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Graduate School Learning Curves: McNair Scholars' Postbaccalaureate Transitions

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Graduate School Learning Curves: McNair Scholars' Postbaccalaureate Transitions

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Abstract

The federally funded Ronald B. McNair Postbaccalaureate Achievement Program (McNair Program) prepares first-generation, low-income, and underrepresented college undergraduates to pursue terminal graduate degrees. This study examines 22 McNair scholars' transitions into graduate school in an attempt to identify factors that influence alumni persistence and matriculation. The participants in this study were alumni from a mid-sized, Northwestern university's McNair Program. During interviews, participants identified significant "learning curves" experienced in graduate school. Five themes, representing 14 learning curves, emerged: academic readiness, weaving a supportive web, managing the clock, being accepted, and staying financially fit. Researchers incorporated identified learning curves into an on-line survey sent to each participant.

Deciding to pursue a graduate degree requires confidence in one's ability to succeed, academically and personally, at a postbaccalaureate level. Students who come from low-income families, are first-generation college students, or study in disciplines where their demographics are underrepresented are less likely to envision graduate school as a realistic path after a bachelor's degree (Cole & Barber, 2003). Less than 1.5% of adults in the U.S. have earned doctorates, but only 0.5% of adults from underrepresented groups have done so (TRIO McNair Postbaccalaureate, 2006). Established in 1986 to honor Ronald E. McNair, command specialist on the Challenger space shuttle, the Ronald E. McNair Postbaccalaureate Achievement Program (McNair Program) aims to increase the number of low-income, first generation, and underrepresented students choosing to continue their post-secondary education into graduate school (Federal TRIO Programs, 2005).

Like many underrepresented scholars, Ronald McNair himself came from a background of poverty and inequity. He felt isolated, under prepared, and unwelcome in both his undergraduate and graduate school programs, and faced overt and covert discrimination from the academic community (Exstrom, 2003; Williams, 2008). Despite these barriers, McNair earned a Ph.D. in Physics in 1976. Shortly after his death in 1986, the U.S. Congress legislated funding for the McNair Program. This paper examines how the McNair Program, part of the Federal TRIO programs serving underrepresented students from middle school through postbaccalaureate degrees, helps non-traditional college students to envision, prepare for, and succeed in graduate school, following in Ronald E. McNair's footsteps (Office of Postsecondary Education, 2007).

Per federal guidelines, 70% of McNair scholars must be from low-income families (income below 150% of the federal poverty level) and must be first-generation college students (the first individual in their family to earn a college degree) (Federal TRIO Programs, 2005). The remaining 30% should represent populations underrepresented in graduate school, including women in the sciences and ethnic minorities (Office of Postsecondary Education, 2005). First-generation, low-income, underrepresented (FLU) students account for more than 66% of the pre-college population, yet only 35% of the graduate school population (TRIO McNair Postbaccalaureate, 2006). The McNair Program's goal is to "increase the percentage of low-income, first-generation college students who successfully pursue postsecondary education opportunities" (HEA: TRIO, 2007), with more underrepresented students earning their Ph.D.s and adding their voices to their chosen disciplines.

In 2009, 200 four-year institutions provided 5,430 McNair FLU students (HEA: TRIO, 2009) with undergraduate research opportunities, GRE preparation, travel to professional conferences, faculty mentors, internships, graduate school application assistance, and other support. The success of McNair scholars at the undergraduate level has been well documented (Beal, 2008; Crowe & Brake, 2008; Parker, 2003; Williams, 2004). Over 95% of the 2000-2001 cohort earned bachelor degrees (Office of Postsecondary Education, 2005), but the McNair Program's success is measured by students' attainment of terminal graduate degrees. There is no current data that disaggregates McNair

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alumni enrollment between master's and doctoral programs, since some master's programs are embedded in or prerequisites for doctoral programs. However, for all alumni from 1989-2002, 15% have earned master's degrees, and 4% have earned doctoral or terminal graduate degrees (Office of Postsecondary Education, 2005). The Office of Postsecondary Education (2005) states that "although McNair participants gain acceptance into graduate school at higher rates than do non-McNair participants, a smaller percentage persist once enrolled" (p. 28).

