Supports and barriers to researcher development in early career faculty

By: Laura M. Gonzalez, Kelly L. Wester, and L. DiAnne Borders

Abstract:

Purpose: Depending on their institutional context, for new faculty members to successfully manage their transition from doctoral studies to early career, they must show potential as researchers. The purpose of this study was to learn about supports and barriers to researcher development in new faculty members.

Design/methodology/approach: The investigators solicited open-ended responses from early career faculty members ($N = 49$) in an online survey. Content analysis was used to provide an initial categorization of supports and barriers identified by the participants.

Findings: Ten barrier categories (e.g. lack of resources, previous training, lack of mentoring, workload) and eight support categories (e.g. effective research collaborations, supportive university environment, funding) were identified.

Research limitations/implications: Findings were framed with a social cognitive conceptual model, which parallels previous studies in doctoral research training environments and research productivity and builds on our knowledge of early career faculty development. The study was limited in terms of number of participants and online response format.

Practical implications: Practical implications to minimize barriers and enhance supports for new faculty researcher development were identified (also drawing from the conceptual model, SCCT).

Originality/value: Thus, the study has value for university policymakers, administrators, faculty peers, research mentors and assistant professors or doctoral students seeking to develop as researchers.

Keywords: Researcher development | Social cognitive career theory | Early career faculty

Article:

Because of the rising importance of research and scholarship in tenure-seeking faculty work-life (Eagan and Garvey, 2015), scholars have been attempting to describe the factors that contribute to the development of research interest and productivity (Bland *et al.*, 2005; Creamer, 1998). The term researcher development encompasses both a professional investigative skill set and a mindset of engaging in research as a key work function (Gelso and Lent, 2000). Research productivity includes activities such as generating refereed scholarly publications, refereed creative scholarly works and non-refereed works such as professional presentations or technical reports (Kahn and Scott, 1997). Researcher development and (ultimately) productivity are important for early career faculty members who will be evaluated on their research production (Lucas and Murray, 2011; Magnuson *et al.*, 2006), in addition to teaching skills. Faculty researchers also serve as models for doctoral students and postdoctoral scholars who are building research-related skills and attitudes critical to their future career trajectories (Gelso, 1993).

Several frameworks exist regarding researcher development at the doctoral student level, but they have not been extended yet to examine early career faculty experiences. These frameworks are in the social learning tradition (Bandura, 1989), acknowledging the meaning-making process of the individual and the environmental influences, resources, supports and barriers that surround them as they move toward their goals. Specifically, investigators have identified doctoral research training environment, year in doctoral training, gender, research self-efficacy beliefs, investigative personality type and research interest as key variables in a structural model of doctoral research productivity (Kahn and Scott, 1997). The doctoral research training environment (RTE) has also been examined at a more detailed level, with one researcher specifying 10 active elements contributing to an effective doctoral training environment (Gelso, 1993). These elements, consistent with the social learning lens, include faculty modeling research behaviors and attitudes for doctoral students, positive reinforcement for research activity, stepwise involvement in tasks and teaching varied approaches to research.

Although the doctoral training environment may undergird new faculty researcher skill development and career potential (Kahn and Scott, 1997), the postdoctoral employment environment of new faculty also may be key to gaining traction in research productivity (Dundar and Lewis, 1998). To be consistent with the theoretical frameworks of the doctoral training studies, the early career research environment of faculty members is best viewed through a social learning lens (Bandura, 1989). Social learning theories include the interaction between an individual (e.g. motivation, self-regulation, characteristics) and the environment (e.g. opportunities to learn, constraints, role models), which is relevant for the topic of researcher development. Specifically, Gelso (1993) mentioned the importance to doctoral students of vicarious learning from modeled behavior, self-efficacy beliefs for research tasks, positive encouragement or reinforcement and stepwise mastery experiences (Gelso and Lent, 2000). The Kahn and Scott (1997) structural model for research productivity is an adaptation of social cognitive career theory (SCCT; Lent *et al.*, 1994), which is part of the social learning tradition. In addition, Bishop and Bieschke (1998) specifically tested and supported the use of the SCCT model to identify predictors of research interest development in counseling psychology doctoral students. However, the previous studies have not included an explicit mention of contextual supports and barriers to faculty researcher development, which are key in social cognitive models (Lent *et al.*, 2000). Thus, the current study seeks to remedy that gap in the literature.

Supports and barriers are defined as environmental conditions that either enhance or impinge upon the development of interests, attitudes and skills (Lent *et al.*, 2000). The language of supports and barriers has not been used in any other identified studies on researcher development, although Gelso and Lent (2000) recommended that future studies use SCCT (Lent *et al.*, 1994) to examine specific aspects of the doctoral research training environment. They wrote:

> SCCT suggests that students' willingness to translate their interests into goals, and their goals into actions, depends partly on the supports or barriers they encounter in their environment. Thus, particular environmental supports and barriers (e.g., mentoring, job market conditions) might be examined (Gelso and Lent, 2000, p. 128).

