



## **Rumor Has It: Investigating Teacher Licensure Exam Advice Networks**

**By Kira J. Baker-Doyle & Emery Petchauer**

In many countries, including the United States, England, Korea, Hong Kong, and Japan, individuals must pass some form of examination for entry into or completion of a teacher education program (Wang, Coleman, Coley, & Phelps, 2003).<sup>1</sup> These exams are meant to act as gatekeeping mechanisms for teacher quality. In the majority of the countries mentioned previously, such exams are one part of a comprehensive set of evaluative criteria, usually developed by the certifying institution or country. However, in the United States, the exams are high-stakes, standardized tests developed and administered by private companies (Akiba, LeTendre, & Scribner, 2007). In addition, many U.S. exams have been found to be limited measures of preservice teacher ability (Angrist & Guryan, 2008; Goodman et al., 2008). Outcomes on these exams are related to factors such as academic preparation, grade point average, major, and race (Gitomer et al., 2011). Given the relationship between race and the exam, many scholars have argued that these exams are culturally biased against preservice teachers of color (Bennett, McWhorter, & Kuykendall, 2006; Flippo, 2003; Grant, 2004) and decrease the racial diversity of the teaching profession (Flippo, 2003; Memory et al., 2003). Given the centrality of examinations to teacher certification

---

Kira J. Baker-Doyle is an assistant professor in the School of Education at Arcadia University, Glenside, Pennsylvania. Emery Petchauer is an assistant professor in the Department of Teacher Development and Educational Studies of the School of Education and Human Development at Oakland University, Rochester, Michigan. bakerdoylek@arcadia.edu & petchauer@oakland.edu

---

### *Rumor Has It*

---

and the previous scholarship that identified factors related to exam outcomes, our study examined a related social factor: social capital.

*Social capital* considers the resources, information, and support that individuals or groups can access through their social networks. In this study, we researched the characteristics of the advice networks of 23 preservice teachers preparing for the basic skills teacher licensure exam in the United States, the most test-intensive country for teacher certification. Advice networks include the people whom an individual reaches out to regarding a particular problem or issue. In particular, we examined the web of relationships that participants had that provided them advice and information regarding teacher licensure exams. We analyzed the ways in which advice networks related to preservice teachers' persistence in exam preparation and their success or failure in passing the exams.

Thus our main research question was as follows: How does social capital function in preparing preservice teachers for the licensure exam? Our subquestions were the following: What are the characteristics of preservice teachers' licensure exam advice networks as the preservice teachers prepare for the licensure exam? Is there a relationship between any particular structural network characteristics and the pass rates and/or persistence in completing the exam for entry into their programs?

We employed a mixed methods approach to the study, which incorporated the use of social network analysis to analyze the characteristics of the structures and people in participants' licensure exam advice networks. This research occurred in the fourth year of a longitudinal study of the experiences of U.S. preservice teachers preparing for and taking a teacher licensure exam. In previous studies, our primary focus was on the racialized experience of test takers and the influence of identity on test preparation and outcomes. Our findings from Years 1–3 indicate that race is a salient aspect of preservice teachers' exam experiences (Petchauer, 2013, 2014) and that the experiences of fellow program members factor into test takers' self-efficacy beliefs (Petchauer, in press). Thus we were also conscious of these issues while we analyzed data for this study.

Our findings offer insights into the advice network trends of preservice teachers in a variety of contexts and the relationship between networks, study persistence, and exam success. Critical self-awareness and reception to messages from network members were important factors in exam success and persistence. Furthermore, the study provides a complex picture of persistence in exam study and identifies the roles of institutional structures in cultivating norms of persistence and collective support, particularly for racially marginalized students. The outcomes of this study offer implications for future research frameworks and for how institutions under similar professional testing mandates can support preservice teacher preparation for licensure exams.

## **Background Literature and Conceptual Frameworks**

### ***Teacher Licensure Exams in the United States***

Since the competency movement of the 1980s, policy makers in the United States have sought to link teacher quality to paper-and-pencil licensure exams. This movement began with a focus on knowledge of teaching and teaching content as capstone requirements. It then grew to include “basic skills” in reading, mathematical computation, and writing as requisites for candidacy (i.e., program admission). Today, 41 U.S. states require students to pass a basic skills test before admittance into a teacher education program (Petchauer, 2012). As noted earlier, the position of licensure exams as quality filters is not limited to the United States. Increasingly, countries around the world have come to rely on exams as mechanisms to ensure and increase teacher quality (Wang, Coleman, Coley, & Phelps, 2003).

These exams and their role as gatekeepers affect all students who wish to become teachers. Like other high-stakes standardized exams, however, licensure exams have been criticized for their mediating effect on the quality and diversity of “qualified” candidates due to their limitations in measuring pedagogical skills of candidates and the influence of social factors, such as race and identity, on outcomes (Akiba, LeTendre, & Scribner, 2007; Gitomer et al., 2011; Tyler, 2011). A key study by ETS, which makes and administers the most widely used licensure exam series, Praxis, signals the relationship between race and this gatekeeper. Analyzing data from more than 77,000 first-time test takers between 2005 and 2009, Nettles et al. (2011) found that significant gaps exist between Black and White test takers on all portions of the basic skills exam. Findings from qualitative studies on this topic further unpack this quantitative finding. Bennett et al. (2006) found that Black and Latino/a students who pass the exam typically see fewer obstacles, seek out study opportunities more often, and experience phenomena such as stereotype threat less often compared to Black and Latino/a test takers who do not pass. In previous stages of our study, Petchauer (2014) found that the comprehensive test event can become a racialized experience with identity threats for some Black test takers because of interactions with proctors and other test takers and because of the technical means of test administration (Petchauer, 2013).

Overall, the picture that emerges from this small body of literature is that performance on licensure exams concerns much more than simply demonstrating content knowledge during a test session; social factors such as race and identity can have an impact on outcomes. Yet, there are still questions as to how these social factors influence outcomes. For example, where do the social messages that influence identity threats come from? Can we see patterns in types of messages or forms of support in the social circles test takers inhabit? In this study, we use social network theory as a lens to understand the ways in which social interactions may shape test-taking experiences and outcomes.

**Social Network Theory**

In examining the dynamics of networks, we are able to trace ways in which messages, ideas, and information (social capital) about the exams travel through webs of relationships and influence test takers. Our conceptual framework, *social network theory*, centers on how social capital operates (Adler & Kwon, 2002; Anheier, Gerhards, & Romo, 1995; Portes, 1998). Social networks are complex, multilayered, and dynamic systems that can prove difficult to quantify. However, social network scholars have identified several key principles that appear to hold relatively constant across multiple studies. One principle is based on Granovetter's (1973) "strength of weak ties" argument that networks that are open (few links among network members) and diverse (individuals come from various communities or demographic backgrounds) provide higher levels of new information and spur innovation (both forms of social capital; see also Burt, 2001). Examples of this phenomenon are often referenced to business organizations' efforts to stay innovative and competitive. For example, Hansen's (1999) study of 41 technology companies working to create new products found that companies whose weakly tied subunits exchanged less redundant information innovated more quickly than companies whose units stayed isolated.

Another principle is that closed (densely connected) networks provide high levels of trust and stability (Lin, 1999), which is another form of social capital that is sometimes referred to as *collective social capital* (Baker-Doyle, 2011). An individual or organization harnessing this type of social capital can be seen in community organizing work when organizers work to gain power by developing a densely connected network of community members. Although weak ties have been lauded for their ability to foster innovation, strong ties are not irrelevant in social networks; previous research has shown that strong ties can provide a sense of stability and are more motivated for assistance (Granovetter, 1983). Krackhardt and Stern (1988) noted that strong ties are especially important for organizations when they are trying to handle a crisis. Although these principles seem somewhat contradictory, they make sense when we consider that social capital can exist in various forms. Thus one must consider the *form* of social capital that an individual or group would like to nurture before developing particular networking strategies.

