TOWARD UNDERSTANDING FACTORS SALIENT TO DOCTORAL STUDENTS' PERSISTENCE: THE DEVELOPMENT AND PRELIMINARY VALIDATION OF THE DOCTORAL ACADEMIC-FAMILY INTEGRATION INVENTORY

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ABSTRACT

Aim/Purpose	Despite the literature documenting the importance of family in persistence, doctoral students' Academic-Family integration has been relatively ignored. Thus, in this study, the construct of doctoral academic-family integration is defined, followed by the creation and validation an instrument.
Background	The challenge of integrating the doctoral degree program and family is a central concern for doctoral students and higher education personnel. Setting up boundaries to achieve a satisfactory balance between academic and family life is an issue that affects a doctoral student's decision to persist.
Methodology	An expert panel and principal component analysis (PCA) was used to analyze data from a sample of doctoral students to examine the validity of the *Doctoral Academic-Family Integration Inventory (DAFII)*. Cronbach alpha coefficients were calculated to examine reliability.
Contribution	While higher education institutions have made strides in work-family integration theory, research, and policy for their faculty and staff, the academic-family (AF) topic has not emerged as readily in policies and initiatives for doctoral students (Lester, 2013). The topic of AF balance of doctoral students, both in distance and residential programs, is understudied despite the fact that family is a consistent factor identified in doctoral persistence and attrition.
Findings	An expert panel and PCA was used to analyze data, resulting in a 22 item valid *Doctoral Academic-Family Integration Inventory* with three components – Academic-

Family Balance, Academic-Family Boundary Setting, and Academic-Family Interference. Cronbach alpha coefficients results demonstrate that the inventory has good reliability.

Recommendations for Practitioners	Having the *DAFII* will likely prove to be of substantial utility to faculty and administrators in doctoral programs. The scale may be used as a formative assessment for doctoral students entering a program to provide information about academic-family boundaries and to address weaknesses in academic-family balance that could result in attrition.
Recommendations for Researchers	This research provides a psychometrically sound instrument that can be used to advance the research on academic-family integration, a term that has not been previously defined and a topic that has been sorely understudied despite the fact that family is central to doctoral persistence. Researchers now have an instrument to examine this construct. Given the limited research on academic-family integration, the *DAFII* also provides a tool to extend research on persistence.
Impact on Society	Understanding academic-family integration is vital as many doctoral students begin developing patterns for integration in their program that they carry into the workforce.
Future Research	Further validation of the instrument can be pursued with doctoral students as well as graduate students in STEM and non-STEM fields, given the limited population sample used in this study. Future research is needed to examine how academic-family integration may vary within same-sex relationships and based on the doctoral student's gender identity.
Keywords	doctoral student persistence, academic-family integration, academic-family boundaries, academic-family balance, retention, persistence

INTRODUCTION

As doctoral students attempt to integrate their school and family life, disruptions in both realms occur (Rockinson-Szapkiw, Spaulding, & Lunde, 2017). "[F]amily and personal relationships are sometimes strained and can even break down as a result of a student's involvement in their studies" (Wellington & Sikes, 2006, p. 731). For example, in a study of 64 doctoral student couples completing degrees in psychology, more than 50% noted that they experienced a breakup or divorce during the degree (Pedersen & Daniels, 2001). Concern about the ability to balance school, family, and work responsibilities is cited as one of the primary reasons students who desire to further their education choose not to pursue a degree (V. Brown & Nichols, 2012). The challenge of integrating the doctoral degree program and family is a central concern for doctoral students and higher education personnel. Setting up boundaries to achieve a satisfactory balance between academic and family life is an issue that affects a doctoral student's decision to persist as well as his or her degree satisfaction, level of stress, and well-being (Brus, 2006; Mason, Goulden, & Frasch, 2009; Offstein, Larson, McNeill, & Mwale, 2004; Stimpson & Filer, 2011). While higher education institutions have made strides in work-family integration theory, research, and policy for their faculty and staff (Sallee, 2008; Wolf-Wendel & Ward, 2014), the academic-family (AF) topic has not emerged as readily in policies and initiatives for doctoral students (Lester, 2013). The topic of AF balance of doctoral students, both in distance and residential programs, is understudied despite the fact that family is a consistent factor identified in doctoral persistence and attrition (McCallum, 2016; Martinez, Ordu, Della Sala, & McFarlane, 2013). Researchers have lamented over the lack of definition, theory, and validated instruments for the AF integration of doctoral students (Martinez et al., 2013; Rockinson-Szapkiw et al., 2017; Rockinson-Szapkiw, Sosin, & Spaulding, 2018).

Thus, via the present study, I seek to address the gaps in the literature and examine this issue by defining the construct of doctoral academic-family integration and, then, creating and validating an instrument to measure the construct. *Doctoral academic-family integration* is defined as the doctoral student's cognitive, behavior, psychological, and affective processes of integrating academic and family domains. This construct is inclusive of AF balance and AF boundaries. Thus, the *Doctoral Academic-Family Integration Inventory* (*DAFII*), in turn, assesses the doctoral student's satisfaction (cognitive and affective) with the interaction that occurs between the domains of degree and family, the doctoral student's assessment (cognitive and affective) of his or her functioning within the degree and family domains, and the flexibility, permeability, and communication the doctoral student uses to manage and negotiate the boundaries between the degree and family domains (behavioral and psychological). Work-family balance (Friedman & Greenhaus, 2000; Greenhaus & Allen, 2011), boundary (Nippert-Eng, 1996), and border (Clark, 2000) theory as well as doctoral persistence theory and literature provide a foundation for the development of the definition and inventory.

DOCTORAL ATTRITION

The impetus for this study is the persistence problem in doctoral education across disciplines, both residential and distance education programs. For decades, doctoral attrition rates have ranged between 40% and 60% and as high as 70% for some professional doctorate programs (Bowen & Rudenstine, 1992; Di Pierro, 2007; Jairam & Kahl, 2012; Walker, Golde, Jones, Bueschel, & Hutchings, 2008). As doctoral programs move online, the attrition rates may increase. Some reports note that attrition is 10% to 20% higher when programs are offered at a distance (Terrell, 2005). Unfortunately, "paradoxically, the most academically capable, most academically successful, most stringently evaluated, and most carefully selected students in the entire higher education system—doctoral students—are the least likely to complete their chosen academic goals" (Golde, 2000, p. 199).

Higher education faculty and administrators understand that to reduce attrition and promote doctoral persistence, the factors associated with attrition and persistence need to be understood. Understanding these factors can inform institutional and program curriculum, policies, and resources offered to encourage doctoral degree completion (Lovitts, 2001). Decades of research and institutional efforts have been aimed at understanding and assisting doctoral degree completion (Di Pierro, 2007; Offerman, 2011; Tinto, 1993), yet persistence rates remain subpar. Thus, additional factors and a more in-depth understanding of doctoral persistence, and its antithesis, attrition are needed, especially for doctoral education.

Much of the doctoral persistence literature, both residential and distance, is grounded in Tinto's (1975) seminal work on attrition and persistence (Simpson, 2003; Spaulding & Rockinson-Szapkiw, 2012). Notable in his original Model of Student Departure and its evolutions are the constructs of social and academic integration (Tinto, 2006-2007). In discussing doctoral students, Tinto (1993) posited that lack of "social and intellectual processes of *interaction* within institutions … lead individuals to leave prior to degree completion" (pp. 36-37, emphasis added). While numerous studies have demonstrated the association between social and academic integration with doctoral persistence (Ivankova & Stick, 2007; Spaulding & Rockinson-Szapkiw, 2012), it is important to note that a doctoral student's choice to continue or withdraw from a program extends beyond integration within the institution (Brus, 2006; Offstein et al., 2004). Tinto (1993) suggested that students' external factors are associated with persitence, and family support and familial interactions have been consistently associated with doctoral persistence (Lott, Gardner, & Powers, 2009; Martinez et al., 2013; Spaulding & Rockinson-Szapkiw, 2012).