Scholars studying the environment for researcher development for early career faculty have mentioned possible supports or barriers in the context without labeling them that way. Examples include departmental size and culture (Dundar and Lewis, 1998), the amount of time faculty are able to spend on research (Bland *et al.*, 2005), the presence of mentors and networks nearby (Hekelman *et al.*, 1995) and the sense of connection to one's department (Pasupathy and Siwatu, 2014). For some subgroups present among assistant professor ranks (e.g. faculty of color, female faculty who are parents), there can be additional stressors or barriers related to having research interests and methods undervalued, attempting work–life balance, feeling isolated from networks and mentoring opportunities and experiencing discrimination (Creamer, 1998; Eagan and Garvey, 2015; Jacobs and Winslow, 2004; Turner *et al.*, 2008). In addition, there are potential internal supports and barriers to research productivity, such as one's own motivation and efficacy toward research (Hemmings and Kay, 2016). One researcher found that more work time was devoted to research/scholarship when faculty self-efficacy for those activities was higher (Blackburn *et al.*, 1991). Another researcher was able to distinguish between assistant professors who were more/less successful as researchers based on scholarly habits and research activities (Hekelman *et al.*, 1995).

In sum, previous researchers have focused more fully on the doctoral research environment, leaving a gap in our understanding of how early career environments also contribute to new faculty development as researchers. In particular, there are no studies that have addressed contextual supports and barriers to new faculty researcher development via the SCCT model (Lent *et al.*, 1994). The purpose of this study was to extend the foundational work of Kahn and Scott (1997) and Gelso(1993) and address a gap in the existing research by asking early career faculty members to identify relevant supports and barriers. To address the research question, which was "what are the supports and barriers to researcher development experienced by early career faculty members", investigators completed a content analysis of short answer survey data eliciting supports and barriers. The benefit of content analysis is that it is "a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding" (Stemler, 2001, p. 145). Thus, the goal was not to achieve an in-depth interpretation of the meaning of supports and barriers, but to provide an initial categorization of supports and barriers as viewed through the eyes of assistant professors. The benefit of having early career faculty members explicitly name supports and barriers to researcher development is the bridge that it builds to existing social learning frameworks, with models for improving progress toward goals and contending with contextual influences.

Methods

Participants

The sample for this study consisted of 49 assistant professors in counselor education. The majority identified as female (73.5 per cent; 24.5 per cent male, 2 per cent did not report gender). Participants described themselves racially as white (79.6 per cent), African American/black (14.3 per cent) or multiracial (4.2 per cent). All had received a terminal degree (91.8 per cent indicated a PhD and 8.2 per cent an EdD). Over half of the sample was employed in a master's/doctoral-level program (55.1 per cent); 42.9 per cent taught in masters-only programs and 2 per cent did not indicate the type of program. Most participants (77.6 per cent) had graduated from an accredited doctoral program, which assures consistency in curriculum and training, and most (94 per cent) were in tenure-track positions (6 per cent were clinical faculty). Faculty had worked in their current job setting for an average of 2.4 years ($SD = 1.76$).

Measures

An online survey was sent to tenure-track and clinical assistant professors in the US counselor education programs (the disciplinary home of the research team members) in 2015. All doctoral-level counseling programs ($n = 51$) were sampled, due to the relatively small number, and a random selection of masters-level programs ($n = 53$, to be parallel to the number of doctoral programs) were taken from both accredited and non-accredited program lists. In total, 19 departments were removed from the study because contact information could not be located on the website. This resulted in email addresses for a total of 249 assistant professors at 85 universities; all 249 were contacted. And, 15 ($n= 15$) individuals indicated they did not meet the criteria for the study (i.e. not assistant level, not counselor educator), and 12 emails returned as undeliverable. This resulted in a total of 222 possible respondents for this study, and 49 of those individuals responded with full data (22.1 per cent response rate). An average response rate for online surveys with no incentive payment has been cited as 20-24 per cent (Millar and Dillman, 2011).

The online survey included demographic items, measures related to Kahn and Scott's (1997) model that are not reported in the current article, and two open-ended items eliciting up to five barriers and five supports. Those items read:

> Please list 1-5 supports (or barriers) (e.g., internal and/or external, interpersonal and/or environmental) that you think could enhance (or get in the way) of your development as a researcher. Please be as specific as possible.

The prompt was brief and specific to facilitate credibility or dependability of the responses, but faculty could enter as much text as they wished in the response field.