In order to increase faculty diversity in higher education, Cole and Barber (2003) recommended increasing the number of programs that support and encourage FLU students to pursue graduate degrees. However, there is still much to learn about the experiences of FLU students once they enter graduate programs, especially the identification of factors that either help or hinder their persistence and matriculation. By examining McNair alumni's experiences and perceptions we sought to identify factors that influenced their graduate school persistence. As a result, we offer findings that can enhance the capacity of McNair and other programs to both prepare FLU students for graduate school and support FLU students' retention once they arrive on campus.

Review of Literature

Graduate School Performance- General Population

The national doctoral dropout rate averages 50% (Lovitts & Nelson, 2000). Although many faculty members see graduate attrition rates as indicators of poor student quality, research shows no differences in ability or preparedness between dropouts and completers (Ad Hoc Panel, 1996; Lovitts & Nelson, 2000; Smallwood, 2004). Rather, graduate students drop out as a result of their experiences once they arrive on campus, including how well the program fits their needs and expectations, whether their program includes faculty mentoring, and how well the student integrates into the academic community (Lovitts & Nelson, 2000). Problems for graduate students begin with poor choices during the application process, leading to a poor fit between institutions' goals and students' interests (Ad Hoc Panel, 1996; Lovitts & Nelson, 2000; Smallwood, 2004; Sowell, 2008). Selecting graduate programs based on status, prestige, and ranking of the program can lead to difficulties for students from the outset. Student matriculation is closely tied to the quality of the student/program match, the caliber of mentoring, and the ease of students' integration into the learning community (Ad Hoc Panel, 1996; Gilliam & Kritsonis, 2006; Sowell, 2008). Students who work as graduate assistants, share office space with other graduate students, or teach classes on campus are more likely to complete their degrees due to better integration into the academic community (Ad Hoc Panel, 1996; Gilliam & Kritsonis, 2006; Lovitts & Nelson, 2000). A positive relationship with a faculty adviser can be the single most important factor in students' attrition decisions (Lovitts & Nelson, 2000; Smallwood, 2004). Thus, though financial support is critical for graduate student success (Mortenson, 2000; Norfles & Mortenson, 2002), students on full fellowships are more likely to complete their degrees if their fellowships require some degree of participation in their academic communities (Lovitts & Nelson, 2000). A student's integration into the academic learning community, fostered through faculty mentoring and working on campus, is crucial for completion of a doctoral degree (Ad Hoc Panel, 1996; Gilliam & Kritsonis, 2006; Sowell, 2008).

McNair Population Academic Performance

FLU students enter college at lower rates, with only 20% even qualifying for college entrance, compared to 88% of upper-income students (Williams 2004). When looking at undergraduate completion rates, FLU students persist at lower rates than students from traditional college-going populations and are often at greater risk of dropping out (Ishiyama & Hopkins, 2001; Leichnitz, 2006). They exhibit lower pre-college expectations, engage in underdeveloped planning, make uninformed choices, and experience greater adjustment difficulties (Ishiyma & Hopkins, 2001). Because FLU students' families and communities offer few models of college success, they tend to lack self-efficacy, social support, and other factors related to educational success (Leichnitz, 2006). Williams (2004) found that self-efficacy, fostered in mentoring relationships, is critical for success at the undergraduate level and beyond. FLU students are less likely to seek out informal mentoring relationships with faculty (Leichnitz, 2006), despite self-reported needs for social and professional mentoring to navigate the cultural and language/literacy shifts of academia (Beal, 2008; Grimmett, Bliss, Davis, & Ray, 1998).

Of the already limited number of FLU students who enroll in undergraduate programs of study, the small percentage who do pursue graduate study face multiple challenges that contribute to greater attrition and lower persistence rates than students without such challenges. FLU students tend to exhibit a lack of academic self discipline and an inability to work independently on academic issues, characteristics that often factor into a graduate students' delay

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in or non-completion of degree requirements (Kerlin, 1995; Tluczek, 1995). However, the impact of entering school with a lack of preparation for and knowledge of the expectations of academia can be countered through development of self-efficacy and modeling from mentors.

