balance</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
<td>26</td>
<td>.34</td>
<td>-1.20</td>
<td>-2.79</td>
<td>3.98</td>
<td>-1.47</td>
<td>-1.5</td>
<td>6.72</td>
<td>50.8</td>
<td>55.3</td>
<td>46.2</td>
<td>Ext/Work-life balance</td>
</tr>
<tr>
<td>4</td>
<td>150</td>
<td>26</td>
<td>.34</td>
<td>-1.20</td>
<td>-2.79</td>
<td>3.98</td>
<td>-1.47</td>
<td>-1.5</td>
<td>6.72</td>
<td>50.8</td>
<td>55.3</td>
<td>46.2</td>
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</tr>
<tr>
<td>5</td>
<td>150</td>
<td>26</td>
<td>.34</td>
<td>-1.20</td>
<td>-2.79</td>
<td>3.98</td>
<td>-1.47</td>
<td>-1.5</td>
<td>6.72</td>
<td>50.8</td>
<td>55.3</td>
<td>46.2</td>
<td>Ext/Work-life balance</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>26</td>
<td>.34</td>
<td>-1.20</td>
<td>-2.79</td>
<td>3.98</td>
<td>-1.47</td>
<td>-1.5</td>
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<td>Ext/Work-life balance</td>
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**Obs%** and **Exp%** values are calculated based on the total count. The **Item** column lists the specific item being measured, such as **Per/Part-time**, **Per/Clinical inexperience**, and others.
│
29
119
38
-.60
.25│ .74 -1.2│ .74 -1.2│ .42
.37│ 55.3 55.6│ Per/Problem-solving
│
│
2
101
39
.52
.22│1.33
1.5│1.34
1.5│ .43
.41│ 41.0 50.8│ Per/Educational advancement
│
│
57
149
40
-2.47
.35│ .78
-.8│ .74
-.9│ .43
.27│ 75.0 73.5│ Per/Altruism
│
│
39
118
39
-.34
.24│1.28
1.2│1.29
1.3│ .45
.37│ 35.9 55.7│ Per/Identity as educator
│
│
24
71
39
1.99
.23│1.79
3.3│1.68
2.9│ .45
.39│ 33.3 47.9│ Per/National involvement
│
│
15
95
39
.81
.22│1.54
2.3│1.54
2.3│ .45
.42│ 38.5 48.0│ Int/Colleagues nationally
│
│
12
112
39
-.04
.23│1.39
1.6│1.42
1.8│ .45
.39│ 48.7 54.2│ Per/Mentor(a)
│
│
31
110
39
.08
.23│1.27
1.2│1.26
1.2│ .46
.40│ 41.0 53.9│ Int/Leadership opportunity
│
│
18
138
39
-1.74
.29│ .66 -1.7│ .68 -1.5│ .47
.32│ 82.1 61.3│ Int/Relationships colleagues(a)│
│
46
110
39
.09
.23│ .65 -1.8│ .68 -1.6│ .47
.39│ 61.5 54.0│ Int/Multiplication effect
│
│
58
101
40
.65
.22│1.41
1.8│1.42
1.9│ .49
.41│ 30.0 49.6│ Int/Career advancement
│
│
3
110
39
.07
.23│1.04
.3│1.03
.2│ .49
.40│ 51.3 53.9│ Per/Encouragement
│
│
47
95
40
.93
.21│ .61 -2.2│ .62 -2.2│ .49
.41│ 70.0 47.8│ Tan/Support for research
│
│
37
112
40
.11
.23│ .72 -1.4│ .74 -1.2│ .50
.39│ 62.5 53.5│ Int/Institutional culture
│
│
52
110
40
.21
.22│ .51 -2.7│ .50 -2.8│ .50
.40│ 70.0 53.2│ Int/Change agent
│
│
45
114
37
-.53
.25│ .79
-.9│ .76 -1.0│ .51
.37│ 64.9 55.7│ Int/Creativity
│
│
65
129
40
-.84
.25│ .60 -2.0│ .60 -2.1│ .52
.36│ 75.0 55.4│ Int/Variety
│
│
49
92
40
1.07
.21│ .89
-.5│ .90
-.5│ .53
.41│ 55.0 46.9│ Tan/Salary
│
│
36
111
40
.16
.22│ .45 -3.1│ .45 -3.1│ .54
.40│ 72.5 53.4│ Int/Sense of community
│
│
16
61
39
2.55
.25│1.22
1.0│1.06
.3│ .55
.37│ 69.2 53.9│ Per/Founding involvement
│
│
55
113
40
.06
.23│ .71 -1.4│ .69 -1.5│ .55
.39│ 67.5 54.0│ Int/Service
│
│
32
130
39
-1.15
.26│ .85
-.6│ .85
-.6│ .56
.34│ 66.7 54.9│ Per/Organizational skills
│
│
26
92
39
.95
.22│ .83
-.8│ .85
-.7│ .56
.41│ 51.3 47.7│ Per/Detail oriented
│
│
67
125
39
-.77
.25│ .83
-.7│ .83
-.8│ .57
.36│ 66.7 55.3│ Per/Profession
│
│
53
123
40
-.48
.24│ .75 -1.2│ .77 -1.1│ .59
.37│ 60.0 55.6│ Per/Calling
│
│
33
114
40
.01
.23│ .83
-.8│ .83
-.7│ .60
.39│ 50.0 54.1│ Int/Support administration
│
│
44
96
39
.76
.22│ .68 -1.7│ .68 -1.7│ .61
.41│ 61.5 48.2│ Int/Scholarship
│
│
48
99
40
.74
.22│1.10
.5│1.10
.5│ .61
.41│ 30.0 48.4│ Int/Time demands
│
│
62
97
39
.74
.22│ .76 -1.2│ .78 -1.1│ .62
.40│ 51.3 48.4│ Int/Recognition colleagues
│
│
63
91
40
1.11
.21│ .51 -3.0│ .52 -2.9│ .64
.41│ 65.0 46.5│ Int/Recognition administration │
│
41
115
40
-.04
.23│ .45 -3.1│ .41 -3.4│ .65
.39│ 75.0 54.3│ Per/Flexibility personal(b)
│
│
28
101
40
.65
.22│ .86
-.7│ .88
-.5│ .65
.41│ 60.0 49.6│ Int/Scholarship
│
│
40
113
40
.06
.23│1.09
.5│1.04
.3│ .65
.39│ 55.0 54.0│ Int/Administrative tasks
│
│
50
104
38
.25
.23│ .68 -1.6│ .66 -1.7│ .68
.39│ 65.8 53.2│ Per/Patient interaction
│
├────────────────────────────────────┼──────────┼──────────┼───────────┼───────────┼────────────────────────────────┤
│ MEAN
110.0
39.1
.00
.24│1.01
-.2│1.01
-.1│
│ 55.4 53.6│
│
│ S.D.
20.3
2.3
1.06
.03│ .43
1.7│ .43
1.7│
│ 13.2
4.9│
│
└────────────────────────────────────┴──────────┴──────────┴───────────┴───────────┴────────────────────────────────┘