Procedures

To address the research question, all contents of the short answer online survey items were coded (325 discrete entries from 49 respondents) using an inductive content analysis approach. Content analysis was selected as the appropriate methodology for reviewing brief units of text to identify common patterns and organize them in a way that could suggest practical implications (Krippendorff, 2012). Content analysis includes both qualitative portions (identifying and defining key constructs in the text) and quantitative portions (counting instances of occurrence). Insch *et al.* (1997) offered steps for conducting content analysis, including:

- identify the texts of interest;
- specify the units of analysis and generate categories;
- conduct a pretest to test the coding scheme within the research team; and
- assess inter-rater reliability via Cohen's kappa statistic.

In addition, the investigators utilized a consensus approach with triangulation of findings among the coders (Hays *et al.*, 2016). These steps increase trustworthiness or credibility of the coding. Participant quotes are presented in the findings section to further enhance credibility.

The coding team (authors) read a subset of responses independently and generated a list of potential categories as a first step. The coders then met to discuss the initial codes and refine our understanding of the categories. A codebook with the consensus definitions was generated (abbreviated definitions are included in Table I). The codes and categories were tested in a pilot with five participants, and the definition sheet was refined to improve validity (e.g. less ambiguous, better able to discriminate between themes in the data) and assess inter-rater reliability. The remainder of the data were split, with two researchers assigning codes and the third researcher serving as auditor to resolve any discrepancies. The research team reached sufficient inter-rater reliability (average overall kappa = 0.75; individual category kappa ranging from 0.52 (moderate) to 1.00 (perfect agreement); Landis and Koch, 1977).

Results

As seen in Table I, the content analysis generated 10 barriers categories and eight supports categories, along with a miscellaneous category in each section. The coding team did not seek to come to consensus on the miscellaneous items. The most frequently cited barriers were lack of resources, faculty workload and lack of current collegial support, and the most frequently cited supports were university environment, mentoring and research collaboration. Utilizing SCCT (Lent *et al.*, 2000), investigators were able to further refine the results by describing the supports and barriers as external in nature (e.g. based in the environment, structural conditions, systemic features) or internal in nature (e.g. based in the person, internal conditions, self-belief systems). This differentiation does represent a sorting procedure on the part of the researchers and not a characterization by the participants. Lent *et al.* (2000, p. 39) stated, "barriers generally refers to negative contextual influences, with the understanding that contextual barriers are often functionally related to, yet conceptually distinct from, detrimental person factors".

Table I. External and internal barriers and supports to researcher development ($N = 49$)

Construct categories and definitions (in parentheses)	Times cited	(%)	Kappa values
External barriers			
Resource barriers (lack of stats software, low availability of RAs, few library resources available, time constraints)	27	17.6	0.64
Faculty workload (high teaching/administrative/ service load, learning curve of new faculty, balancing all workload requirements)	26	17.0	0.77
Current collegial environment (unsupportive attitudes within department, lack of collaboration, lack of support outside of department, tough IRB, being far from key colleagues)	19	12.4	0.65
Funding barriers (lack of financial resources needed to conduct research)	19	12.4	1.00
Mentoring barriers (lack of formal/informal mentor to provide guidance about work tasks, lack of direct interaction or influence from a mentor)	13	8.5	0.94
Professional issues barriers (counseling journals, biases against certain methodologies, pushback on research topics, researcher/counselor identity)	7	4.6	0.67
Previous training barriers (insufficient research training at the doctoral level, lack of grant training)	7	4.6	0.72
Internal barriers			
Negative emotional states (lack of confidence in skills, fears, feelings of incompetence, being overwhelmed or exhausted, avoidance, burned out)	12	7.8	0.66
Personal preferences/trait barriers (preference to work alone, level of personal organization, self-discipline, writing skills)	9	5.9	0.64
Work/life balance (research gets pushed into personal time, family obligations)	7	4.6	0.92
Miscellaneous (gender expectations, racial discrimination, political climate, rural location, community connections, compensation)	7	4.6	
External supports			
University environment (support for ideas, freedom to pursue own interests, flexibility, motivated students, positive feedback, clear expectations, annual feedback, supportive chair, support from other assistant professors)	26	18.8	0.74
Mentors (direct interaction and influence, formal and informal, maintaining mentors from previous settings)	22	15.9	0.74
Research collaboration (productive research teams, good role models for research, discussing research ideas, writing support groups, collaborations with students)	21	15.2	0.69
Resources (software, statistics courses, graduate assistants, trainings, technology, library resources, research office, rewards for research)	12	8.7	0.52
Previous training (exposure to research skills and methodologies in doctoral program or previous work)	12	8.7	0.61
Funding (able to access financial resources to support research activities)	9	6.5	0.85
Internal supports			
Positive emotional states (motivation, intrinsic drive, interest, value and desire to do research, self-care)	13	9.4	0.88
Personal preferences/trait supports (writing ability, investigative personality, good at multi-tasking, experience, awareness, reliable)	9	6.5	0.81
Miscellaneous (professional organizations, success presenting, increased responsibility, supportive spouses)	14	10.01	

External barriers

The barriers listed most frequently by participants in the study were external or environmental in nature (e.g. lack of resources, lack of funding, faculty workload and collegial environment). Lack

of funding was separated from lack of resources because of the frequency with which lack of funding for research, conference travel and skill development were mentioned by the participants. Lack of resources as a barrier encompassed a lack of support from research assistants, access to library or software or little structural support for research. One respondent wrote, "Lack of a strong research office, no research programs or initiatives".