Organization and Performance of McNair Programs

The McNair Program, located on 200 four-year-campuses across the nation, provides a variety of services to enrolled students including mentoring, research experience, seminars, and assistance with graduate school and financial aid applications (Office of Postsecondary Education, 2007). Two-thirds of McNair Program participants are women, the average age is 23.5 years, and about half of the participants are African-American, a fourth are Hispanic/Latino/Chicano/a, and a fifth are white. In a 2005 study, McNair alumni perceived financial difficulties, lack of social support, poor match of pursued majors, and lack of social fit as the most common reasons for Postbaccalaureate attrition (Office of Postsecondary Education, 2005). Fewer women were satisfied with graduate work than men, and fewer African American and Native American students were satisfied with graduate work than white and Asian students (Office of Postsecondary Education, 2005).

While financial concerns are the number one reason FLU students drop out of graduate school (Office of Postsecondary Education, 2005). McNair alumni tend to receive more financial support from universities than other graduate students (Norfles & Mortenson, 2002). However, financial support related to on-campus activities provides greater social integration than financial support without campus-related activities (Lovitts & Nelson, 2000). Given the importance of early integration into the social environment of graduate school, (Gilliam & Kritsonis, 2006; Lovitts & Nelson, 2000), it may be important to explore the type of financial supports McNair participants receive and how those financial supports relate to social integration (Office of Postsecondary Education, 2005).

Altogether, McNair alumni most value the components of research, mentoring, internship, and interaction with other students (Grimmett et al., 1998). Undergraduates who participate in research experiences are more likely to go on to graduate school than those who do not (Crowe & Brakke, 2008), and rigorous research internships of one to two years are positively associated with graduate school placement, funding, and completion (Nnadozie, Ishiyama, & Chon, 2001; Russell, Hancock, & McCullough, 2007). Undergraduate mentoring increases knowledge of graduate school, research, professional organizations, and conferences (Carrera, 2002), but FLU students also perceive a need for more psychosocial support from mentors (Ishiyama, 2007; Office of Postsecondary Education, 2005; Williams, 2004).

Since 1986, the number of FLU students earning bachelor's degrees, enrolling in graduate school, and earning graduate degrees has increased. However, graduate school FLU student attrition rates exceed the rates of traditional graduate school populations. The McNair Program's formal mentoring component encourages and fosters persistence, goal setting, and self-directed behaviors—all important determiners for graduate school success. More research is needed to gauge the long-range significance of the McNair Program on graduate students' success beyond enrollment (Cole & Barber, 2003; Norfles & Mortenson, 2002). Our research seeks to identify the experiences and perceptions of McNair alumni in graduate school and to identify factors that influenced their success. We asked participants about those aspects of graduate school that represented their greatest learning curves.

Method

Participants in this study were alumni from a mid-sized, northwestern university's McNair Program established in 2001. In September, 2008, 34 of this program's 43 alumni (79%) were enrolled in or graduates of postbaccalaureate programs in the United States. Twenty-two (65%) of these eligible alumni agreed to participate in our study. Thirteen participants were women, 15 identified themselves as minorities, and 17 earned undergraduate degrees in humanities disciplines. All participants earned bachelor's degrees between 2001 and 2008, and were McNair scholars for 1 to 3 years. Eight participants were enrolled in Ph.D. programs, 10 were enrolled in Master's degree programs preparing them for doctoral experiences, and four were employed in their disciplines after earning Master's degrees (two terminal, two non-terminal).

In our study, we used semi-structured interviews (Bogdan & Biklen, 1998) to solicit insight from McNair alumni. Interviews "capture the unseen that was, is, will be or should be; how respondents think or feel about something; and how they explain or account for something" (Glesne and Peshkin, 1992, p. 93), and seemed the format best suited to capture the voices of McNair alumni, representatives of "a population whose voices are often omitted or distorted in

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more positivistic research inquiry" (Perry, Moore, Edwards, Acosta, & Frey, 2009, p. 87). Additionally, researchers (Cole & Barber, 2003; Grimmett et al., 1989; Williams, 2004) call for more qualitative information about how FLU students experience McNair Programs and graduate school.