DOCTORAL PERSISTENCE AND FAMILY

The current doctoral student population is generally over the age of 30 and married. Most doctoral students have children (Offerman, 2011) and numerous family roles (e.g., spouse, parent, son or daughter, sibling) (Smith, Maroney, Nelson, Abel, & Abel, 2006). A growing body of literature, which

is primarily qualitative, demonstrates that these doctoral students report challenges in balancing the academic and family domains of life (Hyun, Quinn, Madon, & Lustig, 2006; Rockinson-Szapkiw et al., 2017).

The literature has more readily documented this struggle for students pursuing their doctoral degrees. Adding the role of doctoral student to existing familial roles, doctoral students experience internal tension and inter-role conflict as roles seem incompatible and compete for limited time, attention, and other resources (Hyun et al., 2006; Oswalt & Riddock, 2007; Smith et al., 2006). Guilt, shame, and anxiety over not being able to manage time for family, time for self, and to meet faculty expectations ensue (L. Brown & Watson, 2010; Lipschutz, 1993; Smith et al., 2006). Stress often arises for doctoral students who are parents as the demands of family activities compete for the time needed to complete degree related responsibilities. Being a "missing-in-action" parent due to doctoral work is often worrisome (Gardner, 2009).

Quality and quantity of communication with family can be significantly decreased in a student's pursuit of a doctoral degree (Bergen & Bergen, 1978; Giles, 1983; Williams, 1977). As one spouse pursues a doctoral degree, a disparity in interests, values, and life goals can result (Scheinkman, 1988). The spouse may experience loss as the educational gap widens, and the degree-seeking spouse develops new goals. Moreover, the degree-seeking spouse may struggle to balance family and academic responsibilities and finds it difficult to meet the family's needs (Scheinkman, 1988). The doctoral student may believe that the degree is valuable and everything should be sacrificed for it, while the non-degree seeking spouse and extended family (e.g., parents, sibling, etc.) do not hold the same value of education and the degree (Rockinson-Szapkiw et al., 2017). The family may even view the doctoral program as "stealing" from it (Gardner, 2009; Gold, 2006). The non-degree seeking spouse and family members can become resentful of the sacrifices made for the degree. The sacrifices and unsuccessful balancing of degree and family can be a "destructive force" (Smith et al., 2006, p. 23), resulting in physical and psychological stress. Insomnia, somatic symptoms, depression, inhibited concentration, and poor immune function are just a few of the documented consequences of poor balance in a doctoral student's life (Cushway, 1992; Wasburn-Moses, 2008). Unfortunately, the sustained stress from the lack of balance is a reason many doctoral students change their aspirations (Mason et al., 2009) and choose not to persist.

Alternatively, family support and familial integration are associated with doctoral degree success for both men and women (Rockinson-Szapkiw et al., 2017). In fact, balancing family and school and family support has been identified as the most vital factor in persistence (Hoskins & Goldberg, 2005; Lott et al., 2009; Martinez et al., 2013; Ülkü-Steiner, Kurtz-Costes, & Kinlaw, 2000). In a qualitative study of doctoral students in a clinical counseling and psychology program, Tompkins, Brecht, Tucker, Neander, and Swift (2016) noted that family support significantly predicted both life and program satisfaction. Similarly, Rockinson-Szapkiw, Spaulding, and Spaulding (2016) found the connection that online doctoral students felt with the family significantly predicted their persistence into doctoral candidacy. In a grounded theory study examining persistence in online EdD candidates who grew up in poverty, Rockinson-Szapkiw, Spaulding, Swezey, and Wicks (2014) posited that factors attributable to students' persistence extended beyond the academic and social integrations of Tinto's (1993) theory of student departure to familial integration. *Familial integration* was defined as "the degree to which the candidate's sense of connectedness with family members is met while pursuing the doctorate" which "not only includes the maintaining of familial relationships and relatedness (a sense of belonging and care) but also includes the 'fit' between the degree and family values" (Rockinson-Szapkiw et al., 2014, p. 196). This idea of familial integration is extended and refined in this present study. This doctoral literature along with the work-family (WF) literature provides a framework and informs the development of a definition and inventory for the term being used here, academic-family integration.

WORK-FAMILY THEORY

Work-family research has evolved since it emerged in the 1960s and 1970s, and constructs within the literature have become more differentiated. Although a thorough review of the literature is not within the confines of this article (see Allen, 2013; French & Johnson, 2016, for a review of literature), a brief overview of the historical context of the work-family literature assists in delineating the elements used to define the construct of doctoral AF integration. The constructs of work-family balance, work-family boundaries, and work-family borders used to ground the doctoral AF integration definition evolved from earlier constructs within the literature, such as work-family conflict.

HISTORICAL CONTEXT

Within the WF literature, one of the earliest constructs introduced by scholars was work-family conflict (WFC; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). This term was originally described as the conflict experienced between incompatible family and work roles of an individual. Greenhaus and Beutell (1985) extended this definition to "a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family (work) role" (p. 77). The work-family conflict is bidirectional in that work can interfere with family and family can interfere with work (Greenhaus & Beutell, 1985; Greenhaus & Powell, 2006). In recognition that familial influence on work and vice versa is not always negative, constructs were developed to describe these positive interactions (Greenhaus & Powell, 2006; Hanson, Hammer, & Colton, 2006). The positive synergy between work and family has been documented using terms such as work-family facilitation (Grzywacz & Bass, 2003), and work-family enrichment (Greenhaus & Powell, 2006).

WORK-FAMILY BALANCE

Conceptualized initially as low WFC and high work-family facilitation or combination of the two (e.g., Frone, 2003;), the idea of work-family balance began to gain interest within the literature. Work-family balance as a construct has numerous definitions. Some researchers have combined, as noted, multiple constructs of work-family literature, including work-family conflict, role overload, and time management, to define it (e.g., Frone, 2003). Others, more recently, have defined it in terms of a global assessment of effectiveness (e.g., good functioning) and satisfaction with work and family life (Friedman & Greenhaus, 2000), which will be foundational to this study. As with other assessments, especially satisfaction, WF balance has both cognitive (i.e., appraisal) and affective (i.e., feelings about the approval) components. Derived from role balance theory (Marks & MacDermid, 1996), Greenhaus, Collins, and Shaw (2003) defined work-family balance as "the extent to which individuals are equally engaged in and equally satisfied with work and family roles" (p. 513). However, more recently, Greenhaus and Allen (2006) refined the work-family balance definition as "the extent to which an individual's effectiveness and satisfaction in work and family roles are compatible with the individual's life priorities" (p. 513). Evaluation of work-life balance is partially dependent upon the success one feels in the amount of time and attention one devotes to both family and work (Friedman & Greenhaus, 2000).

This latter approach has been found more appropriate for defining and operationalizing the term for a variety of reasons (Valcour, 2007). For example, these more recent definitions are distinct from WFC and the positive WF constructs. The definitions do not imply directionality. For as Valcour (2007) suggested, while directionality is useful in WFC and other WF literature when defining work-family balance, "the directionality results in a proliferation of constructs…can become unwieldy" (p. 1513). Thus, the latter definition informs the definition of AF balance used in this study. Moreover, the various measurements developed to operationalize the WF balance informed the development of items for the *Doctoral Academic-Family Integration Inventory*.

WF balance, in many studies, has been measured using a single item. For example, Milkie and Peltola (1999) examined WF balance by asking, "Are you satisfied or dissatisfied with the balance between your job or main activity and family and home life?" White (1999) used the question, "Are you satisfied or dissatisfied with the balance between your job or main activity and family and home life?" (measured on a 4-point scale). In response to reliability issues of one item measures, Valcour (2007) developed a more multifaceted 5 item instrument (e.g., "the way you divide your time between work and personal or family life," "the way you divide your attention between work and home," "how well your work life and your personal or family life fit together," "your ability to balance the needs of your job with those of your personal or family life," and "the opportunity you have to perform your job well and yet be able to perform home-related duties adequately"), which is one of the most used instruments in the WF balance literature.