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Appendix I

Phase IV Survey Instrument

1. When I was in PA school, I knew that someday I would be teaching in a PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

2. Prior to becoming a PA faculty member, I had a desire to advance my education beyond the degree that I received in PA school.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

3. Prior to becoming a PA faculty member, I was encouraged to consider going into PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

4. I had formal training in teaching (such as courses in education or a teaching fellowship) prior to becoming a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

5. I had positive experiences with precepting students prior to becoming a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

6. I am in PA education because I found clinical practice to be too demanding.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA
7. I am in PA education because it allows me to give back to the PA profession.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

8. Patient education is [was] one of my favorite aspects of clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

9. I prefer the immediate feedback that I receive in clinical practice to the delayed feedback that I receive in PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

10. When I first entered PA education, I thought that the majority of my time would be spent teaching students in the classroom or small-group setting.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

11. When I first entered PA education, I did not realize what the daily life of a PA educator was really like.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

12. Early in my PA education career, I had [have] a mentor within my institution who helped me to understand the academic role and institutional culture.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree
13. Early in my PA education career, I had [have] a mentor in PA education who I could go to with questions.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

14. Early in my PA education career, I had [have] a research mentor who involved me in his or her research and/or assisted me with my early research projects.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

15. If I need to get advice about a problem or a situation in my PA program, I have a mentor in another PA program who I can call to talk to about the situation.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

16. I have been influential in the founding of a new PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

17. I have good working relationships with my fellow faculty members within the PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

18. The relationships I have with fellow PA faculty members motivate me to stay in PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
19. I am encouraged by my PA program to continue to practice clinically while being a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