To introduce participants to the research project and the researchers, the McNair Program coordinator sent a brief electronic communication to the program's 34 eligible alumni. All responded favorably to participating in the study (i.e. they did not decline to have their contact information distributed to the researchers), and were contacted electronically by the researchers with a more thorough introduction to the study and asked to complete consent and demographic forms. Potential participants who did not respond to this email were contacted a second and a third time during the next four weeks, ensuring that all eligible alumni had an opportunity to participate. The 22 alumni who responded positively to the email, identified by pseudonym throughout this study, were interviewed by phone (n =19) or in person (n = 3) during March 2009. One researcher conducted the interviews, transcribed the digital recordings, and coded and analyzed transcripts. The other researcher listened to recorded interviews and read transcripts to assure accuracy, and validated coding and analysis.

This paper focuses on participants' biggest learning curves, defined in the interview protocol as "graduate school situations, experiences, and/or issues for which students weren't prepared." During interviews, each participant spoke about their significant learning curves. We then incorporated the fourteen learning curves mentioned in interviews into an on-line survey that asked participants to rate each learning curve on a 4-point Likert scale (1 = not significant, 2 = slightly significant, 3 = somewhat significant, and 4 = very significant). This survey allowed participants to verify the relative importance of the 14 items to their graduate school experiences. Unique identifiers on the survey allowed us to compare interview and survey responses and identify the number of unique participants selecting each learning curve, thus triangulating information revealed in the interviews. One interviewee did not complete an online survey and one interested McNair alumnus who was unable to interview completed the survey, for a total of 22 completed surveys. During our data analysis, we combined survey ratings of 1 and 2 into "not a significant learning curve" and ratings of 3 and 4 into "a significant learning curve."

Findings

Graduate School: Hitting the Curve Balls

When asked to describe their greatest learning curves since being in graduate school, participants responded with a variety of issues, tempered by their unique life experiences, academic programs, locations of schools, and specific faculty/colleagues. We identified and labeled five themes representing fourteen learning curves: (1) academic readiness, (2) managing the clock, (3) weaving a supportive web, (4) being accepted, and (5) staying financially fit. Table 1 shows the learning curves under each theme, and the number of unique respondents for each.

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Table 1. Themes and Learning Curves

Themes & Learning Curves	# Of Times Identified as *Significant* During Interviews	# Of Times Rated *Significant* on Survey	# Of Unique Participants Rating as *Significant* on Surveys or in Interviews
Academic Readiness			
Working with Statistics	5	11	11
Learning reading strategies	5	9	11
Learning writing strategies	4	9	9
Learning content	4	7	7
Conducting research	2	4	5
Managing the Clock			
Balancing academic demands	10	12	14
Balancing life demands	6	12	13
Working independently	1	7	7
Weaving a Supportive Web			
Social Isolation	4	9	10
Independence in new setting	1	9	9
Developing social networks	2	5	5
Being Accepted			
Prejudice in academic setting	4	5	6
Prejudice in community	4	6	6
Staying Financially Fit			
Financing graduate study	6	14	16

Academic Readiness

The Ronald B. McNair Program is intended to prepare students for the elevated academic rigor often found in postbaccalaureate studies. Dropouts tend to be poorly informed about the nature of graduate study and what will be expected of them (Lovitts and Nelson, 2000). Academic issues are twofold: FLU students are often under-prepared academically for graduate school and also poorly versed in the culture of academia (Beal, 2008). These McNair alumni identified five significant academic learning curves: the effective use of statistics, effective reading strategies, effective writing strategies, knowledge of discipline specific concepts, and conducting research (see Table 1).

Working with statistics. Eleven alumni identified working with statistics as a significant learning curve. Patrice, a science doctoral student, said, "I obviously have a big learning curve with stats. Even with all the classes I have taken, I still have a hard time with stats. So in academia, that's my biggest problem." Amanda, who earned a humanities MA, also emphasized a need for quantitative research: "I had a good solid background in qualitative research, which served me very well. Quantitative would have been helpful." Eliza, a sciences master's student, also mentioned the emphasis on qualitative methods in her undergraduate program, indicating that the focus in her graduate work is quantitative. The eleven students who considered statistics to be a learning curve on the survey represented half of the humanities majors and half of the science majors.