Several participants commented on faculty workload. One stated, "I teach a 4:4 load but am expected to write and publish. I simply don't have time for teaching, service, and quality research". Another participant disclosed, "My colleagues who have received tenure are getting teaching load reductions to write and publish, but as a junior faculty member, I'm expected to balance it all". Our participants also mentioned, "Acclimating to being a faculty member" in general and "preparing for class as an assistant professor (at least for me) takes a long time, and that's time that could be used on research". Finally, heavy service loads were noted as barriers to research development, including program coordination and advising responsibilities, such as "Managing a 10+ dissertation chair load".

The participants also commented on instances where they perceived that their colleagues were not supporting their development as researchers. Barriers in the collegial environment were described as including "overly rigid method beliefs by senior faculty", "lack of leadership" and "negative personalities, unsupportive senior faculty".

External barriers not mentioned as frequently but still present in the coding included lack of mentoring, previous research training and professional issues. In describing mentoring barriers, the participants noted having had key and influential mentors in the past, but not in the present employment setting, lack of mentors in either setting due to interest or availability or mentors who were less effective than hoped (e.g. "research mentors who actually write with their mentee" and "lack of mentoring related to study design"). One participant wrote vividly, "Without mentorship, feeling panicked, overwhelmed, and exhausted by the demands of a research 1 university".

With regards to the category of previous training environment, some participants mentioned feeling that their doctoral-level research preparation had been partial or ineffective (e.g. "no training for grant writing", "ineffective instruction" and "no advanced stats training"). One participant noted a particularly impactful situation: "Part time doctoral student – employed full time during the program, resulting in less experience with research/publication".

Finally, the participants expressed the opinion that some of the structures in their particular professional field (e.g. journals, research environment, work identity) were barriers to their development as researchers. One participant noted, "counseling specific journals do little to promote research identity development through the publication process (i.e. inconsistent editorial feedback re: methodology)". Another participant reflected on work identity, stating, "Research identity feels incongruent with identity as teacher, supervisor, and practitioner in early career".

Internal barriers

The barriers that were characterized as internal in nature included negative emotional states, personal traits or preferences and work/life balance. Although the latter could be perceived as straddling the line between internal/external barriers, the concerns were usually expressed in terms of value conflicts, with attempts to preserve non-work life space (e.g. "work demands push research into personal life time", "balance of motherhood and work" and "family health concerns/time commitment").

The barriers of negative emotional states expressed by the participants were varied, including "low confidence to pursue ambitious research goals", "low self-efficacy as a researcher", "internal sense of incompetence", "lack of personal interest" and feeling "OVERWHELMED with other responsibilities".

The barriers of personal traits differed from emotional states, in that they did not include explicitly affect-based language. Traits mentioned by the participants included lack of time management, organization or self-discipline; poor writing skills; and the tendency to work alone rather than collaboratively. One participant disclosed, "Personally, I cannot comprehend statistics and have avoided doing research that is more quantitative in nature".

Finally, the miscellaneous barriers category held some barriers that were expressed by one person each, but still worth highlighting in terms of awareness and future research directions. One faculty member of color noted that racism had been a barrier, including receiving feedback that hihe/sher culturally grounded research topic was not welcome. Gender-based expectations were also mentioned in this category, with another participant describing feeling "misperceived" as a researcher based on gender.

External supports

The participants also identified environmental supports that assisted them with their development as researchers. The three most frequently mentioned supports were external in nature (university environment, supportive mentors and research collaborations). Aspects of the university environment that were appreciated by these developing researchers included flexibility to work outside of the office; freedom to pursue the research areas that were most motivating and interesting to them; clear expectations to engage in research; and supportive regular, and consistent feedback on development as a researcher. The participants felt supported via "Encouragement from program to seek my own interests", "Programmatic rewards for research", "work with outstanding doctoral students", "flexibility to pursue research at my own pace in the department", "conducting studies that I really enjoy", "clear expectations and annual feedback" and a "department chair willing to try to access additional funds for exceptional situations".

Although the categories of supportive mentors and collaborators were similar, they were separated to honor the language of the participants in describing more formal or traditional mentoring relationships (e.g. a more experienced researcher helping to develop productive skills and attitudes in an early career researcher) and more peer-based relationships or working groups. The participants described the things they valued in their mentors, whether in their current department or in a different setting, including, "One or two current colleagues who are good researchers serve as role models", "I continue to have support from my old advisor who is now a

colleague with whom I collaborate" and "having a few colleagues outside of my program that I can go to whenever I need help with statistical procedures".