Even though there are few studies on preservice teacher networks, there is a growing body of research on teacher networks (Daly, 2010). Social networks have been found to be an important aspect of how teachers develop professionally and use curricula (Coburn, 2005; Coburn, Choi, & Mata, 2010; Rienties & Kinchin, 2014), develop leadership capacity (Friedkin & Slater, 1994; Spillane, Halverson, & Diamond, 2004), innovate in their practices (Frank, Zhao, & Borman, 2004; Moolenaar & Slegers, 2010), participate in school reform (Daly, Moolenaar, Bolivar, & Burke, 2010), and support student achievement (Pil & Leana, 2009). Baker-Doyle's (2011) research on first-year teacher support networks found that

new teachers' support networks operated within social network theory principles: Teachers who built open, diverse support networks demonstrated higher levels of innovation in their practice, and teachers who developed closed, dense networks in their schools often reported high levels of comfort and security in their school communities. For the present study, social network theory directed us to understand how the characteristics of the ties between preservice teachers and their personal advice networks about the exam might relate to the preservice teachers' persistence in studying for the teacher licensure exam and exam success.

### **Persistence**

There is little research on students' persistence in exam preparation per se; the majority of research on student persistence has focused on persistence in college or on high school completion (Allen, 1999; Bean, 1985; Tinto, 1997). Persistence in these areas is generally defined as students' progress toward degree completion (in other words, whether a student graduates). The research base on persistence in college is quite vast. Such studies generally focus on the variety of complex social and organizational factors that influence persistence, and they highlight a strong connection between engagement and persistence (Braxton, Jones, Hirschy, & Hartley, 2008; Cabrera, Nora, & Castaneda, 1993). Yet the majority of these studies work to develop frameworks that identify what *causes or affects* persistence. Because most studies define the construct of persistence as an either—or dichotomy (a student either stays or leaves), few provide frameworks or definitions for what persistence looks like or how it is enacted (Horstmanshof & Zimitat, 2003; Tinto, 1988).

In our study context, preservice teachers were allowed to make multiple attempts to pass the teaching licensure exam and often engaged in various forms of preparation for the exam. As such, our definition of persistence had to be more dynamic than “stay or leave.” Thus, rather than using a dichotomous measure of persistence, we developed a scale of *engaged persistence*, measuring the preservice teachers' intellectual, temporal, procedural, and emotional energy in preparing for and committing to passing the exam (see Table 1). This framework allowed us to examine what persistence looked like across these categories and how the various categories of persistence related to networking characteristics and exam success. Here we do not assume that persistence invariably leads to passing the exam; students could have a high level of persistence yet still fail the exam. Conversely, some students can have a lower level of persistence and pass the exam. Our measure of engaged persistence is meant to examine a student's effort, engagement, and commitment to passing the exam.

We drew from research on student engagement, commitment, and persistence to develop our engaged persistence framework. We were influenced by Rosen's (2014) integrative concept of engagement–commitment as the temporal, emotional, social, and intellectual “space” that individuals apportion to a project or identity in their

***Rumor Has It***

**Table 1**  
**Engaged Persistence Scale Rubric**

<i>Persistence</i>				
	<i>0 (very low)</i>	<i>1 (low)</i>	<i>2 (average)</i>	<i>3 (high)</i>
Procedural factors	No preexam planning or follow-up. Did not continue in program if not successful with exam the first time.	Minimal planning or follow-up. May have retaken the exam once.	Sought out information on how to pass successfully in advance. Followed suggested procedures. May have retaken exam 2–3 times.	Sought out information on how to pass successfully in advance from multiple sources. Followed suggested procedures. May have retaken the exam more than 3 times.
Intellectual factors	Little to no thought about preparing for exam.	Self-assesses ability to take exam.	Self-assesses ability to take exam and studies according to self-perceived	Self-assess ability to take exam and seeks out others' feedback. Creates a detailed study plan based on multiple factors and needs.
Temporal factors	Little to no time spent preparing for exam, studying, or reaching out to others.	Little advanced study or planning; examples include looking at exam Web site or chatting with peers before test.	Minor part of study routine in college studies and/or somewhat consistent study according to needs.	Major part of routine in college studies and/or consistent study according to needs.
Emotional factors	Neutral or nonevident emotions about exam.	Some generalized feelings about the exam; no impact on day-to-day activities or behavior.	Feelings about the exam motivate planning and study.	Emotions strongly emphasize reaching study goals and exam success and/or impact day-to-day emotional state

lives. Rosen argued that the degree to which a project “takes up” space in each of these realms can indicate a student’s commitment to and engagement in the task. From this broad concept, we identified four areas that are frequently identified in literature on student engagement and persistence: procedural (following guidelines, doing what is required to move forward), intellectual (self-assessing needs and the academic effort made to meet needs), emotional (a socioemotional intent to persist), and temporal (the amount of time dedicated to meeting needs).

The first category, procedural, was influenced primarily by literature on student engagement. Although cognitive and affective engagement have been well-researched concepts in this field (Nystrand & Gamoran, 1990), Woodward and Munns (2003) have suggested that another important aspect of engagement is students’ attention to completing procedures efficiently and effectively (which they call *operative engagement*). There are a number of recommended ways to prepare for teacher licensure exams, including researching test sites and dates, registering for a test, locating study materials, taking practice exams, preparing financially, and, if necessary, completing paperwork for special testing accommodations. Preservice teachers’ attention and engagement in such recommended tasks represent a procedural engagement and persistence toward successful completion of their exams.

The intellectual category draws from a range of frameworks that consider academic engagement or success as factors contributing to persistence in college (Astin, 1984; Bean, 1982; Cabrera, Nora, & Castaneda, 1993; Metz, 2004; Tinto, 1993). Such frameworks typically include academic and social engagement as key factors influencing persistence. Yet several studies have differentiated between learning goals and performance goals in academic persistence literature (Dweck, 2006; Miller et al., 1996). Learning goals focus on developing understandings required for meeting academic competencies. Performance goals aim to reach specific quantitative standards, such as getting a particular grade in a course or on a test. Miller et al. (1996) found that student persistence is highest when students have strong commitment to learning goals versus performance goals. Taking these findings into consideration for our framework, we identified “intellectual” engagement–persistence as a measure of students’ reflection upon their cognitive needs and their efforts made in meeting those specific needs.

As mentioned previously, social-emotional factors have also been found to play a major role in student persistence. Similarly, in commitment literature, an overriding theme is psychological attachment to an organization or goal (O’Reilly & Chatman, 1986; Strauss & Volkwein, 2004). Furthermore, there is extensive literature on the concepts of self-efficacy as it relates to emotional engagement and persistence in academic tasks or school (Bandura, 1997). These bodies of literature, as well as literature on goal orientation (Dweck, 2006), contributed to our conceptualization of the emotional category in the engaged persistence framework. In this category, we considered the emotional energy or “space” in a preservice teacher’s affective domain dedicated to exam goals. In looking at qualitative data, we considered the

degree to which the exam played a role in preservice teachers' socioemotional lives, ranging from an insignificant task to a goal that deeply affected emotional state and sense of self.

Finally, the last category in our framework, temporal, measures the amount of time in students' lives that they dedicate to studying and preparing for the exams, according to their perceived needs. The temporal factor is a measure of investment, as in how much time students devote to exam preparation within their personal schedules of responsibilities and interests. Several scholars have examined persistence from the perspective of investment theory (Okun, Ruehlman, & Karoly, 1991; Rusbult, Drigotas, & Verette, 1994). In Okun et al.'s (1991) study on student persistence in college, investment was highly correlated to student intent. Thus the temporal measure offers an additional factor contributing to our view of the students' goals and intentions in preparing for the exam.

## **Study Description**

### **Context**

Participants in this study were from preservice teacher populations at Douglass College and Park University, two public universities in the U.S. Northeast. We use pseudonyms throughout this article for all proper nouns. Working with two institutions allowed us to compare social networking practices in different contexts; we could examine whether there were particular networking practices or structures that were consistent across institutions and how contextual factors may have influenced networking behavior. In total, our study consisted of 23 participants, 9 from Park University and 14 from Douglass College (see Table 2).

Douglass College was an Historically Black College/University (HBCU) with an enrollment of approximately 2,400 students. At Douglass College, students had the opportunity to participate in a weekly exam preparation workshop led by Petchauer (attendance was voluntary). The majority of students in the sample were Black (92%),<sup>2</sup> which roughly represented the demographics of the college. Park University was a satellite campus of a public university with approximately 3,000 students. Park University did not provide any formal preparation support, and 77% of students in the sample were White, which also reflected school demographics. At both institutions, preservice teachers were required to pass the basic skills exam to enter the education major. Neither institution put a limit on the number of times a student could attempt to pass the exam.