Drawing from this WF balance research and integrating the doctoral education literature, it was posited that academic-family balance is part of AF integration and is defined as individuals' satisfaction with the interaction between and assessment of their functioning within the realms of both academia and family. This construct is inclusive of how doctoral students balance their time and attention (L. Brown & Watson, 2010; Friedman & Greenhaus, 2000; Smith et al., 2006) as well as their ability to meet needs of individuals and fulfil the demands within both the family and the degree program (L. Brown & Watson, 2010; Friedman & Greenhaus, 2000; Lipschutz, 1993; Scheinkman, 1988; Smith et al., 2006). Drawing from Rockinson-Szapkiw et al. (2014), AF balance also includes the level of fit between the doctoral student's degree and family life as well as the degree of relatedness the student can maintain with the family. Moreover, this balance hinges upon doctoral students' ability to remain in relationship with their family while also being independent and developing as scholars (Rockinson-Szapkiw et al., 2017; West, 2014). Table 1 one summarizes the items developed from the work-family balance literature and doctoral education literature that identifies family as a salient to persistence.

Table 1. Initial Items

Item	Reference
Please read each statement and indicate your level of satisfaction on a 5-point Likert type scale of 5 (extremely satisfied) to 1 (extremely dissatisfied).	
1. The manner in which I divide my time between academic and family life.**	L. Brown & Watson, 2010; Friedman & Greenhaus, 2000; Lipschutz, 1993; Rockinson-Szapkiw et al., 2017, 2018; Smith et al., 2006; Valcour, 2007 (balance)
2. The manner in which I divide my attention between academic and family life.**	Carter, Blumenstein, & Cook, 2013; Friedman & Greenhaus, 2000; Martinez et al., 2013; Rockinson-Szapkiw et al., 2017; Valcour, 2007 (balance)
3. The level of fit between my academic and family life.	Rockinson-Szapkiw et al., 2014; Valcour, 2007; Scheinkman, 1988
4. The degree of relatedness (connectedness) maintained with my family while pursuing my doctoral degree.	Rockinson-Szapkiw et al., 2014; Williams, 1977 (balance)
5. The degree of separateness I have from my family to be a distinct individual (e.g., student, scholar).	Rockinson-Szapkiw et al., 2017; West, 2014
6. The resources I have to meet the needs of people at my academic institution and in my family.**	Bergen & Bergen, 1978; Scheinkman, 1988 (balance)

Item	Reference
7. The degree of separation between my academic and family life (e.g., time, space, people).	Ashforth, Kreiner, & Fugate, 2000; Clark, 2000; Desrochers, Hilton, & Larwood, 2005; Friedman & Greenhaus, 2000; Lynch, 2008; Rockinson-Szapkiw et al., 2017; West, 2014 (balance)
8. The significance important people in my life place on both my degree and family.	Lynch, 2008; Rockinson-Szapkiw et al., 2014, 2017 (balance)
9. The value my family places on my academic life.**	Rockinson-Szapkiw et al., 2014 (balance)

Please read the statements similar to the ones just read. Please read each statement and indicate your level of functioning on a 5-point Likert type scale of 5 (highly effective) to 1 (highly ineffective).

Item	Reference
10. The manner in which I divide my time between academic and family life.	L. Brown & Watson, 2010; Friedman & Greenhaus, 2000; Lipschutz, 1993; Rockinson-Szapkiw et al., 2017; Smith et al., 2006; Valcour, 2007 (balance)
11. The manner in which I divide my attention between academic and family life.	Friedman & Greenhaus, 2000; Valcour, 2007 (balance)
12. The level of fit between my academic and family life.**	Rockinson-Szapkiw et al., 2014; Scheinkman, 1988; Valcour, 2007
13. The degree of relatedness (connectedness) maintained with my family while pursuing my doctoral degree.**	Rockinson-Szapkiw et al., 2014; Williams, 1977 (balance)
14. My ability to be separate from my family and be a distinct individual (e.g., student, scholar). **	Rockinson-Szapkiw et al., 2017; West, 2014
15. My ability to perform degree related responsibilities.	L. Brown & Watson, 2010; Friedman & Greenhaus, 2000; Lipschutz, 1993; Martinez et al., 2013; Rothausen, 1994; Valcour, 2007
16. My ability to meet the needs of people at my academic institution.	Lynch, 2008; Scheinkman, 1988; Valcour, 2007; Voydanoff, 2005 (balance)
17. My ability to perform family-related responsibilities (e.g., duties/demands).	L. Brown & Watson, 2010; Friedman & Greenhaus, 2000; Lipschutz, 1993; Rockinson-Szapkiw et al., 2017, 2018; Rothausen, 1994; Valcour, 2007 (balance)
18. My ability to meet the needs of my family.	Carter el al,, 2013; Rockinson-Szapkiw et al., 2017, 2018; Scheinkman, 1988; Valcour, 2007; Voydanoff, 2005 (balance)
19. My ability to use the resources I have to meet the needs of people at both my academic institution and in my family.	Bergen & Bergen, 1978; Rockinson-Szapkiw et al., 2017; Scheinkman, 1988 (balance)

Item	Reference
Please read each statement and indicate your level of agreement on a 5-point Likert type scale of 5 (strongly agree) to 1 (strongly disagree).	
20. I tend to integrate my academic and family life (e.g., time, space, people).	Ashforth et al., 2000; Clark, 2000; Desrochers et al., 2005; Rockinson-Szapkiw et al., 2018 (boundary setting)
21. I integrate my family in my doctoral degree through communication and other avenues (e.g., sharing activities).	Bergen & Bergen, 1978; Clark, 2002; Giles, 1983; Lynch, 2008; Rockinson-Szapkiw et al., 2018 (communication)
22. I discuss (e.g., demands, obligations, responsibilities) my doctoral program with my family.	Bergen & Bergen, 1978; Clark, 2002; Giles, 1983; Lynch, 2008; Rockinson-Szapkiw et al., 2018 (communication)
23. I share pleasant things that happen in my doctoral program with family.	Bergen & Bergen, 1978; Clark, 2002; Giles, 1983; Lynch, 2008; Rockinson-Szapkiw et al., 2018 (communication)
24. I share unpleasant things that happen in my doctoral program with family.	Bergen & Bergen, 1978; Clark, 2002; Giles, 1983; Lynch, 2008; Rockinson-Szapkiw et al., 2018 (communication)
25. I talk about my family with my doctoral advisor.	Clark, 2002; Greenhaus & Powell, 2006; Lynch, 2008; Rockinson-Szapkiw et al., 2017, 2018 (communication)
26. I talk about my family with my peers in the doctoral degree program.	Clark, 2002; Greenhaus & Powell, 2006; Lynch, 2008 (communication)
27. My family communicates the value of my degree through their words or actions (e.g., taking care of home responsibilities, asking about my degree).	Clark, 2002; Giles, 1983; Lynch, 2008; Rockinson-Szapkiw et al., 2014, 2017 (communication)
28. Family distractions make it difficult to focus on the work I have to complete for my doctoral program. [R]	Clark, 2002; Desrochers et al., 2005; Gardner, 2009; Rockinson-Szapkiw et al., 2017; Sori, Wetchler, Ray, & Niedner, 1996 (permeability, invasion)
29. I think about family-related concerns while working on my doctoral program related responsibilities. [R]	Clark, 2000, 2002; Desrochers et al., 2005; Gardner, 2009; Rockinson-Szapkiw et al., 2017; Sori et al., 1996 (permeability, invasion)
30. Family-related responsibilities make it difficult for me to complete my doctoral program related responsibilities. [R]	Clark, 2002; Desrochers et al., 2005; Gardner, 2009; Sori et al., 1996 (permeability; invasion)
31. I stop in the middle of my doctoral program related work to attend to my family's needs. [R]	Clark, 2000, 2002; Desrochers et al., 2005; Gardner, 2009; Martinez et al., 2013; Sori et al., 1996 (permeability, invasion)