In terms of collaboration around research, the participants described a variety of ways in which they had found or created opportunities. Some exemplary statements included, "I found a great research team that is productive", "was in a grant writing group one semester", "found colleagues interested in collaborating", "continued collaboration with colleagues from my doc program", "scheduled group writing times", "support from colleagues at conferences" and "development of a student research team".

The other external support categories (mentioned with less frequency) included resources, funding and previous training. Key resources mentioned by the participants included "Getting an associate dean for research", "Trainings brought to campus; workshops in grant writing", "Taking extra stats classes from Coursera" and "Ability to work with students on research". Examples of funding supports included the ability to pay for research assistance, for travel to professional conferences, for workshops to support skill development or to mount a research study (e.g. "paying for services like transcription or proofreading").

Finally, the category of previous training included both experiences in the doctoral program and other exposure (e.g. "research center affiliation" and "preparing future faculty program"). Some participants appreciated particular aspects of their doctoral training (e.g. "exposure to qualitative methodology in graduate school", "training in proposal writing"). One participant mentioned, "I have a strong background in quantitative methods. This has enabled me to get some competitive internal/external grants". Another participant stated, "My doc program really set me up to be a good researcher – I went to a research 1 and I think that makes a difference". Finally, one participant illustrated the impact of doctoral training by saying, "Took several wonderful qualitative courses during my doc program that shifted my thinking about research; it literally gave me an outlet to do research".

Internal supports

In a parallel way to internal barriers, the internal support categories included internal affective states and personal traits/preferences. Statements regarding positive affect included "personal value/motivation", "winning a research award boosted my confidence" and "my own desire to conduct research".

The category of personal traits or preferences included "reading more about study design on my own time", "clear research agenda", "I am good at multitasking", "I am reliable, and follow-through with my commitments" and "predisposition as a geek".

There was also a category of "miscellaneous" supports, mentioned infrequently. At least one participant expressed appreciation for each of the following – supportive spouses and family members, help from professional organizations and the opportunity to take time away from work to re-energize. One participant mentioned "recently hired female assistant professors who are also balancing family and work life" as a support.

Discussion

The current study sought to fill a gap in the literature related to new faculty researcher development by identifying in more detail some of the contextual supports and barriers they perceived (see Table I). A social learning lens was used to bring attention to the efficacy beliefs and agentic behaviors of early career faculty as they sought to develop as researchers in their new campus context. Supports are like catalysts that can enhance researcher development in many ways, and barriers are like inhibitors; in both cases, they can suggest a course of action (Lent *et al.*, 2000). Providing a well-structured mentoring relationship as a support, for example, can supply an early career researcher with a model for vicarious learning, infuse positive reinforcement and encouragement, build self-efficacy for research tasks and increase motivation to continue on a tenure-track career path (Bandura, 1989; Lent *et al.*, 1994). These findings on supports and barriers to researcher development have implications for doctoral students and postdoctoral scholars as well, especially those who intend to enter faculty positions and want to anticipate relevant supports and barriers to their continued development.

In fact, the findings in the current study do parallel aspects of the existing literature on doctoral research training environments (Gelso, 1993) and research interest and productivity (Kahn and Scott, 1997), which emphasizes mentoring, existing personal traits and attitudes, confidence in research skills, instructional and interpersonal factors in research training. The current study adds to the literature by describing the environment of new faculty members in their own words in terms of contextual supports (e.g. relationships, resources, skills, self-belief systems) and barriers (e.g. competing demands, missing resources, unsupportive attitudes, negative beliefs and emotional reactions). Although these ideas may not be new, the inclusion of supports, barriers and the SCCT model (Lent *et al.*, 1994) in this scholarly conversation permits a more instrumental focus – how can supports be increased and barriers be diminished to clear the way for assistant professors to translate their research interests into goals and actions? The SCCT model (Lent *et al.*, 1994) provides an opportunity to view the person, environment and social learning aspects of researcher development comprehensively.

Implications for postdoctoral career development

The current study responds to the suggestion made by Bland *et al.* (2005) that the interaction of individual (person) and institutional (environment) characteristics should be explored simultaneously, as they influence new faculty research productivity and career transition. Indeed, an important advantage to viewing supports and barriers within a social learning model is the ability to consider the intersecting relationships and suggest coping strategies (Lent *et al.*, 2000). Thus, drawing from the themes of the study and the SCCT model, the investigators brainstormed ideas for researcher development interventions at the level of:

- the profession (e.g. creating new faculty interest networks in professional organizations, working with journal reviewers to be sure feedback to authors is constructive and developmental, creating professional guidelines for research mentoring or training);
- the university (e.g. creating incentives and rewards for research activity, ensuring that faculty receive consistent feedback about their development as researchers, reviewing workload expectations and promotion and tenure policies to identify problem areas,

creating research networks across campus, seeking additional resources for researchers in difficult economic times);
- the department (e.g. considering ways to rebalance workloads of new faculty, clearly communicating to new faculty whom to ask for various types of research mentoring, ensuring that designated research mentors are making themselves available and have a plan of action, encouraging new faculty to create or sustain collaborative research networks or writing groups, generating positive role models of research attitudes and behavior); and
- the individual (e.g. practicing self-advocacy by communicating needs to mentors, being proactive in finding or creating research opportunities and collaborations, considering how to combine research tasks with other roles to maximize effort, setting learning goals to continue to expand research capacity beyond tools gained in doctoral training).

To reiterate, one cannot generalize broadly from the current study, but this list provides ideas for potential approaches to researcher development and advocacy based on themes in the participants' experiences and the way that supports and barriers function in the SCCT model (Lent *et al.*, 1994).

External factors

By definition in the SCCT, external factors are harder to control because they exist at the level of systems and structures. The external supports and barriers mentioned were often two sides of the same coin – effective or ineffective doctoral research training, effective or ineffective mentoring, presence or absence of resources and funding to support research and positive or negative environment at the university or departmental level. The data do not reveal if our participants were working at Research I institutions or had lower levels of research expectations, but researcher development can be important to early career faculty regardless. For example, some participants who had high teaching loads and were not afforded the opportunity to do research were contemplating a job change to rebalance their activities.

Some external barriers can be addressed with creative strategies (e.g. offering graduate students course credit to function as RAs if there is no funding, finding ways to incorporate research projects into faculty teaching or service commitments to use time more effectively). However, barriers that are external can be difficult for an early career faculty member to resolve if they are complicated and systemic in nature, such as lack of resources in the university or state. Pervasive environmental barriers to research could negatively impact both interest and productivity over time, if they are not addressed. Particularly for assistant professors, the strain of starting to teach new courses, learning a new university environment and trying to navigate these external barriers to research development can be overwhelming (Lucas and Murray, 2011). More established or influential individuals also can consider how to advocate for new faculty members when external barriers are encountered. Doctoral students considering the path into the professoriate may also intentionally plan strategies for engaging these barriers.

Internal factors

The social learning approach to addressing barriers or supports internal to the early career faculty member (or doctoral student) would be completely different. Internal supports and barriers described in the current study included emotional states and existing personal traits. Self-defeating thoughts ("I can't do this") or feelings ("I'm too tired and stressed") can be addressed intentionally with a positive mentoring relationship or a strong network of peer supporters, as long as the assistant professor (or doctoral student) can admit the barriers openly. Traits such as a less-organized and structured approach to tasks or perceived weaknesses in writing can also be modified with effort or addressed with adaptations (i.e. working with one's strengths rather than against one's weaknesses). However, the willingness to undertake these personal growth projects starts with awareness, which can be facilitated by frequent constructive feedback.

Social learning theorists emphasize the importance of learning by observing a role model, working toward mastery of a task in a stepwise manner, receiving verbal encouragement for difficult tasks and having an opportunity to deal with strong affect (e.g. anxiety, fear) that might derail goal-directed actions (Bandura, 1989). If assistant professors (or doctoral students) receive encouragement and support for the mindset to continue looking for new opportunities for developing their skill set as researchers, they can improve their agency to deal with barriers (both internal and external). Even external barriers presented by ineffective doctoral training can be somewhat ameliorated, as early career faculty build agency or self-efficacy beliefs and continue to search for learning opportunities in a way that is supported by departmental peers.

Mentors are an essential part of early career researcher development, as has been demonstrated in the existing literature (Boswell *et al.*, 2015; Briggs and Pehrsson, 2008; Magnuson *et al.*, 2009). Mentors are an external support, but the skills and attitudes they help an early career faculty person (or doctoral student) gain then may be internalized as part of a social learning process (Kahn, 2000). Given the key role played by mentors, it seems important to consider how experienced faculty researchers can be encouraged to take on this voluntary role, or how to best prepare faculty mentors with guidelines (Borders *et al.*, 2012) and suggestions for how to respond appropriately to mentees. Mentors might consult a list of common supports and barriers to researcher development to assess strengths and needs and create a plan of action with mentees. Such a list could also help bring direction into mentoring relationships that are not functioning effectively due to lack of structure or guidelines.