### **Methods**

Our research occurred during Year 4 of a longitudinal study on preservice teachers' experiences taking licensure exams. In Years 1–3 (see Petchauer, 2013, 2014, in press), data were primarily qualitative, following the methodologies of previous

studies on this topic (Bennett et al., 2006; Graham, 2013). In this study, conducted in Year 4, we adopted a mixed methods approach to data collection and analysis, adding social network analysis to our qualitative methodologies. Furthermore, we expanded our research sites from one school (Douglass College) to two (Douglass and Park University).

To conduct social network analysis, we collected quantitative social network data by distributing an ego-centric sociometric survey to participants, a typical approach for gathering data on ego-networks (Daly, 2010). The sociometric survey asked participants to identify the individuals (network members) they sought for advice and information about the licensure exam and to describe network members' interactions, connections, and backgrounds.

We collected qualitative data in a similar fashion as we did in Years 1–3: through focus group interviews, seven in total, within 2 weeks after students took the exam. Modifying the interview protocol from Bennett et al. (2006), we asked participants to describe their feelings about the licensure exam, how they prepared for the exam, and their experiences taking the exam. We followed up with participants 6 months after the interviews to learn their exam results and related enrollment status in the program.

Because we had a relatively small sample, we used the quantitative social network data to give us a general picture of network characteristics and highlight trends or relationships between factors that could direct us in our analysis of the qualitative data. We conducted simple descriptive quantitative data analysis and Pearson correlations using SPSS software to look for relationships between these factors and pass–fail rates and persistence. Because we know from prior research

---

**Table 2**  
***Participant Demographics***

---

	<i>Number of participants</i>
Gender	
Male	3
Female	20
Race/ethnicity	
Black	14
White	8
Hispanic	1
School	
Park University	9
Douglass University	14
Age (years)	
18–24	21
25–39	1
+40	1

---

that race relates to testing outcomes (Gitomer et al., 2011; Nettles et al., 2011), we also conducted partial correlation calculations holding for participants' race/ethnicity. We coded qualitative data deductively based on social network attributes (network size, advice/information from network members, network density, frequency of communication, and general characteristics of networks and network members) and the engaged persistence framework. Furthermore, we took an inductive approach to examining participants' feelings taking and preparing for the exam, with a focus on themes that related to network characteristics and engaged persistence.

We coded participants' engaged persistence in two ways. First, we deductively coded interviews for participants' statements that indicated practices related to engaged persistence using a weighted coding scale. For example, when one participant, Joshua, stated, "I only studied for about 4 hours tops," this statement was coded as low (1) for the temporal factor, because it was not a major aspect of his academic study. The weighted framework provided qualitative information on the persistence practices as well as information about the frequency of factors reported within and across participants.

Second, we used a holistic scoring approach to coding participant engaged persistence. We developed profiles for each participant based on the four dimensions of the framework and ranked their engaged persistence in each category toward a single rank that indicated their engaged persistence level. For example, our profile of Destiny revealed that she self-assessed her study needs, sought out information required for exam preparation, and allotted a significant amount of time in her study schedule to meet her needs. In addition to allotting herself time to study, she was emotionally invested; her drive to succeed in the test affected her daily emotions. Thus Destiny received the highest ranking in the framework (3) as her holistic rank. We checked this ranking against our weighted qualitative coding findings as a validity check and used the holistic ranking for quantitative analysis.

As a final stage of analysis, we looked for patterns in the survey data and how these patterns related to qualitative interview data. To illustrate what these networks and findings look like in the lives of students, we then selected four cases (two from each institution) that represented the range of exam success and persistence outcomes. Our findings section discusses general patterns in quantitative and qualitative data and then provides snapshots of each case.

## **Findings**

In this section, we share findings from our social network analysis and our qualitative data. We organize our findings into three subsections. The first two subsections primarily report on the major social network analysis patterns and relationships found between network data and exam persistence and passing rates. These two sections set the stage for the third section, a more holistic reporting of the data through case descriptions of four individuals. The four cases represent a

range of high–low persistence and pass–fail cases and demonstrate how many of the patterns revealed in the quantitative data functioned in participants’ lives.

### **Network Characteristics and Exam Success**

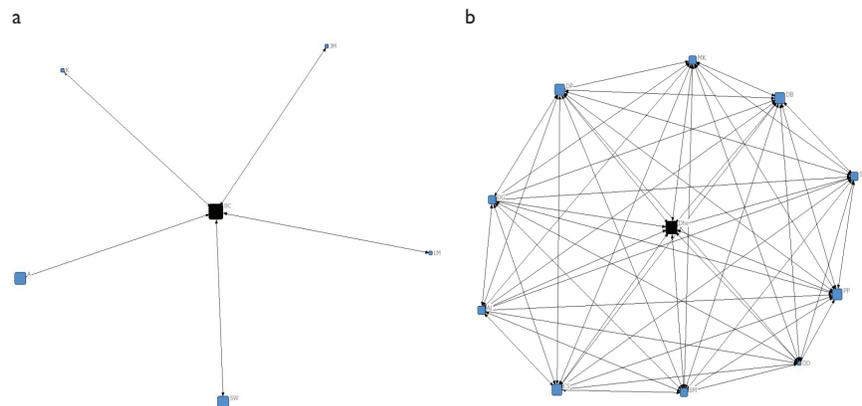
She was in my corner the whole time . . . having someone that passed to talk to me, it was just like “OK.” It grounded me. (Bernice, student at Douglass College)

Participants displayed a wide range of network characteristics, having from 3 to 10 people in their networks with a mean size of 5.39. Table 3 displays general descriptive data of participant networks. Figure 1 visually illustrates the range of advice network structures we found. In the sociometric survey data, there was a statistically significant negative correlation between passing the exam and tie strength as well as frequency of communication (see Table 4).<sup>3</sup> In other words, according to the quantitative data, participants with stronger ties (closer relationships) and more frequent communication with members in their networks were more likely to fail the exam. Conversely, participants with weaker ties (more distant relationships) and less frequent communication with members of their networks were more likely to pass the exam. The qualitative data helped explain these trends. First, it was clear that the test preparation seminar in which many students at Douglass College voluntarily participated shaped their network characteristics by giving them strong ties with one another. This may have skewed the correlation between tie strength and pass–fail exam data; that is, students with the greatest needs may have chosen to participate in the preparation seminar, and there they built close ties as a cohort. Thus close ties

**Figure 1**

**Examples of exam advice networks:**

(a) network members = 5 (average size), density = .33 (low); (b) network members = 10 (large), density = 1 (high). Size of node indicates tie strength. Number of network members excludes participant (black node).



### *Rumor Has It*

(among presumably less academically prepared students) related significantly to failing the exam. Despite the role that the seminar played in some students' networks, other patterns appeared that offered further explanation of why weak ties might be associated with exam success, as described in the following subsections.

***Tie strength and advice.*** The first pattern was in the characteristics of advice that the participants received from their weak or strong ties and in the weight they gave to this advice. Participants who passed the exam and displayed a higher number of weak ties in their networks spoke of how they tended not to trust or take too seriously the opinions of individuals in their networks to whom they were not close. For example, one participant (Bernice) noted that she had heard about how difficult the exam was "from people that probably didn't study" and therefore did not fully trust their opinions. Another student (Shana) agreed that she dismissed many of the naysayers in her class who said, "That's such a hard test, it's so scary, expect to take it multiple times," and that she did not feel much social pressure. The survey findings regarding the relationship between frequency of communication and exam success were related to this attitude of ignoring "the crowd." Destiny explained this phenomenon: "I think that people get influenced by others—that's why I don't like talking about [the exam] and stuff with everyone else . . . because they always talk about . . . what they gonna do and then that just gets everyone amped up."

Participants who passed the exam did take task-specific advice seriously from weakly tied network members. Examples of this advice-seeking behavior included asking where to get practice exam materials; asking for help or advice on specific aspects of the exam, such as math content; and asking about best times to register and study for the exam. For successful students, weak ties tended to be a good source of explicit information yet were less reliable in terms of opinion-oriented advice that was highly subjective due to individual differences.