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Learning reading strategies. Graduate programs are often heavily laden with extensive and often complex readings. A review of handouts for new graduate students, as found on graduate school web sites, indicates that adjusting to the reading load is a typical hurdle for all graduate students. In one such handout, desJardins (1994) writes, "You may find yourself spending over half of your time reading, especially at the beginning. This is normal. It's also normal to be overwhelmed by the amount of reading you think you 'should' do" (p. 3). Eleven unique participants indicated learning reading strategies was a significant learning curve. Emphasizing the increase in the reading expectations of graduate school, Elicia explained:

> You realize, a few months in, that there are effective ways to reading the material and there are ineffective ways. There is more stuff to read than you could ever read, and that's okay; you need to be smart about what you are reading, which I am still figuring out. It's kind of like keeping your head above water.

In order to become more efficient consumers of academic literature, students sought out support at the graduate level and/or drew from their McNair experiences. In one of the McNair Program seminars, a faculty member told Sally's cohort that they would learn to skim effectively because they wouldn't be able to read everything their professors required them to read. Sally agreed: "There is no way to feasibly read everything. [I had to] learn how to pick out the stuff that is important and skim the rest."

Learning writing strategies. Just as reading can be an overwhelming task for graduate students, meeting the rigor of academic writing can be equally daunting, as it is a complex process students are often ill-prepared for (Lovitts, 2005). Nine total alumni identified learning to write academically as a significant learning curve in graduate school. Bill struggled with his academic writing, though he knew how to get help and was doing quite well academically. He credited his success to the staff of his McNair Program, and when asked to explain, Bill said, "My writing ability wasn't there…[a staff member] really helped me write at a scholarly level. Probably without that, I wouldn't be able to write at the graduate level."

In contrast, Rosanne, now teaching at the university level after earning an MA, left her undergraduate work believing she was a strong writer, but found the competition and expectations associated with graduate level writing were far higher than she had expected: "It was hard to come from [undergraduate] classes where I would get all A's and go to classes where they would tell you, 'You need to work on your writing. Your writing is not the best.'"

Learning content. The McNair scholars in our study had an average cumulative GPA of 3.4, with 31% holding GPA's above 3.5. While all of the participants were academically successful in their undergraduate degrees, some indicated that learning prerequisite content knowledge related to their graduate school discipline was necessary in their postbaccalaureate work. In all, seven participants rated learning content as a significant learning curve. Eric, a doctoral student in the sciences, felt unprepared to succeed in some graduate level courses due to the lack of preparation in his undergraduate program:

> The first semester was pretty tough, trying to get caught up on the prerequisite knowledge I didn't pick up [as an undergrad]…I had to take a step back and take those undergraduate courses here in order to get caught up to what the graduate students were expected to know…. I think [the university] could do better in the math and physics, preparing for this [discipline].

Suzanne, a humanities doctoral student, thought she was prepared for graduate school, but halfway through the first semester, realized just how little she knew: "The depth of the stuff that I had learned as an undergraduate never would have compared to the amount of depth and theory and everything that goes into a graduate degree." Although Suzanne did not indicate her undergraduate education as being lacking, she realized that graduate school demanded a much more thorough understanding of her discipline.

Conducting research. One difference between undergraduate and graduate studies is the emphasis on conducting research and creating knowledge, as compared with learning pre-existing knowledge. Having research experience at an undergraduate level makes students more competitive for graduate school admissions (Nnadozie et al., 2001). For these reasons, the McNair Program places great emphasis on research methods. All of our participants viewed learning to formulate questions, review literature, conduct research, and present research in the form of papers, posters, and presentations as strengths of their McNair Program.

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Of the 22 students interviewed for the study, two discussed a lack of needed research backgrounds, and both attributed this shortcoming to participating in only one year of McNair instead of two. Alice, who was teaching at the elementary level after earning her master's, talked about her struggles: "Knowing how to research. What it consists of. I mean, what does that word really mean? I thought it was, 'I'm just going to look something up and I'm going to write it down and then that's it.'"

Most participants talked about the value of their research experience, including Suzanne, who said, "One of the strongest things I got out of the McNair scholars program was being exposed to the potential of what you can do... with what you know." Similarly, Rich said, "[McNair] taught me I could actually do the research." Through his faculty mentor, Rich not only learned how to do research, and why, but he also learned that professors are regular people, a sentiment supported by Thomas when he said, "Nobody knows any more, really, than anyone else. That's why they are always doing the research—they are trying to figure it out!"