Item	Reference
32. Doctoral program related concerns make it difficult to focus on my family. [R]	Clark, 2000, 2002; Desrochers et al., 2005; Gardner, 2009; Sori et al., 1996 (permeability, invasion)
33. Doctoral program related responsibilities make it difficult to attend family related activities. [R]	Clark, 2000, 2002; Desrochers et al., 2005; Gardner, 2009; Rockinson-Szapkiw et al., 2017; Sori et al., 1996 (permeability, invasion)
34. I take care of doctoral program related responsibilities during family activities. [R]	Carter et al., 2013; Clark, 2000, 2002; Desrochers et al., 2005; Gardner, 2009; Martinez et al., 2013; Rockinson-Szapkiw et al., 2017; Sori et al., 1996 (permeability, flexibility, invasion)
35. It is often difficult for me to distinguish between where my academic life ends, and my family life begins. [R]	Ashforth et al., 2000; Clark, 2000; Desrochers et al., 2005; Lynch 2008; Rockinson-Szapkiw et al., 2017, 2018 (boundary)
36. There is little separation between my academic and family life.**	Ashforth et al., 2000; Clark, 2000; Desrochers et al., 2005; Rockinson-Szapkiw et al., 2017, 2018 (boundary)
37. My family allows me to work on doctoral program related activities as needed.	Carter et al., 2013; Clark, 2000, 2002; Desrochers et al., 2005; Rockinson-Szapkiw et al., 2017 (flexibility)
38. I could easily work an entire weekend or day on my doctoral program related responsibilities if I wanted.	Clark, 2000, 2002; Desrochers et al., 2005 (flexibility)
39. I have the freedom to carry out my family responsibilities during the hours that are best for my schedule and for me.**	Carter et al., 2013; Clark, 2000, 2002; Desrochers et al., 2005; Rockinson-Szapkiw et al., 2017; Valcour, 2007 (flexibility)
40. I have the freedom to carry out my doctoral program related responsibilities during the hours that are best for my schedule and me.**	Carter et al., 2013; Clark, 2000, 2002; Desrochers et al., 2005; Valcour, 2007; West, 2014 (flexibility)

Note. **Item Removed. [R] Reverse Scored.

WORK-FAMILY BOUNDARIES AND BORDERS

The work-family border theory (Clark, 2000) and boundary theory (Ashforth et al., 2000; Nippert-Eng, 1996), although distinct, further inform the framework for AF integration. These theories describe how one constructs, negotiates, and holds boundaries (e.g., time, space, people) or "lines of demarcation" (Clark, 2000, p. 756) between work and family in order to achieve satisfaction. Integration and segmentation represent the two ends of a continuum an individual may use to negotiate work and family. That is, the degree of interaction, usually behavioral and psychological, between family and work depends upon the boundaries that an individual sets to create the desired balance, "satisfaction and good functioning at home and work, with a minimum role conflict" (Clark, 2000, p. 751). Satisfaction and good functioning in work and family may mean different things to different people. Integrating is essential for some individuals; thus, the domains of work and family are highly

flexible (i.e., malleability) and *permeable* (i.e., the extent in which elements in one domain enter another; Ashforth et al., 2000; Clark, 2000). Domains are not kept mutually exclusive from one another but are blended or blurred. For others, segmentation is vital. The domains of work and family are kept separate, often both physically and psychologically (Ashforth et al., 2000; Clark, 2000). The domains of work and family are *inflexible* and *impermeable* (Ashforth et al., 2000; Clark, 2000). Theorists of both boundary and border theory purport that the extent of segmentation or integration of domains, and the benefits or drawbacks of them, is dependent upon numerous factors, including but not limited to the similarity of domains, one's ability to manage time and socio-cultural factors at home and work, work-related factors such as scheduling, social support, and the fit between the person and the environment (Ashforth et al., 2000; Clark, 2000; Nippert-Eng, 1996). Moreover, individuals can be, despite what previous theory argues, proactive rather than reactive in creating boundaries or borders that maximize their satisfaction and functioning. Neither segmentation, nor integration is necessarily better; it is a personal choice.

Drawing from this and doctoral education literature, I posit that AF boundary setting is part of AF integration and can be described as the *flexibility*, and *permeability* one uses to negotiate the overlapping boundaries (e.g., time, space, people) between academia and family to achieve satisfaction and maximize functioning. Here, flexibility is the malleability of the family and academic boundaries. Permeability is the extent to which psychological and behavioral elements of the domains interact. This can imply the level of openness or absorption a doctoral student has allowed between domains. AF boundary setting is also inclusive of the amount of communication one engages in to integrate or separate the domains. For Clark (2002) acknowledged:

> individuals attempt to integrate, separate, and ultimately balance work and family responsibilities by communicating with work associates and family members. …. I call this type of communication 'across-the-border' communication because individuals who, for example, are talking about family activities at work, are across the border from the activities they are discussing. These types of conversations are one essential part of the way that individuals enact their work/home environments, negotiating with others, building awareness of other-domain responsibilities, and ultimately creating meaning out of their experience. (p. 25)

Similarly, communication across the borders of the degree and family can influence doctoral students' stress as well as persistence (Bergen & Bergen, 1978; Giles, 1983; Lynch, 2008). While a doctoral student may proactively set up boundaries with a desired level of flexibility, permeability, and communication, unexpected invasions or unintended interference between the domains may occur. Clark (2002) described this as "the degree to which a domain is defenseless to invasions by another domain" (p. 45). Example invasions or disruptions may include the following. A student may have to attend an academic function and miss a family activity that was scheduled (Gardner, 2009; Sori, et al., 1996). A student may be unable to complete an assignment on time due to a caring for a sick child. Thus, this is also hypothesized to be an essential aspect of boundary setting, and therefore, an element of AF integration.

In addition to the review of the WF border and doctoral literature, the various measurements developed to operationalize WF border and boundaries informed the definition and development of items for the *Doctoral Academic-Family Integration Inventory* (see Table 1). For example, an item directly related to the idea of permeability asked, "I stop in the middle of my school work to attend to my family's needs." This item is similar to Clark's (2002) work border permeability item, "I stop in the middle of my work to attend to my family's needs." Similar to Desrocher et al.'s (2005) Work-Family Integration-Blurring Scale item ("When I work at home, distractions often make it difficult to attend to my work"), the following item was included, "Family distractions make it difficult to focus on the work I have to complete my doctoral program." In sum and as noted in the introduction, drawing on WF theory and doctoral persistence literature empirical research, doctoral AF integration is a construct inclusive of the element of balance [satisfaction and functioning] experienced as a distance

doctoral student negotiates and manages the boundaries of his or her academic and family domains.

As noted in the introduction, it is broadly defined as the doctoral student's cognitive, behavior, psychological, and affective processes of integrating degree and family domains. Initially, a 40-item scale was developed using the literature and this definition. Moreover, the following research questions were investigated: (a) Is the *Doctoral Academic-Family Integration Inventory* a valid instrument for measuring the familial integration of doctoral students? (b) What is the dimensionality of the items making up the *Doctoral Academic-Family Integration Inventory*? (c) Is the *Doctoral Academic-Family Integration Inventory* a reliable instrument for measuring the familial integration of doctoral students? Questions were answered using an expert review panel to establish content validity and a principal component analysis (PCA) on an initial dataset to examine the structure of the inventory as well as to reduce the number of items used. Cronbach's alpha was used to assess the reliability of the scale on both sets of data.

METHODS

EXPERT PANEL

A review of the literature (see Table 1 and review above) as well as the author's qualitative and qualitative investigations (e.g. Rockinson-Szapkiw et al., 2014, 2016, 2017, 2018) informed the development of 40 items. An expert review panel of four individuals, holding terminal degrees and having published on the topics of doctoral education and work-family, assessed and confirmed the content validity of each item. The experts reviewed and rated each item using a 3-point Likert type scale (0 for not relevant, 1 for reasonably but not completely relevant, and 2 for relevant). Mean scores of the ratings were computed and were found to be between 1.0 and 2.0 for each item. All items below the cut-off value of 2 were removed. Experts' comments on items with low values indicated recommendation to remove items due to redundancy. Experts also recommended reverse scoring the ten items referencing invasion, distraction, or struggle between dividing one's time. Based on the experts' ratings and recommendations, the scale was reduced to 30 items.