Conversely, students who were not successful in passing the exam and who had many strong ties in their networks often spoke about how they valued the

**Table 3**  
**General Network Characteristics**

	<i>M</i>	<i>SD</i>
Network size	5.39	2.426
Network gender diversity	0.658	0.253
Network race diversity	1.83	0.576
Average tie strength	3.935	0.558
Average frequency of communication	2.57	1.12
Network density	0.47743	0.277

Note. *N* = 23. Gender diversity indicates ratio of men to women in a network, where 0.5 = 1:1. Race diversity indicates the degree to which a network is racially diverse, where 1 = no diversity (all one race), 2 = up to 50% of one race, and 3 = less than 50% of one race. Tie strength and frequency of communication are on a scale of 1–5. Density of network ranges from 0 to 1.

opinions of other people in their networks and how these opinions had an impact on their test-taking perspectives and experiences. Although there were certainly cases of strong ties breeding negative perspectives about the test, in several cases, the presence of positive support from strong ties cultivated a faith that one would pass the exam but did not necessarily lead to targeted acts of preparation. Patricia recalled how her friends supported her belief that she would pass:

Me and Tammy were talking about it the other day. . . . I still have faith in the back of my head I'm going to pass it. . . . So like, that's my mission. So it's like, in the back of my head, I get discouraged, I'm human, but I have faith that I'm going to pass it.

In such an instance, Patricia's close tie with Tammy (another participant who struggled with the exam) provided her with opportunities to discuss her "faith" to pass. Yet Patricia made few changes to her study routine after failing the math portion of the exam. The close tie with Tammy was a means to discuss her "faith" to pass, but it was not a means for resources or information that might help her to pass.

***Tie strength and social pressure.*** Another pattern among participants with strong ties in their networks was the influence of social pressure from expectations on their outlook and exam experience. Tammy described her experience taking the exam and how much the expectations of her friends and family weighed on her throughout the test:

I knew when I was taking it, I was like, "This is not going to work in my favor today." Now I have to go home and I have to tell it to my husband, and I have to

**Table 4**  
**Network Characteristics and Exam Success**

		Passing
Network race diversity	Pearson correlation	-.543**
	Sig. (1-tailed)	.004
	N	23
Tie strength	Pearson correlation	-.524**
	Sig. (1-tailed)	.005
	N	23
Frequency of communication	Pearson correlation	-.464*
	Sig. (1-tailed)	.013
	N	23
Network race diversity (controlling for participant race)	Pearson correlation	-.335
	Sig. (1-tailed)	.064
	Df	20

\* $p < .05$ . \*\* $p < .01$ .

### *Rumor Has It*

---

come here and tell it to my peers, and I have to go to bed with it at night. I know that . . . here we are again.

In the same vein, Wayland reflected on how important it felt not to let down his professor (with whom he had a strong tie) while he was taking the exam: “I was thinking like in the midst of the test, I couldn’t let you down. Because like I said, you taking time out to help us, so I had to keep that in mind.”

**Network racial diversity.** Finally, we did find one major statistical difference in the relationships between network characteristics and exam success in terms of race. When we did not control for race, network diversity (the degree to which a particular race/ethnicity was dominant in a participant’s network) had a significant negative correlation with exam success. This means that more racially homogeneous networks were associated with exam failure and that more diverse networks were associated with success. However, when we held for race, the significance of this correlation disappeared. Given this finding, race is likely a proxy for other factors, such as level of preparedness across the two racially homogenous campuses of Douglass College and Park University in this case. This interpretation is also supported by our qualitative data and research in previous stages of the project. Prior to this study, we studied two previous cohorts of students and found that considerations about race were a salient part of the test event for some Black test takers (Petchauer, 2013, 2014). However, in this stage of the study, direct attention to race was not present in qualitative data; that is, we found no evidence that participants gave attention to the racial identification of their network members.

### **Network Characteristics and Persistence**

I always believe in persistence. Persistence is what gets me through everything. I have to be persistent to get what I want. (Jasmine, student at Douglass College)

In looking more closely at persistence, we observed trends that were more sophisticated than a simple pass–fail distinction. As mentioned previously, our engaged persistence measure examined the energy and commitment participants devoted to exam preparation to meet their academic needs across four categories: procedural, intellectual, emotional, and temporal. Upon initial analysis of survey data, we found a statistically significant negative association between network gender diversity and persistence. In other words, students with less gender diversity in their networks were less likely to pass the exam. Yet, controlling for race as a factor, this significance disappeared and other factors surfaced, such as network size, density, and encouragement from network members (Table 5). Although not statistically significant, there were strong positive correlations between engaged persistence and network density, exam success, and network confidence. Hence network characteristics that related to persistence looked slightly different than those that related directly to exam success; density, or the degree to which members in

a network had ties to each other, and network size played key roles in participants' persistence levels. Furthermore, persistence had a positive relationship with exam success. In the following, we describe some of these relationships in detail.

**Network confidence and institutional support.** The impact of network confidence (the degree to which individuals in a network believe the participant can pass the exam) on persistence levels was observed frequently in the qualitative data. For example, Destiny, who demonstrated high levels of persistence, described how a friend pushed her to prepare for and take the exam, giving her confidence to keep going, even after failing once: "She was on me, she was like, 'You got to take it this year, you got take it, you got to take it!'" Tammy, another participant with high persistence levels, was acutely aware of the positive support she received from her relatives, who would call to wish her luck before she took any exam.

We also considered the relationship between institutional support and the network characteristics in relationship to persistence. Looking generally at the persistence statistics, we saw that students at Douglass College tended to have higher levels of persistence than students at Park University (Douglass students averaged 1.92

**Table 5**  
**Network Characteristics and Persistence**

		<i>Persistence</i>
Network size <sup>a</sup>	Correlation	-.284
	Significance (1-tailed)	.100
	Df	20
Network density <sup>a</sup>	Correlation	.215
	Significance (1-tailed)	.168
	Df	20
Network confidence <sup>a</sup>	Correlation	.028
	Significance (1-tailed)	.451
	Df	20
Exam success <sup>a</sup>	Correlation	.388
	Significance (1-tailed)	.037
	Df	20
Network gender diversity <sup>a</sup>	Correlation	-.312
	Significance (1-tailed)	.079
	Df	20
Network gender diversity	Pearson correlation	.446
	Significance (1-tailed)	.016
	N	23

<sup>a</sup>Controlling for participant race.

### *Rumor Has It*

---

on the persistence scale, whereas Park students averaged 1.44). This finding may have been an effect from the test preparation seminar at Douglass College, which all but two of the Douglass participants attended. In this way, a centralized means of preparation available to test takers helped them to persist, whereas students at Park University did not have a similar means of preparation available to them. This interpretation coincides with findings from other stages of this study in which participating in preparation seminars reduced anxiety and negative affective states for Black test takers and increased positive affective states for them as well (see Petchauer & Baker-Doyle, 2014).

**Network density.** In the case of the density factor, the qualitative data revealed that the test preparation seminar played an even more prominent role in the association between persistence and network characteristics. Almost all participants who reported a high level of persistence and had medium to high (greater than .30) network density referred to the role of the preparation seminar (i.e., the “cohort”). The seminar provided a regular time and space for participants to prepare for the exam. Furthermore, students in the Douglass cohort exhibited a different sense of expectation than students at Park University. For example, Bernice, a student at Douglass College, described students who did a minimal amount of studying for the exam as “slackers,” whereas Patricia, a Park University student, noted that most people at her school considered exam registration as the primary form of preparation for the exam. As in previous research on density in social networks (Adler & Kwon, 2002; Moolenaar, Daly, & Slegers, 2011), the greater number of shared ties between individuals in the seminar cohort reinforced a shared set of norms and practices.

### **Cases Across the Spectrum**

In addition to looking across qualitative data for trends that could help to explain quantitative patterns, we also examined the characteristics of participants on an individual basis in regard to their networking behaviors and their exam experiences. Here we report on four cases that represent the different ends of each spectrum of the measures we used to compare outcomes: low–high persistence and passing–failing the exam. In presenting these four cases, our goal is to represent how vastly different networks can look for preservice teachers preparing for exams with regard to characteristics, testing and/or persistence outcomes, and several other factors that affected these relationships, including awareness of academic need and reception to support or advice.