Managing the Clock

Doctoral students who lack self-discipline and struggle to work independently have higher attrition rates (Kerlin, 1995; Tluczek, 1995). During their interviews, alumni mentioned various time management issues, prompting us to ask participants to consider the significance of three time management learning curves on the survey: balancing academic demands; balancing life demands of family, work, and school; and working independently (see Table 1).

Balancing academic demands. With fourteen unique participants indicating balancing academic demands as significant, Trent was not alone when he talked about managing the workload and needing to use time-management techniques learned in a McNair seminar:

> I think the workload is probably the biggest wakeup call that I had. From that first semester, after the first week or two, you're basically hitting the ground running. Learning how to deal with the massive workload has been the biggest learning curve I had.

Oscar, a sciences doctoral student, saw his procrastination as a manifestation of issues with time management: "Here at the [doctorate] level, there is no one really pushing you. You sink or swim, on your own, and you decide. That was an issue with the first semester."

Balancing life demands of family, work, and school. Thirteen alumni rated balancing family/work/school demands as significant. Virginia saw her struggles with balancing home, work, and graduate school responsibilities as an inevitable learning curve that she considered to be normal. In her second year teaching elementary school, she was "spending nine or ten hours a day at school, and taking classes at night, and having to read everything and taking care of my child, because my husband was taking classes at night, too." In reflecting upon her schedule, Virginia said, "But that's life, and we just need to keep doing it, and to manage time." When asked if anything could have better prepared her for graduate studies, Virginia said, "No, they prepared me; life prepared me. I just have to manage the time."

Working independently. Learning to independently manage the academic workload is often a learning curve of new graduate students. Among the McNair alumni in our study, seven rated working independently as a significant learning curve on the survey, including Sally, who was the only participant to mention working independently as significant during her interview:

> With me, it has been my thesis research, because my mentor now is a lot less directive than my mentor from undergrad or the McNair Program [which had] strict lines: you need to have your intro section done by such and such date. My mentor now is pretty hands-off, and she expects that we will get it done when we get it done, and it has been a little bit hard to be quite so self-directed.

Weaving a Supportive Web

Academic, social, and research self-efficacy can lead to higher retention in graduate school (Williams, 2004). Students are more likely to develop self-efficacy in these areas when they engage in real behaviors and experiences, observe similar others being successful, and hear significant others express belief in students' abilities (Williams, 2004). Walt addressed how McNair impacted his self-efficacy:

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> I didn't think graduate school was for me. I just thought it was something that people do; the smart people. And of course, I never counted myself as part of that. So what McNair did…I guess they call it self-efficacy. It did improve that—that I can do this. If it wasn't for McNair, I would still have the mentality that [graduate school] wasn't for me.

Mike, a doctoral student in the humanities, talked about the confidence boost he got from knowing the McNair Program staff's "almost sole focus would be to help me successfully complete graduate work…not only did I think I could complete graduate studies, but there were people on campus who were willing to work on my behalf."

Once in graduate school, students need to build systems of support. When discussing the importance of a support network in graduate school, Thomas, working on his doctorate in a humanities discipline, talked about FLU students' disconnect between their home lives and academic lives. His grandmother told the family that he'd be called "doctor" when he finished school, and his grandfather asked what kind of doctor he'd be, if he wasn't studying medicine. Thomas said "A doctor of ideas," to which his grandfather replied, "A doctor of ideas? I can take you around in my pickup truck for 20 minutes and we'll talk and you'll get a better sense of what life is about…so why…go so far off to do that?"

During the interviews participants mentioned different aspects of social networking and social isolation as significant learning curves they had to address, which we organized into three questions on the survey: being independent in a new academic setting; social isolation from peers, family, and friends; and developing relationships and social networks in academia (see Table 1).

Seventy-five percent of the students who reported feelings of isolation as a significant learning curve and seventy-five percent of the students who reported being independent in a new academic/social setting as a significant learning curve were humanities majors. Of the five students who reported developing relationships and social networks in academia as a significant learning curve, 100% were humanities majors. Smallwood (2004) explained the difference as related to the nature of graduate study in the two areas: science majors tend to work closely in research groups, whereas humanities majors tend to work in isolation.