PARTICIPANTS AND PROCEDURES

Data were collected to conduct a PCA. The 30-item *DAFII* was administered to doctoral students whose participation was elicited via snowball sampling. Students were asked to rate each item using a 5-point Likert type scale, rating items as 5 (extremely satisfied) to 1 (extremely dissatisfied), 5 (highly effective) to 1 (highly ineffective), and 5 (strongly agree) to 1 (strongly disagree). Invitations to complete the scale were posted on professional organization student listservs (e.g., AERA SIGs, ASHE, CPED) and were sent through email from doctoral faculty at various institutions. In this initial data collection, data were collected from 391 doctoral students from public ($n = 150$), private for-profit ($n =91$), and private non-profit ($n = 150$) institutions attending both residential ($n = 90$) and distance education programs ($n = 301$). Students were enrolled in Education, Counseling, Psychology, and Business PhD ($n =107$) and EdD ($n = 284$) programs, and most of the programs required for 60-66 credit hours. Some of the students reported being part of a program that used a cohort model ($n = 122$), and forty-four of the students reported being enrolled in a Carnegie Project on the Education Doctorate (CPED) program. The students were at different stages of the doctoral programs (Coursework, $n = 197$; Dissertation $n = 194$). They were employed in a variety of roles, including faculty, counselors, managers, marketers, and teachers. The majority of the respondents ($n = 289$) worked full time.

The men ($n = 108$) and women ($n = 283$) who completed the survey varied in their marital status (i.e., single or living with a partner, $n = 57$; married, $n = 296$; widowed, $n = 3$; divorced or separated, $n = 35$) and ranged in age from 20 to older than 80, with the majority being between 30-49 ($n = 253$). About 50% of the respondents ($n = 197$) had children under the age of 18 living in their home. A

total of 274 were Caucasian, 54 were African American, 18 were Asian, 32 were Hispanic, 1 was American Indian, and 10 classified themselves as other. Three hundred and seventy-three of the participants lived in the United States and reported living in 44 different states; 18 lived outside of the United States.

RESULTS

A principal component analysis with direct oblimin rotation was used to examine the first two research questions and, more specifically, to examine the validity and dimensionality of the *DAFII* as well as determine if a smaller number of items could be used to measure the AF integration of doctoral students. While there is disagreement among statisticians about the PCA, it is useful for data reduction. Some even argue that there is almost no difference between factor analysis and PCA; and a PCA is preferable, mainly when factors are correlated (Gorsuch, 1983; Schoenmann, 1990). Data from the initial sample was also used to calculate Cronbach's coefficient alpha values to examine internal consistency and answer the third research question.

DESCRIPTIVE STATISTICS

Table 2 contains the descriptive statistics for the scales of *DAFII* for the entire sample population. The Academic-Family Balance scale scores have a possible range from 1 to 5, with higher scores indicating higher satisfaction and functioning in balancing academic and family domains. The Academic-Family Boundary Setting scale included five items, with possible averaged scores ranging from 1 to 5. Lower scores on the scale indicate that doctoral students are more likely to segment or have impermeable and inflexible boundaries between their degree and their family. Whereas, higher scores indicate that doctoral students are more likely to integrate their degree and their family. As with WF borders or boundaries, the choice to segment or integrate is personal. A higher score does not necessarily indicate better AF integration. In the inventory, the scale is used merely to inform whether the doctoral student segments or integrates their family and academic domains. The score on this scale can be associated with the balance score to provide information about whether segmentation or integration is useful for achieving balance. In this sample, participants appear, on the continuum, to segment more than integrate as indicated by a lower mean score. Finally, the averaged scores on the Academic-Family Interference range from 1 to 5, with higher scores indicating that the family and academic domains distract from one another or interfere with one another. All items on this scale were reverse scored.

Table 2. Descriptive statistics (*N*=391)

	Min	Max	M	SD
Academic-Family Balance	1	4.50	2.33	.85
Academic-Family Boundary Setting	1	5	3.24	1.05
Academic-Family Interference	1	4.80	1.65	.81

THE SCALE STRUCTURE

Table 3 is a correlation matrix for the *DAFII* items. The correlation coefficients in this matrix coupled with the Kaiser-Meyer-Olkin value of .88 and the significant Bartlett's Test of Sphericity ($p >.001$; chi-square = 7008.54) provided supports the suitability of the data for a principal component analysis (PCA) (Tabachnick & Fidell, 2007).

Table 3. Item Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	.770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	.602	.602	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	.403	.345	.390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	.416	.402	.490	.359	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	.834	.731	.604	.421	.449	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	.816	.739	.599	.475	.468	.913	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	.527	.527	.603	.519	.468	.545	.612	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	.503	.542	.615	.464	.487	.511	.585	.778	-	-	-	-	-	-	-	-	-	-	-	-	-
10	.669	.613	.685	.454	.496	.726	.756	.770	.676	-	-	-	-	-	-	-	-	-	-	-	-
11	.638	.626	.672	.404	.556	.647	.650	.655	.801	.779	-	-	-	-	-	-	-	-	-	-	-
12	.544	.514	.548	.437	.514	.519	.576	.668	.749	.578	.673	-	-	-	-	-	-	-	-	-	-
13	.286	.354	.436	.175	.391	.292	.304	.425	.452	.446	.503	.399	-	-	-	-	-	-	-	-	-
14	.195	.301	.192	.018	.177	.180	.149	.293	.289	.196	.286	.241	.446	-	-	-	-	-	-	-	-
15	.199	.291	.205	.032	.202	.191	.148	.303	.289	.198	.276	.206	.462	.913	-	-	-	-	-	-	-
16	.327	.302	.296	.039	.168	.271	.237	.293	.243	.257	.305	.210	.347	.663	.694	-	-	-	-	-	-
17	.093	.142	.133	-.102	.055	.080	.056	.205	.153	.142	.141	.062	.298	.617	.628	.560	-	-	-	-	-
18	.292	.211	.397	.184	.188	.312	.338	.368	.387	.393	.366	.357	.241	.053	.110	.165	.048	-	-	-	-
19	.288	.211	.352	.159	.089	.300	.305	.244	.305	.330	.277	.232	.196	.048	.065	.111	.028	.538	-	-	-
20	.350	.251	.417	.106	.162	.350	.369	.356	.380	.440	.366	.350	.315	.153	.179	.218	.125	.724	.542	-	-
21	.380	.378	.500	.247	.298	.358	.374	.442	.364	.469	.340	.310	.292	.117	.130	.185	.028	.553	.501	.621	-
22	.376	.424	.372	.043	.167	.363	.343	.247	.267	.328	.278	.281	.149	.112	.101	.198	.027	.431	.354	.490	.551

Note. All correlation coefficients were significant at a .05 level or below.

An initial PCA was conducted, and a three-component solution was decided upon using a review of the literature, a Cattell's scree plot, eigenvalues, a parallel analysis, and the interpretability of the solution. Whereas eight eigenvalues exceeded 1, explaining 37.94%, 9.36%, 6.68%, 4.36%, 3.86%, 3.31%, 2.80%, and 2.69% of the variance, respectively, and the parallel analysis supported a five component solution, both Cattell's scree plot and the most interpretable solution supported the use of three components. Thus, components were rotated using a direct oblimin method to allow for the correlations (see Table 4).

Table 4. Correlation Matrix

	1	2	3
1	-	.35*	.50*
2	-	-	.21*

Note. *p*<.001, 1- AF Balance, 2- AF Boundary Setting, 3- AF Interference

A three-component solution was forced. The three-factor solution accounted for 53.44% of the variance, with component 1 contributing 33.88%, component 2 contributing 11.67%, and component 3 contributing 7.89%. The rotated solution revealed a simple structure, with all three components showing strong loadings and most items loading substantially (e.g., above a .6) on one component (Tabachnick & Fidell, 2007). The pattern results are reported in Table 5, and factor loadings for the structure matrix are similar. Seven items had low communalities values (e.g., below a .4) and one of these items did not load on any component; thus, the decision was made to remove these items from the scale (see Table 5) (Tabachnick & Fidell, 2007). The final *DAFII* consisted of 22 items and three subscales labeled, Academic-Family Balance, Academic-Family Boundary Setting, and Academic-Family Interference.