**Ruby: Low persistence, exam failure.** Ruby was a Black female student at Douglass College. She had a large network with nine members and a high level of strong ties among network members (see Figure 2). About half of her network members were a cluster of students in the preparation seminar, and the other half were family members, some of whom also took the exam while pursuing the field

of teaching as well. Ruby felt pressured by family members to pass the test due to financial concerns yet did not receive positive support or models from them. Ruby's sister had taken the exam and did not pass it. She recalled her brother's response to the fact that she would soon take the exam as well:

Yeah, two years ago [my sister took it], and it was my brother who paid for [my sister], and I remember 'cause like when she got the grade, the test scores back, she didn't do well. And so my brother's like, "Dang, I just spent like \$160 for you and stuff." . . . So like when I told my brother I was taking it, he's like, "I'm not paying for it 'cause J failed and stuff." . . . And my sister, she was kind of bummed out about it so she like changed her major, she didn't become a teacher. (Ruby, focus group interview)

Like her sister, Ruby did not intend to continue taking the exam if she failed repeatedly. She noted,

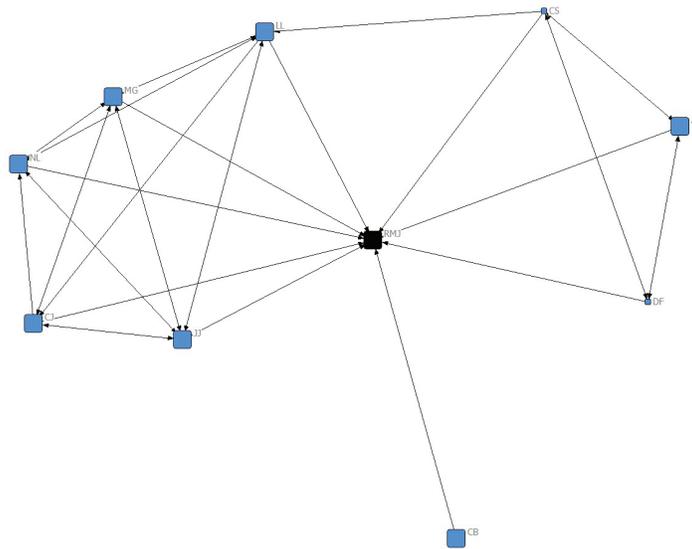
I'll keep going until a certain limit. Like I'll take it one more time and if it's not, I'll take it another time, probably three times, that's it.

Ruby did not feel that it was possible to study for a standardized test such as the Praxis exam because the subjects are too broad. She noted,

You can't prepare. . . . Like say if we have a math test it's just going to cover Pythagorean theorem. Then I can prepare for just the Pythagorean theorem . . . it's

---

**Figure 2**  
**Ruby Network Map**



### *Rumor Has It*

---

just like so broad and you can't get into detail about what you have to be prepared.  
So it's just like you can't be prepared.

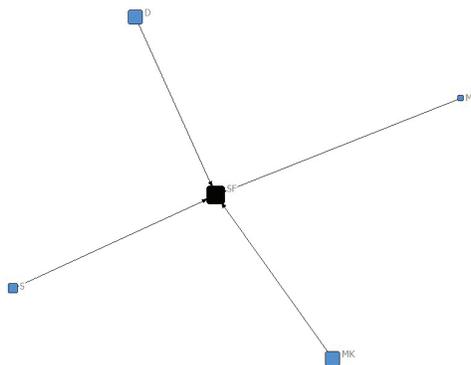
She felt that studying would help you know what the exam “was like” but could not help to increase a test taker’s score. She also felt certain finality to the exam, mistakenly believing that a low score stuck with her even if she retook it. Ruby took the exam but did not pass. She had planned on taking it again but had not done so before the end of this study.

**Stephanie: Low persistence, exam success.** Stephanie was a White female student from Park University. There were four individuals in her support network, yet none knew each other, indicating an extremely low network density (see Figure 3). Furthermore, the individuals in her network ranged from family members to work colleagues to friends; there was a low level of homophily in her network. Stephanie was very aware of her academic needs and sought out particular people for advice. She felt that she was not strong at math, so she asked colleagues and friends who had taken the test previously about strategies for the math section. Yet, beyond such networking, Stephanie did not spend time studying for the exam. She felt that although one could study for a standardized test, a major aspect of exam success was test wiseness: Knowing how the test worked and particular test-taking strategies, such as timing, were more helpful than content knowledge. She passed the exam the first time she took it.

**Destiny: High persistence, exam success.** Destiny was a Black female student at Douglass College. Her network was diverse and balanced between the strong ties she developed with preparation seminar members and weaker, less dense ties she developed outside of her central group of friends (see Figure 4). She was critically

---

**Figure 3**  
**Stephanie Network Map**



aware of the opinions of others in her cohort and sought information to help her pass the exam rather than opinions, particularly negative opinions. In the following, she describes the difference between the approach of her friend Rose, who was heavily influenced by others' opinions, and her own approach:

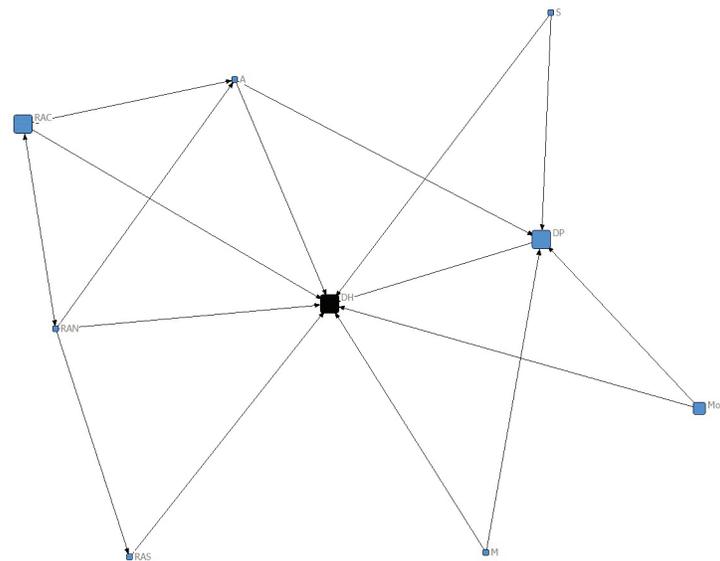
Rose for instance, she listens to what other people say like, if someone said they took the test, she'd be like, "Was it easy, was it hard?" And I'm like, "You're different from them. I don't think you should listen to what—" Like, I don't listen to what other people say when they say that the computer [test] is harder, or the thing is harder—'cause I know I'm different so I'm not going to necessarily think that's going to be harder than that.

Destiny also indicated a strong awareness of her needs as a learner and a belief that it was possible to study for the test, particularly by learning specific test-taking strategies and practicing them by simulating the timed, high-pressure test setting. Overall, Destiny repeatedly discussed her determination to become a teacher, no matter what challenges lay ahead. "I gotta do what I gotta do" was her mantra to herself as she prepared for and went in to take the test. After three attempts, Destiny increased her scores by 10 points and passed the exam to continue on in the education major.