Social isolation from peers/family/friends and independence in a new setting. In the interviews, ten participants rated isolation as a significant learning curve, while nine participants rated independence as a significant learning curve. Due to the intertwined nature of these two concepts, we report the findings for both concepts in this section.

Sophie, a humanities major, mirrored other students' feelings about leaving family and friends for the first time. Moving away from family, adjusting to new surroundings, and separating from the familiar were her biggest challenges associated with graduate school. She said, "One of the things the McNair Program doesn't really prepare you for is what it is like moving somewhere completely far away from everything. It was definitely taking a leap of faith to move that far." Sophie commented that becoming part of a close-knit learning community at her school helped her adjust to the isolation.

Despite performing well academically, Thomas' experiences of isolation have made graduate school quite difficult: "Part of that has to do with the isolation you feel, which is very real, because you are always reading, you're always working. You don't have a lot of time for interaction." Likewise, Rich thought the academics would be his biggest hurdle, but instead, it was the lack of a social network that caused problems: "At one point I thought I was going to come home. The thing that kept me from quitting was a professor who brought me down in the first place. He encouraged me to keep going."

Developing social networks in academia. Students in graduate school interact on a professional level with research associates, mentors, peers, and funding representatives. Five participants mentioned developing social networks as a significant learning curve. Patricia described her biggest learning curve as:

> Learning how to become a professional. McNair helped me become a scholar. Now it isn't so much about being a scholar as being an equal or a colleague. So learning those interaction skills, that's where I'm trying to learn the most.

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Suzanne viewed the necessity to network as disappointing. She was discouraged to find that who you know is as important as what you know in the world of academia. However, Sandie, now teaching at the college level, viewed her newfound networking skills as an asset: "Creating those relationships with those people is what helps you to learn to navigate places. Those are the situations that have really benefited me, how I've gotten the job where I'm at and things like that."

Learning how to develop relationships with faculty, including approaching faculty for help, seeking out mentors, and engaging professors in academic dialogue, can be difficult for new graduate students (Ad Hoc Panel, 1996). For the general graduate school population, lack of academic support is one of the top four reasons cited for dropping out (Gilliam & Kritsonis, 2006), and for FLU students, lack of social fit and lack of social support are among the top five reasons students drop out of graduate school (Office of Postsecondary Education, 2005). The McNair Program emphasizes connecting students with faculty mentors, who then guide and support students' research. In contrast to typical graduate students, the alumni in this study indicated they felt well prepared to work with faculty and peers.

Participants talked about the transfer of their McNair mentoring experiences into graduate school faculty relationships. Trent stated, "Having a [faculty] mentor originally through McNair helped me or provided me with the tools to find another mentor, and to learn it was okay to utilize a professor as a mentor and a resource." Four alumni commented they had a higher comfort level in interactions with researchers and faculty as compared to their graduate school peers' comfort level with the same. Corinne supported Ishiyama and Hopkins' (2001) findings on the positive connection between research and faculty mentoring when she said:

> Getting hooked up with a faculty member and doing research was probably the biggest… factor that prepares you for graduate school…. Once you begin to have dialogue with faculty members and start to work with them…that is pretty much all you are going to be doing in graduate school.

Being Accepted

During the interviews, six participants mentioned addressing racism or prejudice as a significant learning curve. While this may be a small number, compared to some of the other themes, the intensity of these conversations prompted us to ask survey participants to rate the significance of two learning curves related to the context of their experience. Five survey participants identified learning to respond to racism/prejudice in the academic setting as significant, and six identified learning to respond to racism/prejudice in the larger community as significant (see Table 1). Between the interviews and surveys, eight unique participants (six minorities, six women) identified issues of racism and prejudice as being significant.

Prejudice in academic setting. Entering into a discipline as a member of an underrepresented population can be problematic. Val, a minority and a humanities master's candidate from an underrepresented population, alluded to this when she said, "I think a lot of students in my field…well, it has been a white male field. A lot of people still have a lot of misconceptions [about women of color]." Val's self-efficacy and confidence relegated this prejudice to a minor role in her graduate school experience. More overtly, Rosanne, a underrepresented minority student, experienced racial prejudice from the head of the department where she earned her master's degree, and she talked about the stress and frustration she experienced as a result of this discrimination, which negatively impacted her grades and jeopardized her potential acceptance into doctoral programs. Continued social support from her undergraduate McNair Program staff, and her ability to weave a supportive web among her doctoral peers and other faculty helped her navigate through this difficult time.