Although the importance of research mentors is well established, the ability of peers, former colleagues and interdisciplinary teams to serve as key research collaborators has not been fully explored in the literature yet. The current participants endorsed this form of support, describing many ways to connect and collaborate around shared research interests. These responses displayed the ingenuity of new faculty in finding or creating networks to support their early career development, taking advantage of many different resources for collaboration (e.g. doctoral program peers, faculty colleagues within or outside of the department, conference acquaintances). Just as with mentoring relationships, these collaborations can be effective as internal supports when they build on existing research interest and provide an opportunity for direct or vicarious social learning and the experience of stepwise mastery of complex tasks and include verbal encouragement and space to manage anxiety and frustrations (Bandura, 1989). Thus, early career faculty might need some guidance to determine which collaborations are helpful and efficient and which are not fully functioning. Collaborations can also enhance

productivity by dividing the work load and generating opportunities for new learning experiences (e.g. methodologies, populations, writing styles).

To summarize, external structural barriers are best approached with advocacy to change the system, while internal or interpersonal barriers would respond better to cognitive reframing or self-efficacy and skill enhancement from a social learning lens (Bandura, 1989). Low research interest could be improved by addressing opportunities for learning experiences and self-belief systems, while low research productivity might respond better to goal setting, support resources and opportunities for collaboration (Gelso and Lent, 2000; Lent *et al.*, 2000). These theory-based suggestions hold for doctoral students as well. It is likely that supports at several levels (individual, department, university) would be useful to early career researchers.

Limitations and future research

The current study was a preliminary description of supports and barriers to researcher development as named by the assistant professors themselves, appropriate to the gaps in the current literature. It is limited, in that it provides a momentary snapshot of the participants and their perceived supports and barriers but does not illuminate how those change over time or the degree of impact they might have. Content analysis is a descriptive methodology, with the aim to identify and categorize how the content is manifesting, but not provide deeper interpretation of the phenomenon. In the current study, the researchers also made a post hoc interpretation by describing the supports and barriers as internal or external (aligned with theory). The data came from brief open-ended surveys collected online from 49 faculty members. Thus, a limitation in the current study was the response rate, which was at the mid-level for online data collection (Millar and Dillman, 2011) but not large enough to generalize or examine finer grain within-group differences with inferential statistics (e.g. male/female, faculty of color, program type). We did not collect data on Carnegie classification of the institutions, which formally identifies the types of degrees offered (e.g. associate's, baccalaureate, graduate level) and the level of expectations for faculty research activity, so we are unable to put our findings into the larger context of university-wide research expectations.

This initial description of supports and barriers to early career faculty researcher development can be a stepping stone to more in-depth exploration. Future research with larger participant pools could further examine differences based on gender and race/ethnicity (Creamer, 1998; Turner *et al.*, 2008). Are faculty members who are minoritized at their institutions also less likely to receive resources, have active mentors or be invited into collaborative research teams? These are equity issues that would be important to track. Future research could also model associations among key supports/barriers and important career milestones (tenure, research productivity). Per Lent *et al.* (2000), future researchers can continue to try to understand various aspects of contextual supports and barriers, such as their temporal dimensions (early in a developmental process or more proximal to an action or goal), their specific versus pervasive qualities (a support/barrier to a task or to more general attitudes and motivation), the objective/subjective dimensions of barriers (for example, discrimination may be perceived by one person and not by another, or discrimination may be motivating rather than discouraging), prevalence and impact of supports/barriers or interaction of supports and barriers. Further

understanding supports and barriers to researcher development along these dimensions would improve our understanding of how best to address them.

References

Bandura, A. (1989), "Social cognitive theory", in Vasta, R. (Ed.), Annals of Child Development (Vol. 6): Six Theories of Child Development, JAI Press, Greenwich, CT, pp. 1-60.

Bishop, R.M. and Bieschke, K.J. (1998), "Applying social cognitive theory to interest in research among counseling psychology doctoral students: a path analysis", Journal of Counseling Psychology, Vol. 45 No. 2, pp. 182-188.

Blackburn, R., Bieber, J., Lawrence, J. and Trautvetter, L. (1991), "Faculty at work: focus on research, scholarship, and service", Research in Higher Education, Vol. 32 No. 4, pp. 385-413.

Bland, C.J., Center, B.A., Finstad, D.A., Risbey, K.R. and Staples, J. (2005), "A theoretical, practical, predictive model of faculty and department research productivity", Academic Medicine, Vol. 80 No. 3, pp. 225-237.

Borders, L.D., Wester, K.L., Granello, D.H., Chang, C.Y., Hays, D.G., Pepperell, J. and Spurgeon, S.L. (2012), "Association for counselor education and supervision guidelines for research mentorship: development and implementation", Counselor Education and Supervision, Vol. 51 No. 3, pp. 162-175.

Boswell, J.N., Wilson, A.G., Stark, M.D. and Onwuegbuzie, A.J. (2015), "The role of mentoring relationships in counseling programs", International Journal of Mentoring and Coaching in Education, Vol. 4 No. 3, pp. 168-183.

Briggs, C.A. and Pehrsson, D. (2008), "Research mentorship in counselor education", Counselor Education and Supervision, Vol. 48 No. 2, pp. 101-113.