*Tammy: High persistence, exam failure.* Tammy was a White second-career preservice teacher at Park University. Her network was very densely connected, with

---

**Figure 4**  
**Destiny Network Map**



### *Rumor Has It*

---

strong ties; it was mainly family and friends (see Figure 5). Tammy relied heavily on the opinions and beliefs of others about the test to prepare. She conducted an informal survey of classmates to learn about their opinions about the difficulty of the test and even tried analyzing their responses for gender differences. She spent long hours discussing the impact of the test on her career with those in her network. Despite her conversations with others, she was unclear as to how to specifically prepare for her needs. She described what she knew about how to take the test:

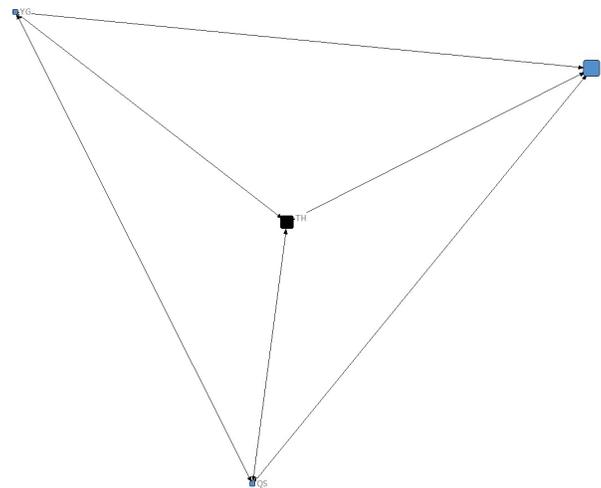
I do think there's a trick. You have to know how to take a test. There's a method—I don't know it. [laughs] I'm still struggling to learn the method myself. There is, there's a way to take them. And I just don't know the trick. And I never did. You know, here I am 42 years later, I've taken tests for a long time, and I still don't really get the method.

Tammy struggled specifically with the math portion of the exam and stated that she had learned math 20 years previously and was not aware of some of the new approaches and terminology used in the test.

Tammy made a detailed study plan, sought out a tutor, and studied with him twice a week. However, she was being pulled in many directions at once, as a wife, mother, and student, and often found it difficult to balance her responsibilities with study time. She was under a lot of pressure to pass the exam from her family because of the financial expenditures she had had to make to return to school. Despite the time and effort that Tammy put into her exam preparation, she also had to identify an alternative career pathway owing to these pressures. She explained her plan and predicament:

---

**Figure 5**  
**Tammy Network Map**



I definitely will do something different because I can't really—I don't know how I—I can't really stay. You know, I have to get this done. I'm running out of time. Like I said, my age is against me. My age is against me, and the amount of debt I'm accumulating because I'm paying for—my husband and I are paying for every drop of this. I get nothing. So I've already, and here again, I'm already into this. I'm already into this for a lot of money. You know, and now here I am all the way down the line, and I can't fulfill my dream because of one math test. Just one. So it's kind of like, you know, I'm there. But this is going to really box me up, so if I don't pass this I'll try to take it again in November, I'll pray for a miracle, I'll do more tutoring. I'll go back, I'll certainly do my tutoring again, but I'm at a real crossroads.

Tammy spent many hours studying and taking practice exams but was unable to pass the math test after three attempts and dropped out of the education major at the school.

*Patterns across the cases.* Across these four cases, several themes are apparent. The first theme is how participants sought out and responded to advice in their networks. Students who passed the exam successfully sought out specific information relevant to their individual needs and employed a critical filter to others' opinions of the test. Network members with strong ties had a greater influence on participants' emotional and sometimes practical (i.e., financial) considerations of the test. Network members with weak ties were more likely to provide specific information to participants. This theme was also relevant to participant persistence. Participants who were highly persistent sought out positive emotional support from their strong ties.

A second theme evident through the case studies is participants' awareness of their needs as learners and their perspectives on the way to prepare for the exam. Participants who passed the exam talked about particular needs they had and believed it was possible to study and improve. Participants who did not pass the exam seemed unaware or at a loss about how to study or believed that there were "tricks" to passing. Participants with high levels of persistence believed they could keep trying and improve; participants with low persistence did not consider high levels of improvement possible.

A third theme was network diversity and balancing strong and weak ties. Participants who had strong ties and high levels of network homophily did not have access to a variety of information and perspectives on the exam. Furthermore, a lack of balance in either of these areas seemed to limit the participants' ability to develop a critical perspective of the test and/or others' opinions of the test.

The institutional organizations played a role in shaping students' access to support and network development. Students at Park University had no formal structures for support and had to seek help and make a plan of study on their own. Students were simply e-mailed a message that passing scores were required by a certain date to enter the program. Thus high levels of engagement–persistence in studying

and planning for the test were outside the norm or not a recognizable element of the school culture. At Douglass College, students were offered the opportunity to participate in a test preparation seminar, and many chose to enroll upon recommendation from those in their social networks. Their regular focus and participation in the seminar raised the normative standards for engagement—persistence at their institution.

Related to institutional support was the issue of financial support and study resources. In some cases, financial pressures caused higher levels of anxiety, and in others, they disrupted students' ability to take the test. The institution had some role in facilitating access to resources, yet in many cases test cost was another barrier for students to surpass. The financial factor is a challenge to untangle when investigating engaged persistence, because it crosses many domains in our framework and can also operate as an external controlling factor.

## **Discussion**

The principles of social network theory provide a framework for understanding our findings. The survey data analysis reinforced and revealed the “strength of weak ties” principle of social network theory (Granovetter, 1983); participants with open networks and weak ties had access to outsider sources of information, which could offer new information to help participants prepare effectively for the exam. Furthermore, the data also showed the role of collective social capital in communities (Baker-Doyle, 2011; Lin, 1999); participants with denser networks had greater information redundancy in their advice networks yet higher levels of encouragement that supported persistence in exam preparation and engagement.

In addition to reinforcing well-known theories of social networks, our study also revealed interesting patterns relating participants' *reception* to information and resources and the relationship between reception and self-awareness. The key issue here is what filters individuals use in listening to members of their network and the degree to which they critically or strategically cultivate either their listening or their network to meet their needs. For example, Destiny, who had high levels of persistence and exam success, chose not to listen to individuals in her network who did not support her emotional needs. Furthermore, she cultivated a diverse network that offered her a multitude of perspectives and resources from which to choose. In contrast, Ruby, who had low levels of persistence and did not pass the exam, felt controlled by members of her network and listened to many of the negative and fearful opinions of the exam.

The identification of the role of reception in networks reveals several key understandings: (a) Opinions from strong ties are more difficult to ignore, and thus negative opinions from strong ties have a greater impact on perspectives; (b) self-awareness of one's needs (physical, intellectual, and socioemotional) is an important aspect of being able to filter and receive information from one's networks; and (c)

a balance of perspectives, from a diverse range of strong and weak ties, can offer individuals greater choice about from whom to receive information and support in their networks. These understandings carry implications for how to support preservice teachers in preparing for the exam from a network perspective as well as broader implications for learners in general.

The findings on reception relate to social network theory research on what Balkundi and Kilduff (2006) call *network cognitions*, or how individuals perceive their networks. There is a body of literature on cognitive network theory, which focuses mainly on how individuals' awareness of their networks and their understanding of how networks function shape their access to social capital (Kilduff & Krackhardt, 2008). Furthermore, Baker-Doyle (2010) identified a related concept, *expertise transparency*, which connotes the degree to which an individual knows or understands the expertise that individuals in his or her network hold. Yet little is known about how individuals *choose* to engage with or react to others that exist in their networks, and this concept opens possibility for further exploration.

Our study revealed new understandings about how networks function; furthermore, we developed insights into how persistence, or engaged persistence, behaves and relates to social and academic factors. We found that high levels of engaged persistence often appear as instances in which participants were reflective about their needs, deliberate in their planning, and determined that they would meet their goals, despite obstacles. Yet, on their own, these factors did not support persistence well; they were most effective in combination. For example, several students were determined to meet their goals yet did not have a clear sense of their needs and did not plan accordingly; they lived on hope and hope alone. Alternatively, some students were quite aware of their academic needs, yet this awareness produced anxiety and inaction rather than engagement and persistence.

Institutional structures and culture also had a clear impact on engaged persistence. Our study demonstrated that organizational features can have an impact on the expectations and culture of engagement. Planning for the exam, studying, and making space in one's personal schedule for test preparation was the norm for participants at Douglass College because of the high level of student involvement in the test preparation seminar. At Park University, the norm was simply to check the Web site for test dates and schedule an exam. The students who found a tutor or studied frequently were considered to be in academic trouble. Thus the institution played a role in setting the norms for engaged persistence through the opportunities it offered and the perceptions or expectations it had of the students. The institutions also influenced students' financial resources through their structural supports: Douglass students had access to study support through the cohort, whereas Park students needed to pay for their own tutors.