20. I am active within the PA profession on an international level.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

21. My family would prefer that I was in full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

22. I make changes every year to the courses that I teach.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

23. I prefer to focus on my teaching and try to avoid getting bogged down in the details of academia.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

24. I desire to help students become successful PAs.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
25. I enjoy watching the transformation of PA students from the first day of the program through graduation day.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

26. I enjoy continually learning and keeping up-to-date with medical knowledge.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

27. I receive recognition from my colleagues in PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

28. I receive recognition from the administration of my institution.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

29. I have adequate support from my institution to produce scholarly work.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

30. In the past year, the amount of faculty work that I have had to take home has made me seriously consider going to full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

31. In the past year, dissatisfaction with my faculty salary has made me seriously consider full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
32. I am considering going to full-time clinical practice because I miss having daily interactions with patients.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

33. I am currently feeling overwhelmed by my faculty workload.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

34. My position as a PA faculty member is more than just another PA job for me; it is a vocational calling.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

35. In PA education, I have more potential to positively affect society than I had in full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

36. I have the freedom to manage my time throughout the day as I see fit.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

37. The ability to move up the academic ladder or to gain esteem within an academic institution is important to me.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
38. Other faculty within my program would identify me as the person on our faculty who is a problem-solver in student issues.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

39. If a question regarding a change in curriculum comes up in a faculty meeting, I will have an opinion about the change and will be sure that my opinion is heard.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

40. I aspire to a position of leadership within my institution (or did aspire, if currently in a leadership position).
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

41. I feel that I am not only a part of the PA program but also a member of the wider academic community at my institution.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

42. My primary identity is that of a PA educator rather than a clinical PA.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

43. The process for promotion (and tenure, if available) of faculty in my department is fair.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
44. Service on committees is a tedious and unnecessary part of my job as a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

45. I am currently serving as a mentor to at least one other PA who is new to PA education.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

46. I have more opportunities to exercise my creativity in my academic role than I did in full-time clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

47. I feel that I impact more patients as a PA educator than I did when I was practicing clinically full-time.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

48. I appreciate the opportunity to personally interact daily with PA students.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

49. I have been successful so far in fulfilling the requirements of my institution for faculty scholarly work.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA
50. I currently receive high ratings on my course evaluations from PA students.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

51. I receive positive feedback from students after they graduate.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. not applicable

52. I have recently adapted my teaching in response to changes outside of my control
    (for example: new accreditation standards, changes in program faculty,
    advancements in medicine, etc.)
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

53. There have been times in the classroom in the past year when I felt I didn’t have
    enough clinical experience to be an effective PA educator.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
   e. NA

54. My immediate supervisor supports me and treats me as a valued colleague.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

55. My immediate supervisor treats faculty in an even-handed way.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
56. My PA program is supported by the institutional administration.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

57. I am frustrated by how long it takes to institute a change in my program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

58. I understand the culture and governance structure of my institution.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

59. I have difficulty accepting the non-teaching responsibilities of a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

60. Students consider me to be a good teacher.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

61. I am an expert in the content area that I teach in the PA program.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

62. I consider organizational skills to be one of my strengths.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
63. I enjoy the administrative tasks that are part of my job as a PA educator.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

64. I enjoy doing research.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

65. I enjoy the process of measuring and evaluating the outcomes of PA student learning.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

66. I enjoy the fact that I find teaching PA students more challenging than clinical practice.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

67. I appreciate the variety of my daily work as a PA faculty member.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

68. I have flexibility in my work schedule.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree

69. This career allows me to achieve a balance between my work and my personal life.
   a. strongly agree
   b. agree
   c. disagree
   d. strongly disagree
70. Are you a PA?
   a. yes
   b. no

71. How likely are you to leave academia for full-time clinical practice?
   a. Very likely
   b. Somewhat likely
   c. Not at all likely

72. Please select your gender.
   a. male
   b. female

73. Please enter your age. ___

74. Please enter the number of years that you worked as a clinical PA only prior to becoming a PA faculty member. ___

75. Please enter the number of years that you have worked as a PA faculty member. ___

76. What is your current PA faculty status?
   a. full-time
   b. part-time

77. What is your current tenure status?
   a. tenured
   b. tenure track
   c. non-tenure track

78. What is your current academic rank?
   a. professor
   b. associate professor
   c. assistant professor
   d. lecturer/instructor
   e. other