Creamer, E.G. (1998), "Assessing faculty publication productivity: issues of equity", ASHE-ERIC Higher Education Report, Vol. 26, No. 2, ERIC Clearinghouse on Higher Education, One Dupont Circle, NW, Suite 630, Washington, DC.

Dundar, H. and Lewis, D.R. (1998), "Determinants of research productivity in higher education", Research in Higher Education, Vol. 39 No. 6, pp. 201-222.

Eagan, M.K., Jr and Garvey, J.C. (2015), "Stressing out: connecting race, gender, and stress with faculty productivity", The Journal of Higher Education, Vol. 86 No. 6, pp. 923-951.

Gelso, C.J. (1993), "On the making of a scientist-practitioner: a theory of research training in professional psychology", Professional Psychology: Research and Practice, Vol. 24 No. 4, pp. 468-476.

Gelso, C.J. and Lent, R.W. (2000), "Scientific training and scholarly productivity: the person, the training environment, and their interaction", In Brown, S. and Lent, R. (Eds), Handbook of Counseling Psychology, Wiley, Hoboken, NJ, pp. 109-139.

Hays, D.G., Wood, C., Dahl, H. and Kirk-Jenkins, A. (2016), "Methodological rigor in journal of counseling and development qualitative research articles: a 15-year review", Journal of Counseling and Development, Vol. 94 No. 2, pp. 172-183.

Hekelman, F., Zyzanski, S. and Flocke, S. (1995), "Successful and less-successful research performance of junior faculty", Research in Higher Education, Vol. 36 No. 2, pp. 235-255.

Hemmings, B. and Kay, R. (2016), "The relationship between research self-efficacy, research disposition and publication output", Educational Psychology, Vol. 36 No. 2, pp. 347-361.

Insch, G.S., Moore, J.E. and Murphy, L.D. (1997), "Content analysis in leadership research: examples, procedures, and suggestions for future use", The Leadership Quarterly, Vol. 8 No. 1, pp. 1-25.

Jacobs, J.A. and Winslow, S.E. (2004), "Overworked faculty: job stresses and family demands", Annals AAPSS, Vol. 596 No. 1, pp. 104-129.

Kahn, J.H. and Scott, N.A. (1997), "Predictors of research productivity and science-related career goals among counseling psychology doctoral students", The Counseling Psychologist, Vol. 25 No. 1, pp. 38-67.

Kahn, J.H. (2000), "Research training environment changes: impacts on research self-efficacy and interest", paper presented at Annual Conference of the American Psychological Association, 4 August – 8 August, Washington, DC, available at: https://files.eric.ed.gov/fulltext/ED446306.pdf (accessed 20 June 2016).

Krippendorff, K. (2012), Content Analysis: An Introduction to Its Methodology, Sage, Thousand Oaks, CA.

Landis, J.R. and Koch, G.G. (1977), "The measurement of observer agreement for categorical data", Biometrics, Vol. 33 No. 1, pp. 159-174.

Lent, R.W., Brown, S.D. and Hackett, G. (1994), "Toward a unifying social cognitive theory of career and academic interest, choice, and performance", Journal of Vocational Behavior, Vol. 45 No. 1, pp. 79-122.

Lent, R.W., Brown, S.D. and Hackett, G. (2000), "Contextual supports and barriers to career choice: a social cognitive analysis", Journal of Counseling Psychology, Vol. 47 No. 1, pp. 36-49.

Lucas, C.J. and Murray, J.W. Jr (2011), New Faculty: A Practical Guide for Academic Beginners, Palgrave MacMillan, New York, NY.

Magnuson, S., Black, L.L. and Lahman, M.K.E. (2006), "The 2000 cohort of new assistant professors in counselor education: year 3", Counselor Education and Supervision, Vol. 45 No. 3, pp. 162-179.

Magnuson, S., Norem, K. and Lonneman-Doroff, T. (2009), "The 2000 cohort of new assistant professors in counselor education: reflecting at the culmination of six years", Counselor Education and Supervision, Vol. 49 No. 1, pp. 54-71.

Millar, M.M. and Dillman, D.A. (2011), "Improving response to web and mixed-mode surveys", Public Opinion Quarterly, Vol. 75 No. 2, pp. 249-269.

Pasupathy, R. and Siwatu, K.O. (2014), "An investigation of research self-efficacy beliefs and research productivity among faculty members at an emerging research university in the USA", Higher Education Research and Development, Vol. 33 No. 4, pp. 728-741.

Stemler, S. (2001), "An overview of content analysis", Practical Assessment, Research and Evaluation, Vol. 7 No. 17, pp. 137-146.

Turner, C.S.V., González, J.C. and Wood, J.L. (2008), "Faculty of color in academe: what 20 years of literature tells us", Journal of Diversity in Higher Education, Vol. 1 No. 3, pp. 139-168.