Racial identity appeared as a mediating factor in our statistical data, particularly in the area of persistence. However, race did not appear explicitly as a factor in our qualitative data. These findings raised additional questions for us, because previous

cohorts in Petchauer's (2013, 2014) research did show that considerations about race were a salient aspect of the testing experience for some Blacks. Although we did observe in the qualitative data that having a cohort, or strongly homophilous network, seemed to provide many Douglass participants with a sense of strong emotional support, we wondered if racial identity also played a role, because we saw some evidence in the statistical data. Might the students of color have sensed an additional kind of pressure from the gaze of others as to expectations for their academic performance and persistence? This is a question that we would like to pursue in future research.

### **Conclusion and Implications**

Our study investigated the social advice networks of preservice teachers at two U.S. institutions as they prepared for standardized basic skills exams for entry into their teacher education programs. In regard to social networks, our findings support two known principles of social network theory: the strength of weak ties to provide new information and the role of collective social capital to provide emotional support. Furthermore, we identified the key role of reception in networking behavior, which we define as the way in which an individual filters messages from network members. A high level of self-awareness and critical understanding of network structures and functioning (such as the heavy influence of strong ties) are required for an individual to use reception in a strategic manner.

The findings regarding reception have implications for scholarship as well as institutional programming and support. Social network scholars may consider not only who and what are being connected in a network but also how information, opinions, and resources are filtered by participants and the factors that influence their reception. As mentioned previously, though this concept speaks to literature in the realm of network cognition, there is still much work to do to understand the dynamics of reception, filters, and choice in networking. From a programmatic perspective, instructors and institutions that are interested in helping to prepare students for entry exams may consider helping students develop a stronger awareness of their needs as well as an understanding of how to filter messages from their networks and cultivate meaningful support networks. Similar work is currently being conducted by S. Van Waes (personal communication, January 2014; see also Van Waes, Van den Bossche, Moolenaar, De Maeyer, & Van Petegem, 2013), in which Van Waes and colleagues are training instructors in how to strategically develop support networks. However, in most cases, strategic network training is rare in educational contexts.

The engaged persistence framework allowed us to identify the relationships between network characteristics and formative actions rather than only using a summative pass-fail measure. Indeed, our findings reveal a great deal more complexity when we consider students' engaged persistence and highlight the role of institutional

structures in cultivating engaged persistence behaviors by providing opportunities to develop positive support communities with strong ties. Furthermore, our quantitative data reflect a higher level of persistence among students of color across the board. Recent findings on the “effort–outcome gap” (Greene, Marti, & McClenney, 2008) suggest that we need to recognize and describe the often higher levels of engaged persistence in students of color, alongside test score outcomes or grades.

The understandings revealed about social networks and persistence in this study intersect in the concept of critical awareness. The findings demonstrate that an awareness of one’s academic or emotional needs is the foundation for being strategic about networking or planning for study. These findings prompt the call for coaches and educators to provide opportunities for self-analysis of needs and goals and ongoing reflection and planning steps toward those goals. Such planning should not merely be academic but also social (i.e., strategic networking). In addition, institutions must develop a more critical awareness of the role of racial or ethnic identity in engagement and persistence and find ways to cultivate support *among* and *between* identity groups to foster a balance of emotional support and “outsider” information for students.

Through all the data presented here, it is clear that many more factors than academic preparation affect testing outcomes for teacher education students. An individual’s social network and his or her receptivity to those in his or her social network can play a major role in the individual’s study habits, self-efficacy, and access to resources. This finding is particularly significant in the context of teacher preparation because the licensure exams are the primary gatekeeping mechanism for individuals to become teachers in the United States. Our findings suggest that such high-stakes consequences may prevent potential teachers from entering the field for reasons not solely related to their academic ability.

Yet, even as this study provides evidence critiquing the effectiveness and fairness of the exams in controlling for teacher quality, the question remains, What can teacher educators do now? One problem this study raises that can be addressed is the lack of mentoring and support for potential preservice teachers during the first steps of their path into a teacher education program. The basic skills test is taken *before* a student enters a teacher education program, and thus, as with Park University, many teacher educators either are not aware of or do not have the opportunity to work with these students. The school or university can resolve this issue by providing more intensive institutional support, such as test preparation seminars or study groups, during the program entry process. Another issue that this study raises is the impact of financial stress on students’ ability to take or retake the exams. This, too, is an issue that institutions can address through need-based scholarships for exams.

Through this study, we learned that institutions affect the culture of preparation and study through the expectations and opportunities provided for students to study for the exam. Furthermore, we learned that the opportunities that institu-

## *Rumor Has It*

---

tions provide to students for group study can promote strong ties and networking among the participants. We posit that participants in such groups would benefit from explicit conversations about whom to seek out for support and the types or areas of support they need in addition to academic study support.

Finally, we believe that teacher educators and institutions can work on multiple levels to address the faults of the current teacher licensure exam system in the United States. In addition to providing timely support for potential students, teacher educators (in their roles as scholars) can collect and share stories such as the ones in this study to provide further data on the impact of testing on teacher preparation. Also, more research into alternative approaches to preservice teacher evaluation and licensing procedures (e.g., site-based qualitative assessments, which are the norm from an international perspective) could provide more effective and equitable models for cultivating a diverse and high-quality teacher workforce.

### **Notes**

<sup>1</sup> In this article, we refer to program entry and completion exams for teacher certification under the broad umbrella term of licensure exam. Our study focused on the U.S. program entry exam, which is a basic skills exam. This exam is considered the first step in the exam process toward teacher licensure.

<sup>2</sup> Participant demographics were self-reported through our sociometric survey.

<sup>3</sup> There was also a statistically significant negative correlation between network racial diversity and exam success; however, this correlation disappeared when we controlled for race.

### **References**

- Akiba, M., LeTendre, G. K., & Scribner, J. P. (2007). Teacher quality, opportunity gap, and national achievement in 46 countries. *Educational Researcher*, 36(7), 369–387.
- Adler, P. S., & Kwon, S.-W. (2002). Social capital: Prospects for a new concept. *Academy of Management Journal*, 27(1), 17–40.
- Allen, D. (1999). Desire to finish college: An empirical link between motivation and persistence. *Research in Higher Education*, 40(4), 461–485.
- Angrist, J. D., & Guryan, J. (2008). Does teacher testing raise teacher quality? Evidence from state certification requirements. *Economics of Education Review*, 27, 483–503.
- Anheier, H., Gerhards, J., & Romo, F. P. (1995). Forms of capital and social structure in cultural fields: Examining Bourdieu's social topography. *American Journal of Sociology*, 100(4), 859–903.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25(4), 297–308.
- Baker-Doyle, K. J. (2010). Making expertise transparent: Using technology to strengthen social networks in teacher professional development. In A. J. Daly (Ed.), *Social network theory and educational change* (pp. 115–126). Cambridge, MA: Harvard Education Press.
- Baker-Doyle, K. J. (2011). *The networked teacher: How new teachers build social networks*