79. What is the highest degree that you have earned?
   a. PhD
   b. MD/DO
   c. Other doctorate (EdD, DHSc, etc.)
   d. Master’s
   e. Bachelor’s
   f. Associate
   g. Other
80. Are you currently pursuing a doctoral degree?
   a. yes
   b. no, but I am planning to pursue a doctoral degree
   c. no, and I am not planning to pursue a doctoral degree
   d. I already have a doctoral degree

81. Are you a program director?
   a. yes
   b. no

82. Do you currently practice clinically?
   a. no
   b. yes, <8 hours per week
   c. yes, 8-16 hours per week
   d. yes, >16 hours per week
Appendix J

List of Additional Analyses Conducted in Phase IV

This is a list of the various Rasch analyses of the data set conducted after the initial data analysis failed to produce a unidimensional measure. The goal was to maximize the variance explained by the measure. Variance explained did not significantly improve, except where noted.

Analysis of the data including only:

1. Completed surveys.
2. Surveys with all demographic questions completed.
3. Items in the individual category.
4. Items in the environmental category.
5. Items in the internal environmental category.
6. Items in the intangible internal environmental category.
7. The 24 best-fitting items; 45.9% of variance explained.
8. Persons with >2 years of experience as PA faculty.
9. Persons with >3 years of experience as PA faculty.
10. Persons who were full-time status.
11. Set of 21 items dealing with feelings; 46.8% of variance explained.
12. Set of 11 items dealing with intentions; 45% of variance explained.
13. Set of 16 items dealing with social support.
14. Set of 7 items dealing with clinical practice; 44.8% of variance explained.
15. Set of 21 items dealing with personal fit; 44.5% of variance explained.
16. Multiple variations of the personal fit set.

17. Set of 16 items dealing with “reality of life.”

18. Set of 36 items representing development as an educator.

19. Set of 21 items representing development as an educator.

20. Set of 11 items with the highest positive loadings in the first contrast on the initial data analysis; 48% of variance explained.

21. Set of 17 items with the highest positive loadings in the first contrast on the initial data analysis

22. Set of all 25 items with positive loadings in the first contrast on the initial data analysis.

23. Set of 9 items with the highest negative loadings in the first contrast on the initial data analysis; 43.7% of variance explained.

24. Set of 22 items with the highest negative loadings in the first contrast on the initial data analysis; 43.7% of variance explained.

25. Set of all 44 items with the highest negative loadings in the first contrast on the initial data analysis; 43.7% of variance explained.

26. Set of 33 items that had differential functioning of at least two groups by their responses to the item “How likely are you to leave academia and return to clinical practice?”

27. Set of 18 items that had differential functioning of all three groups by their responses to the item “How likely are you to leave academia and return to clinical practice?”
28. Set of 28 items that had differential functioning of >0.5 logits of at least two groups by their responses to the item “How likely are you to leave academia and return to clinical practice?”

29. Set of 17 items that had differential functioning of >0.5 logits of at all three groups by their responses to the item “How likely are you to leave academia and return to clinical practice?”

30. Set of 16 items dealing with a supportive environment; 54.9% of variance explained.

31. Set of 16 items dealing with a supportive environment, without the 40 most misfitting persons; 57.8% of variance explained.

32. Set of 19 items dealing with a supportive environment; 52.6% of variance explained.

33. Multiple variations of the supportive environment set.

34. Set of 14 items dealing with perspectives on the academic role; 59.2% of variance explained.

35. Set of 22 items dealing with perspectives on the academic role; 53.8% of variance explained.

36. Multiple variations of the perspectives on the academic role set.

37. Set of 9 items with the word “enjoy” in the question; 48% of variance explained.

38. Set of 15 items dealing with involvement.

Analysis of the data without:

39. The 17 most misfitting items.
40. The 32 most misfitting items.

41. The 27 most misfitting persons.

42. The 17 most misfitting items and the 27 most misfitting persons.

43. The 32 most misfitting items and the 27 most misfitting persons.

44. The most misfitting responses.

45. The 32 most misfitting items and the most misfitting responses.

46. The 9 redundant items from initial data analysis (items that functioned the same as another item in the instrument).

47. The 24 items with differential functioning.

48. The 20 persons who were outliers on the cross-plot of person measures for positively-loading items versus negatively-loading items.