Table 5. Pattern Matrix, Structure Matrix, and Communalities

	Pattern			Structure			
	1	**2**	**3**	**1**	**2**	**3**	*h2*
Academic-Family Balance (*n* =12)							
1. The level of fit between my academic and family life.	.786			.810		.386	.658
2. The degree of relatedness (connectedness) maintained with my family while pursuing my doctoral degree.	.755			.776		.319	.613
3. The degree of separateness I have from my family to be a distinct individual (e.g., student, scholar)	.638			.764			.639
4. The degree of separation between my academic and family life (e.g., time, space, people).	.733			.618			.451
5. The significance important people in my life place both on my academics and my family.	.690			.650			.441
6. The manner in which I divide my time between academic and family life.	.825			.837		.394	.703
7. The manner in which I divide my attention between academic and family life.	.870			.869		.307	.761
8. My ability to perform family-related responsibilities (e.g., duties/demands).	.741			.800		.395	.656
9. My ability to meet the needs of people in my family.	.742			.808		.410	.673
10. My ability to perform degree related responsibilities.	.792			.863		.397	.764
11. My ability to meet the needs of people at my academic institution.	.802			.853		.400	.744
12. My ability to use the resources I have to meet the needs of people both at my academic institution and in my family.	.743			.765		.341	.589
Academic-Family Boundary-Setting (Communication) (*n* =5)							
13. My family communicates the value of my degree to me through their words or actions (e.g., taking care of home responsibilities, asking about my degree).		.477			.547		.458
14. I integrate my family in my doctoral degree through communication and other avenues (e.g., sharing activities).		.882			.883		.787

	Pattern			Structure			
	1	**2**	**3**	**1**	**2**	**3**	*h2*
15. I discuss (e.g., the demands, obligations, responsibilities) my doctoral program with my family.		.891			.890		.805
16. I share pleasant things that happen in my doctoral program with family.		.746			.755		.613
17. I share unpleasant things that happen in my doctoral program with family.		.778			.747		.577
Academic-Family Interference (*n* =5)							
18. Family distractions make it difficult to focus on the work I have to complete for my doctoral program work.			.761			.779	.608
19. I think about family-related concerns while working on my doctoral program related responsibilities.			.740			.731	.536
20. Family-related responsibilities make it difficult for me to complete my doctoral program related responsibilities.			.840			.836	.713
21. Doctoral program related concerns make it difficult to focus on my family.			.729			.788	.636
22. Doctoral program related responsibilities make it difficult to attend family related activities.			.666			.686	.474
Removed							
23. I stop in the middle of my doctoral program related work to attend to my family's needs.			.505	.332		.551	.316
24. I tend to integrate my academic and family life (e.g., time, space, people).		.478			.498		.265
25. My family allows me to work on doctoral program related activities as needed.		.335		.389	.394		.269
26. I could easily work an entire weekend or day on doctoral program related responsibilities if I wanted.							.119
27. I take care of doctoral program related responsibilities during family activities.			.619			.613	.377
28. It is often difficult for me to distinguish between where my academic life ends, and my family life begins.	.380		.330	.456		.486	.390
29. I talk about my family with my doctoral advisor.		.307			.306		.148
30. I talk about my family with my doctoral program peers.		.435			.441		.250

Cronbach's alpha for the *DAFII* was .93 demonstrating good internal consistency. Each subscale also had good internal consistency (i.e., AF Balance =.95, AF Boundary Setting = .86, AF Interference Scale = .85).

DISCUSSION

In this study, I present a framework for understanding AF integration for doctoral students. A definition, derived from the literature, is provided. Moreover, the *DAFII* was developed and field tested with 391 doctoral students enrolled in residential and distance education doctoral programs within the United States. Addressing research questions one and two, the PCA results demonstrated that the scale is both valid and reliable, consisting of three subscales: AF Balance, AF Boundary Setting, and AF Interference.

During the initial analysis, twelve items (i.e., items 1-12, see Table 5) loaded on the AF Balance scale. The scale items assess the construct of AF Balance, which encompasses doctoral students' satisfaction with the interaction between their academic and family domains as well assessment of their functioning within both domains. This is drawn from and very similar to the construct of Work-Family Balance (Friedman & Greenhaus, 2000). Higher scores on this subscale indicate higher satisfaction and better functioning with AF domains.

The second scale is the Academic-Family Boundary Setting scale, consisting of 5 items (i.e., Items 13-17, see Table 5), assessing the level of permeability, communication, and flexibility a doctoral student uses to manage and negotiate the boundaries between academia and family to achieve satisfaction and maximize functioning. This subscale assesses the level of openness, mainly, given the items that loaded, open communication a doctoral student allows the family and his or her degree. In other words, the extent of segmentation or integration the doctoral student uses. The higher the score on this subscale, the more communication about, the more permeability, and the more flexibility the doctoral student allows between the domains. This is indicative what Clark (2000) refers to as integration. A lower score indicates that the doctoral student is a segmenter (Clark, 2000) and keeps the domains of work and family separate. As with WF border and boundary theory (Ashforth et al., 2000; Clark, 2000), one approach is not better than the other. It is a personal choice. A higher or lower score does not indicate poorer or better AF integration. It is merely an element of doctoral students' AF integration. As such, a composite score is not calculated for the inventory.

On this scale, in the PCA, it is noteworthy that items loading substantially (e.g., above a 0.6) on this component focus on doctoral students' boundaries, and even more specifically communication, set up within the family in regards to the degree and doctoral program. The items aimed at assessing the boundaries doctoral students set up within the degree program in regards to the family were removed due to low communalities values. The low communalities values on these items may suggest that there needs to be a better differentiation and two-dimensional orientation of items to assess the construct of boundary setting – one for boundaries set up in the family and one for boundaries set up in the degree program for the degree program and the family, respectively. In other words, additional items focusing on the integration or separation of family from academia may need to be further developed and assessed.

Previous research demonstrated that doctoral students, especially women enrolled in distance education programs, have a "tendency to hide academic identity in outer social circles (colleagues, early in dating relationships)," (Rockinson-Szapkiw et al., 2017, p. 63) and tend to hide their familial roles (e.g., mother, wife, daughter) from doctoral faculty and peers (Lynch, 2008). "With close friends and family academic visibility [is important as it] served as a motivator … to persist" (Rockinson-Szapkiw et al., 2017, p. 63). Thus, satisfaction and effective AF balance may require different levels of flexibility, communication, and permeability of boundaries for the family domain and academic domain. This may be consequential of choice or cultural norms. Some doctoral students, especially women, may desire integration of domains with flexible and permeable boundaries within the family

and academic domains. However, to be taken seriously as a scholar, they have learned to set up rigid and impermeable boundaries within the academic domain. The results of this study provide the impetus for further investigation of this area.

Additionally, noteworthy about this subscale is the fact that the items aimed directly at assessing the element of *flexibility* and *permeability* found in Clark's (2000) boundary work did not load substantially on this component and were also removed. While flexibility and permeability are captured in the items related to communication, it appears that the element of communication is salient in the AF Boundary Setting scale.

Five items (i.e., items 18-22, see Table 5) loaded onto the AF Interference scale. This scale represents the fact that unintended interference and distractions between the family and academic domains may occur. This is similar to Clark's (2002) concept of invasion. These interferences can be distracting and make engaging with one's family or in doctoral work difficult. The items of this scale are reverse scored given their negative orientation. The lower the score on this subscale, the more interference or distractions the doctoral student experiences between their academics and family. The lower the score, the weaker the doctoral students' overall AF integration is. Finally, addressing research question three, the results of reliability analyses (i.e., Cronbach's alpha coefficients) demonstrated that the instrument is reliable for measuring the three components of familial integration of doctoral students.

CONCLUSION

In sum, this research provides a psychometrically sound instrument that can be used to advance the research on academic-family integration, a term that has not been previously defined and a topic that has been sorely understudied despite the fact that family is central to doctoral persistence (McCallum, 2016; Martinez et al., 2013). Families, especially current family systems, are a resource doctoral students can draw upon to improve their satisfaction with and success in their programs. The boundaries doctoral students set between their academic and family domains as well as the interference and distractions they experience can be associated with both their satisfaction and functioning, which, ultimately may result in their decision to continue or drop out of the doctoral program.

Having the *DAFII* will likely prove to be of substantial utility to faculty and administrators in doctoral programs. The scale may be used as a formative assessment for doctoral students entering a program to provide information about academic-family boundaries and to address weaknesses in academic-family balance that could result in attrition. The scale may be useful to inform and assess the development and implementation of policies and initiatives to promote doctoral students' persistence.