- for professional support. New York, NY: Teachers College Press.
- Balkundi, P., & Kilduff, M. (2006). The ties that lead: A social network approach to leadership. *The Leadership Quarterly*, 17(4), 419–439.
- Bandura, A. (1997). *Self-efficacy: The exercise of self control*. New York, NY: W. H. Freeman.
- Bean, J. P. (1982). Student attrition, intentions, and confidence: Interaction effects in a path model. *Research in Higher Education*, 17(4), 291–320.
- Bean, J. P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal*, 22(1), 35–64.
- Bennett, C. I., McWhorter, L. M., & Kuykendall, J. A. (2006). Will I ever teach? Latino and African American students' perceptions on PRAXIS I. *American Educational Research Journal*, 43, 531–575.
- Braxton, J. M., Jones, W. A., Hirschy, A. S., & Hartley, H. V., III. (2008). The role of active learning in college student persistence. *New Directions for Teaching and Learning*, 2008(115), 71–83.
- Burt, R. S. (2001). Structural holes versus network closure as social capital. *Social Capital: Theory and Research*, 31–56.
- Cabrera, A. F., Nora, A., & Castaneda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *The Journal of Higher Education*, 64(2), 123–139.
- Coburn, C. (2005). Shaping teacher sensemaking: School leaders and the enactment of reading policy. *Educational Policy*, 19(3), 476–509.
- Coburn, C. E., Choi, L., & Mata, W. (2010). “I would go to her because her mind is math”: Network formation in the context of a district-based mathematics reform. In A. J. Daly (Ed.), *Social network theory and educational change* (pp. 33–50). Cambridge, MA: Harvard Education Press.
- Daly, A. J. (2010). Mapping the terrain: Social network theory and educational change. In A. J. Daly (Ed.), *Social network theory and educational change* (pp. 1–16). Cambridge, MA: Harvard Education Press.
- Daly, A. J., Moolenaar, N., Bolivar, J. M., & Burke, P. (2010). Relationships in reform: The role of teachers' social networks. *Journal of Educational Administration*, 48(3), 359–391.
- Dweck, C. (2006). *Mindset: The new psychology of success*. New York, NY: Ballantine Books.
- Flippo, R. F. (2003). Canceling diversity: High-stakes teacher testing and the real crisis. *Multicultural Perspectives*, 5(4), 42–45.
- Frank, K. A., Zhao, Y., & Borman, K. (2004). Social capital and the diffusion of innovations within organizations: The case of computer technology in schools. *Sociology of Education*, 77, 148–171.
- Friedkin, N. E., & Slater, M. R. (1994). School leadership and performance: A social network approach. *Sociology of Education*, 67(2), 139–157.
- Gitomer, D. H., Brown, T. L., & Bonett, J. (2011). Useful signal or unnecessary obstacle? The role of basic skills test in teacher preparation. *Journal of Teacher Education*, 62, 431–445.
- Goodman, G., Arbona, C., & de Ramirez, R. D. (2008). High-stakes, minimum-competency exams: How competent are they for evaluating teacher competence? *Journal of Teacher Education*, 59, 24–39.
- Graham, A. (2013). Black teachers education candidates' performance on PRAXIS I: What

### *Rumor Has It*

---

- test results do not tell us. *The Negro Education Review*, 64, 9–36.
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Granovetter, M. (1983). The strength of weak ties: A network theory revisited. *Sociological Theory*, 1(1), 201–233.
- Grant, C. A. (2004). Oppression, privilege, and high-stakes testing. *Multicultural Perspectives*, 6, 3–11.
- Greene, T. G., Marti, C. N., & McClenney, K. (2008). The effort–outcome gap: Differences for African American and Hispanic community college students in student engagement and academic achievement. *The Journal of Higher Education*, 79(5), 513–539.
- Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44(1), 82–111.
- Horstmannshof, L., & Zimitat, C. (2003, November 29–December 3). *Elaboration of the students self and persistence in higher education*. Paper presented at the Association for Active Educational Researchers (AARE) Conference, Auckland, New Zealand. Retrieved from [http://epubs.scu.edu.au/tlc\\_pubs/207](http://epubs.scu.edu.au/tlc_pubs/207)
- Kilduff, M., & Krackhardt, D. (2008). *Interpersonal networks in organizations: Cognition, personality, dynamics, and culture*. Cambridge, UK: Cambridge University Press.
- Krackhardt, D., & Stern, R. N. (1988). Informal networks and organizational crises: An experimental simulation. *Social Psychology Quarterly*, 51(2), 123–140.
- Lin, N. (1999). Social networks and status attainment. *Annual Review of Sociology*, 25, 467–487.
- Memory, D. M., Coleman, C. L., & Watkins, S. D. (2003). Possible tradeoffs in raising basic skills cutoff scores for teacher licensure: A study with implications for participation of African Americans in teaching. *Journal of Teacher Education*, 54, 217–227.
- Metz, G. W. (2004). Challenge and changes to Tinto’s persistence theory: A historical review. *Journal of College Student Retention: Research, Theory, and Practice*, 6(2), 191–207.
- Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., & Nichols, J. D. (1996). Engagement in academic work: The role of learning goals, future consequences, pleasing others, and perceived ability. *Contemporary Educational Psychology*, 21(4), 388–422.
- Moolenaar, N. M., Daly, A. J., & Sleegers, P. J. (2011). Ties with potential: Social network structure and innovative climate in Dutch schools. *Teachers College Record*, 113(9), 1983–2017.
- Moolenaar, N. M., & Sleegers, P. J. (2010). Social networks, trust, and innovation: The role of relationships in supporting an innovative climate in Dutch schools. In A. J. Daly (Ed.), *Social network theory and educational change* (pp. 97–114). Cambridge, MA: Harvard Education Press.
- Nettles, M. T., Scatton, L. H., Steinberg, J. H., & Tyler, L. L. (2011). *Performance and passing rate differences of African American and White prospective teachers on Praxis examinations* (ETS Research Report No. 11-08). Retrieved from <http://www.ets.org/Media/Research/pdf/RR-11-08.pdf>
- Nystrand, M., & Gamoran, A. (1990). *Student engagement: When recitation becomes conversation*. Washington, DC: National Center on Effective Secondary Schools, Office of Educational Research and Improvement.
- Okun, M. A., Ruchlman, L., & Karoly, P. (1991). Application of investment theory to predicting part-time community college student intent and institutional persistence/departure
-

- behavior. *Journal of Educational Psychology*, 83(2), 212–220.
- O'Reilly, C. A., & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of Applied Psychology*, 71(3), 492–499.
- Petchauer, E. (2012). Teacher licensure exams and Black teacher candidates: Toward new theory and promising practice. *Journal of Negro Education*, 81(3), 252–267.
- Petchauer, E. (2013, June 26). Passing as White: Race, shame, and success in teacher licensure testing events for Black preservice teachers. *Race, Ethnicity, and Education* [Online]. doi:10.1080/13613324.2013.792796
- Petchauer, E. (2014). “Slaying ghosts in the room”: Identity contingencies, teacher licensure testing events, and African American preservice teachers. *Teachers College Record*, 116(7), 1–40.
- Petchauer, E. (in press). Shall we overcome? Self-efficacy, teacher licensure exams, and African American preservice teachers. *The New Educator*.
- Petchauer, E., & Baker-Doyle, K. J. (2014). *Black, White, and tested all over: Racialized differences in licensure exam experiences*. Philadelphia, PA: American Educational Research Association.
- Pil, F. K., & Leana, C. (2009). Applying organizational research to public school reform: The effects of teacher human and social capital on student performance. *Academy of Management Journal*, 52(6), 1101–1124.
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1–24.
- Rienties, B., & Kinchin, I. (2014). Understanding (in)formal learning in an academic development programme: A social network perspective. *Teaching and Teacher Education*, 39, 123–135.
- Rosen, S. M. (2014, September 5). Identity performance and collectivist leadership in the Philadelphia Student Union. *International Journal of Leadership in Education* [Online]. doi:10.1080/13603124.2014.954628
- Rusbult, C. E., Drigotas, S. M., & Verette, J. (1994). The investment model: An interdependence analysis of commitment processes and relationship maintenance phenomena. *Journal of Applied Psychology*, 68(3), 429–438.
- Spillane, J. P., Halverson, R., & Diamond, J. B. (2004). Towards a theory of leadership practice: A distributed perspective. *Journal of Curriculum Studies*, 36(1), 3–34.
- Strauss, L. C., & Volkwein, J. F. (2004). Predictors of student commitment at two-year and four-year institutions. *Journal of Higher Education*, 75(2), 203–227.
- Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *Journal of Higher Education*, 59(4), 438–455.
- Tinto, V. (1993). Building community. *Liberal Education*, 79(4), 16–21.
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *Journal of Higher Education*, 68(6), 599–623.
- Tyler, L. (2011). *Toward increasing teacher diversity: Targeting support and intervention for teacher licensure candidates*. Retrieved from <http://www.nea.org/home/42951.htm>
- Van Waes, S., Van den Bossche, P., Moolenaar, N., De Maeyer, S., & Van Petegem, P. (2013, April 27). *The importance of know-who in becoming an expert teacher in higher education*. Paper presented at the American Educational Research Association, San Francisco, CA.
- Wang, A. H., Coleman, A. B., Coley, R. J., & Phelps, R. P. (2003). *Preparing teachers around*

***Rumor Has It***

---

*the world*. Princeton, NJ: Educational Testing Service Policy Information Center.  
Woodward, H., & Munns, G. (2003, November). *Insiders' voices: Self-assessment and student engagement*. Paper presented at the Australian Association for Research in Education Annual Conference, Auckland, New Zealand.