Given the limited research on academic-family integration, the *DAFII* also provides a tool to extend research on persistence. Further validation of the instrument can be pursued with doctoral students as well as graduate students in STEM and non-STEM fields, given the limited population sample used in this study. Future research is needed to examine how academic-family integration may vary within same-sex relationships and based on the doctoral student's gender identity. Exploratory works that use the *DAFII* as a dependent measure to compare familial initiatives (e.g., family support groups, social media clubs, and familial orientations) are needed. Then, further experimental studies would be significant in identifying best practices to promote academic-family integration, and ultimately, doctoral persistence. Further research is needed to explore the antecedents and outcomes of academic-family balance, boundaries, and interference. Studies modeling the influence of the *DAFII* scales on degree completion, time to degree completion, institutional commitment, well-being, marital satisfaction, and functioning should also be examined to indicate the importance of this construct for higher education personnel as well as students.

REFERENCES

Allen, T. D. (2013). The work-life interface: A synthesis of research from industrial and organizational psychology. In N. Schmitt & S. Highhouse (Eds.), *Handbook of psychology: Vol. 12. Industrial and organizational psychology* (pp. 698–718). Hoboken, NJ: Wiley.

Ashforth, B. E., Kreiner, G. E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *Academy of Management Review*, *25*, 472-491. https://doi.org/10.5465/amr.2000.3363315

Bergen, G., & Bergen, M. B. (1978). Quality of marriage of university students in relation to sources of financial support and demographic characteristics. *The Family Coordinator, 27*(3), 245-250. https://doi.org/10.2307/582586

Bowen, W. G., & Rudenstine, N. L. (1992). *In pursuit of the PhD*. Princeton, NJ: Princeton University Press. https://doi.org/10.1515/9781400862474

Brown, L., & Watson, P. (2010). Understanding the experiences of female doctoral students. *Journal of Further and Higher Education, 34*(3), 385-404. https://doi.org/10.1080/0309877X.2010.484056

Brown, V., & Nichols, T. R. (2012). Pregnant and parenting students on campus: Policy on program implications for a growing population. *Educational Policy, 27*(3), 499-530. https://doi.org/10.1177/0895904812453995

Brus, C. (2006). Seeking balance in graduate school: A realistic expectation or a dangerous dilemma? *New Directions for Student Services,* (115), 31-45. https://doi.org/10.1002/ss.214

Carter, S., Blumenstein, M., & Cook, C. (2013). Different for women? The challenges of doctoral studies. *Teaching in Higher Education, 18*(4), 339-351. https://doi.org/10.1080/13562517.2012.719159

Clark, S. C. (2000). Work/family border theory: A new theory of work/family balance. *Human. Relations, 53*, 747–770. https://doi.org/10.1177/0018726700536001

Clark, S. C. (2002). Communicating across the work/home border. *Community Work-Family, 5*(1), 23–48. https://doi.org/10.1080/13668800020006802

Cushway, D. (1992). Stress in clinical psychology trainees. *British Journal of Clinical Psychology, 31,* 169-179. https://doi.org/10.1111/j.2044-8260.1992.tb00981.x

Desrochers, S., Hilton, J.M, & Larwood, L. 2005. Preliminary validation of the Work-Family Integration-Blurring Scale. *Journal of Family Issues, 26*(4), 442-66. https://doi.org/10.1177/0192513X04272438

Di Pierro, M. (2007). Excellence in doctoral education: Defining best practices. *College Student Journal, 41*(2), 368-375.

French, K. A., & Johnson, R. J. (2016). A retrospective timeline of the evolution of work-family research. In T. D. Allen & L. T. Eby (Eds.), *The Oxford handbook of work and family* (pp. 9–22). New York, NY: Oxford University Press.

Friedman, S., & Greenhaus, J. (2000). *Work and family - Allies or enemies? What happens when business professionals confront life choices.* New York, NY: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195112757.001.0001

Frone, M. R. (2003). Work-family balance. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 143–162). Washington, DC: American Psychological Association. https://doi.org/10.1037/10474-007

Gardner, S. K. (2009). The development of doctoral students: Phases of challenge and support. *ASHE Higher Education Report*, *34*(6), 1-14. https://doi.org/10.1002/aehe.3406

Giles, F. (1983, March). *The effects of doctoral study on marriage and family: An ethnographic study.* Paper presented at the annual meeting of the American College Personnel Association. Houston, TX.

Gold, J. M. (2006). Profiling marital satisfaction among graduate students: An analysis of the perceptions of masters and doctoral students. *Contemporary Family Therapy, 28*, 485–491. https://doi.org/10.1007/s10591-006-9019-6

Golde, C. M. (2000). Should I stay or should I go? Student descriptions of the doctoral attrition process. *The Review of Higher Education, 23*(2), 199-227. https://doi.org/10.1353/rhe.2000.0004

Gorsuch, R. (1983). *Factor analysis* (2nd ed.) Hillsdale, NJ: Lawrence Erlbaum.

Greenhaus, J. H., & Allen, T. D. (2006, March). *Work–family balance: Exploration of a concept.* Paper presented at the Families and Work Conference, Provo, UT.

Greenhaus, J. H., & Allen, T. D. (2011). Work–family balance: A review and extension of the literature. In L. Tetrick & J. C. Quick (Eds.), *Handbook of occupational health psychology* (2nd ed., pp. 165-183). Washington, DC: American Psychological Association.

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review, 10*, 76-88. https://doi.org/10.5465/amr.1985.4277352

Greenhaus, J. H., Collins, K. M..& Shaw, J. D. (2003) The relation between work–family balance and quality of life. *Journal of Vocational Behavior 63*(3), 510–531. https://doi.org/10.1016/S0001-8791(02)00042-8

Greenhaus, J. H., & Powell, G. N. (2006). When work and family are allies: A theory of work-family enrichment. *Academy of Management Review, 31*, 72–92. https://doi.org/10.1016/j.jvb.2005.02.002

Grzywacz, J. G., & Bass, B. L. (2003). Work, family, and mental health: Testing different models of work-family fit. *Journal of Marriage and Family, 65*, 248-261. https://doi.org/10.1111/j.1741-3737.2003.00248.x

Hanson, G. C., Hammer, L. B., & Colton, C. L. (2006). Development and validation of a multidimensional scale of perceived work-family positive spillover. *Journal of Occupational Health Psychology*, 11, 249–265. doi:10.1037/1076-8998.11.3.249. https://doi.org/10.1037/1076-8998.11.3.249

Hoskins, C., & Goldberg, A. (2005). Doctoral student persistence in counselor education programs: Student-program match. *Counselor Education & Supervision, 44*(3), 175-188. https://doi.org/10.1002/j.1556-6978.2005.tb01745.x

Hyun, J. K., Quinn, B. C., Madon, T., & Lustig, S. (2006). Graduate student mental health: Needs assessment and utilization of counseling services. *Journal of College Student Development, 47*(3), 247-266. https://doi.org/10.1353/csd.2006.0030

Ivankova, N. V., & Stick, S. L. (2007). Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Research in Higher Education, 48*(1), 93-135. https://doi.org/10.1007/s11162-006-9025-4

Jairam, D., & Kahl, D. H. (2012). Navigating the doctoral experience: The role of social support in successful degree completion. *International Journal of Doctoral Studies, 7,* 311-328. https://doi.org/10.28945/1700

Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity.* New York, NY: Wiley.

Lester, J. (2013). Work-life balance and cultural change: A narrative of eligibility. *Review of Higher Education*, *36*, 463–488. https://doi.org/10.1353/rhe.2013.0037

Lipschutz, S. S. (1993). Enhancing success in doctoral education: From policy to practice. *New Directions for Research, 80,* 69-80. https://doi.org/10.1002/ir.37019938008

Lott, J., Gardner, S. K., & Powers, D. A. (2009). Doctoral student attrition in the STEM fields: An exploration of event history analysis. *The Journal of College Student Retention, 11*, 247–266. https://doi.org/10.2190/CS.11.2.e

Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study.* Lanham, MD: Rowan & Littlefield Publishers, Inc.

Lynch, K. D. (2008). Gender roles and the American academe: A case study of graduate student mothers. *Gender and Education*, *20*(6), 585-605. https://doi.org/10.1080/09540250802213099

Marks, S. R., & MacDermid, S. M. (1996). Multiple roles and the self: A theory of role balance. *Journal of Marriage and Family, 58*(2), 417–432. https://doi.org/10.2307/353506

Martinez, E., Ordu, C., Della Sala, M., & McFarlane, A. (2013). Striving to obtain a school-work-life balance: The full-time doctoral student. *International Journal of Doctoral Studies, 8,* 39-59. https://doi.org/10.28945/1765

Mason, M. A., Goulden, M., & Frasch, K. (2009). Why graduate students reject the fast track. *Academe Online, 95*(1). Retrieved from http://www.aaup.org/

McCallum, C. M. (2016). "Mom made me do it": The role of family in African Americans' decisions to enroll in doctoral education. *Journal of Diversity in Higher Education, 9*(1), 50-63. https://doi.org/10.1037/a0039158

Milkie, M. A., & Peltola, P. (1999). Playing all the roles: Gender and the work-family balancing act. *Journal of Marriage and the Family, 61,* 476–490. https://doi.org/10.2307/353763

Nippert-Eng, C. E. (1996). *Home and work.* Chicago, IL: University of Chicago Press. https://doi.org/10.7208/chicago/9780226581477.001.0001

Offerman, M. (2011). Profile of the nontraditional doctoral degree student. *New Directions for Adult and Continuing Education, 2011*(129), 21–30. https://doi.org/10.1002/ace.397

Offstein, E. H., Larson, M. B., McNeill, A. L., & Mwale, H. M. (2004). Are we doing enough for today's graduate students? *International Journal of Educational Management, 18*(7), 396-407. https://doi.org/10.1108/09513540410563103

Oswalt, S., & Riddock, C. (2007). What to do about being overwhelmed: Graduate students, stress and university services. *College Student Affairs Journal, 27*(1), 24-44.

Pedersen, D. J., & Daniels, M. H. (2001). Stresses and strategies for graduate student couples. In S. Walfish & A. K. Hess (Eds.), *Succeeding in graduate school.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Rockinson-Szapkiw, A. J., Spaulding, L. S., & Lunde, R. M. (2017). Women in distance doctoral programs: How they negotiate their identities as mothers, professionals, and academics in order to persist. *International Journal of Doctoral Studies, 12*, 49-71. https://doi.org/10.28945/3671

Rockinson-Szapkiw, A. J., Sosin, L. S., & Spaulding, L. (2018). Does family matter? A phenomenological inquiry exploring the lived experiences of women persisting in distance education, professional doctoral programs. *International Journal of Doctoral Studies, 13*, 497-515. https://doi.org/10.28945/4157

Rockinson-Szapkiw, A. J., Spaulding, L. S., & Spaulding, M. T. (2016). Integration and institutional factors that predict online, doctoral persistence. *Internet and Higher Education, 31,* 101-112. https://doi.org/10.1016/j.iheduc.2016.07.003

Rockinson-Szapkiw, A. J., Spaulding, L. S., Swezey, J. A., & Wicks, C. (2014). Poverty and persistence: A model for understanding individuals' pursuit and persistence in a doctor of education program. *International Journal of Doctoral Studies, 9,* 181-190. https://doi.org/10.28945/2049

Rothausen, T. J. (1994). Job satisfaction and the parent worker: The role of flexibility and rewards. *Journal of Vocational Behavior, 44*, 317–336. https://doi.org/10.1006/jvbe.1994.1021

Sallee, M. W. (2008). Work and family balance: How community college faculty cope. *New Directions for Community Colleges, 142,* 81-91. https://doi.org/10.1002/cc.327

Scheinkman, M. (1988). Graduate student marriages: An organizational/interactional view. *Family Process, 27,* 351-368. https://doi.org/10.1111/j.1545-5300.1988.00351.x

Schonemann, P. H. (1990). Facts, fictions, and common-sense about factors and components. *Multivariate Behavioral Research, 25*(1), 47-51. https://doi.org/10.1207/s15327906mbr2501_5

Simpson, O. (2003). *Student retention in online, open, and distance learning* [Adobe Digital Editions version].

Smith, R. L., Maroney, K., Nelson, K. W., Abel, A. L., & Abel, H. S. (2006). Doctoral programs: Changing high rates of attrition. *Humanistic Counseling, Education, and Development, 45*, 17–31. https://doi.org/10.1002/j.2161-1939.2006.tb00002.x

Sori, C. F., Wetchler, J. L., Ray, R. E., & Niedner, D. M. (1996). The impact of marriage and family therapy graduate training program on married students and their families. *American Journal of Family Therapy, 24*, 259–268. https://doi.org/10.1080/01926189608251038

Spaulding, L. S., & Rockinson-Szapkiw, A. J. (2012). Hearing their voices: Factors doctoral candidates attribute to their persistence. *International Journal of Doctoral Studies*, *7*, 199-219. https://doi.org/10.28945/1589

Stimpson, R. L., & Filer, K. L. (2011). Female graduate students' work-life balance and the student affairs professional. In P. A. Pasque & S. E. Nicholson (Eds.), *Empowering women in higher education and student affairs: Theory, research, narratives, and practice from feminist perspectives* (pp. 69-84). Sterling, VA: Stylus.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.

Terrell, S. (2005). A longitudinal investigation of the effect of information perception and focus on attrition in online learning environments, *The Internet and Higher Education, 8*(3), 213-219. https://doi.org/10.1016/j.iheduc.2005.06.003

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, *45*(1), 89-125. https://doi.org/10.3102/00346543045001089

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

Tinto, V. (2006-2007). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory, and Practice, 8*(1), 1-19. https://doi.org/10.2190/4YNU-4TMB-22DJ-AN4W

Tompkins, K. A., Brecht, K., Tucker, B., Neander, L. L., & Swift, J. K. (2016). Who matters most? The contribution of faculty, student-peers, and outside support in predicting graduate student satisfaction. *Training and Education in Professional Psychology, 10*(2), 102-108. https://doi.org/10.1037/tep0000115

Ülkü-Steiner, B., Kurtz-Costes, B., & Kinlaw, C. (2000). Doctoral student experiences in gender-balanced and male-dominated graduate programs. *Journal of Educational Psychology, 92,* 296-307. https://doi.org/10.1037/0022-0663.92.2.296

Valcour, M. (2007). Work-based resources as moderators of the relationship between work hours and satisfaction with work-family balance. *Journal of Applied Psychology*, *92*, 1512-1523. https://doi.org/10.1037/0021-9010.92.6.1512

Voydanoff, P. (2005). Social integration, work-family conflict and facilitation, and job and marital quality. *Journal of Marriage and Family, 67*, 666–679. https://doi.org/10.1111/j.1741-3737.2005.00161.x

Walker, G. E., Golde, C. M., Jones, L., Bueschel, A. C., & Hutchings, P. (2008). *The formation of scholars: Rethinking doctoral education for the twenty-first century*. San Francisco, CA: Jossey-Bass.

Wasburn-Moses, L. (2008). Satisfaction among current doctoral students in special education. *Remedial and Special Education, 29*(5), 259-268. https://doi.org/10.1177/0741932507312014

Wellington, J., & Sikes, P. (2006). A doctorate in a tight compartment: Why students choose to do a professional doctorate and its impact on their personal & professional lives. *Studies in Higher Education, 31*(6), 723–734. https://doi.org/10.1080/03075070601004358

West, L. C. (2014). Communicating needs and nurturing familial relationships. In. A. J. Rockinson-Szapkiw & L. S. Spaulding (Eds.), *Navigating the doctoral journey: A handbook of strategies for success* (pp. 19-30). Lanham, MD: Rowman & Littlefield.

White, J. M. (1999). Work-family stage and satisfaction with work-family balance. *Journal of Comparative Family Studies, 30*(2), 163–175.

Williams, R. E. (1977). The perception of the impact of a doctoral program upon the marriage relationships of doctoral students at the University of Northern Colorado (Doctoral dissertation, University of Northern Colorado, 1977). *Dissertation Abstracts International, 38,* 132.

Wolf-Wendel, L. E., & Ward, K. (2014). Academic mothers: Exploring disciplinary perspectives. *Innovative Higher Education*, *40*(1), 19-35. https://doi.org/10.1007/s10755-014-9293-4

BIOGRAPHY

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