Prejudice in larger community. Thomas, an underrepresented, first-generation, and low-income minority student, encountered racism from members of the community surrounding his university, leading to a greater feeling of isolation:

> I am in a totally foreign community, and now a community that I perceive to be hostile to my very presence… In a more general sense, there is a loneliness that comes from being [an ethnic minority] in graduate school, or just in American society…it is the loneliness of not being treated like a human being.

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Thomas actively seeks out social support in the form of campus clubs, fellow graduate students, family, and his undergraduate McNair faculty back home, but his life in graduate school is a struggle that requires tremendous endurance and inner strength.

Within the greater context of their interviews, two other students talked about issues of racism and prejudice in the community, though they did not personally experience discrimination. A first-generation, low-income, non-minority student, Rich mentioned how overwhelming it was to see the outright prejudices between Blacks and Whites in his university's location, something he had never witnessed before. Patrice, another first-generation, low-income, non-minority student, shared her concerns about her son attending schools in a community where outsiders experienced discrimination based on religious, socioeconomic, and values differences. Patrice entered the situation with awareness of the potential problems, which allowed her to be proactive in finding a good school for her son in a more diverse, accepting neighborhood.

Staying Financially Fit

Financial issues play an important role in graduate school attrition/retention rates (Ad Hoc Panel, 1996; Gilliam & Kritsonis, 2006). Sixteen participants rated managing finances as a significant learning curve (see Table 1).

Financing graduate study. Darren, working on his humanities MA, spoke about the lack of scholarships in his discipline: "Had there been more funding for me to focus on just school, if I had grants and scholarships that I could apply for, I'd take those instead of taking Citibank loans and SallyMae loans." He summarized, "I'm not poor enough to get subsidies, and not rich enough or smart enough to get academic scholarships." Rich also discussed the necessity of student loans: "[The school] waived my out-of-state tuition and paid for my in-state tuition. They gave me a monthly stipend of $400, which after taxes was $391, and my rent was $390. I had a dollar left over." He took out loans to cover the rest of his living expenses.

The stress of financing graduate school, while supporting a family, is tremendous for Thomas, a fact exacerbated by the higher cost of living where his graduate school is located. Higher rent, higher utility bills, and higher costs for food eat up more of his school funding, leaving him without a personal computer and Internet access. As a result, he spends more hours at school to access technology and spends less time with his family, which further increases stress. It is a vicious cycle for him.

Conclusion/Discussion

The purpose of this study was to identify the experiences of McNair alumni in graduate school. From conversations with participants, 14 learning curves emerged, which we classified into five themes. Because the McNair Program aims to prepare FLU students for their pursuit of terminal graduate degrees, the findings of this study address those aspects of McNair curriculum that may need further emphasis. While graduate students in general may face similar hurdles to those described by McNair alumni, this research did not seek to compare the two groups.

The alumni in our study indicated their McNair Program prepared them well for the academic rigor and expectations of academia: research, literature reviews, presentations, and developing social and academic networks. This preparation may help FLU students weather those aspects of graduate school that often cannot be prepared for, such as family hardships, financial stress, lack of content area preparation, and the isolation and loneliness that comes from moving away from home and being a numerical minority in the world of graduate school.

In a review of literature, the significant stumbling blocks for many FLU graduate students were time management, working independently, developing social support systems, and handling financial issues (Ishiyama, 2007; Ishiyama and Hopkins, 2001; Kerlin, 1995; Tluczek, 1995). McNair alumni participating in our study identified quantitative statistics, reading and writing strategies, time management concerns, and financial concerns as the most significant of the identified learning curves. Of these learning curves, we see time management issues to be the most critical. The McNair Program specifically creates clear structures and timelines for students, which is necessary for teaching the rigors of research and writing and for instilling the habits of a scholarly mind. However, the freedom of graduate school can be a pitfall, as some students who are used to authority figures providing an external locus of control may struggle to take control of their academic lives and prioritize assignments and other work. To better prepare scholars for managing the demands on their time, it would be helpful to have mentors focus on time management strategies

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or have seminars on this topic. McNair alumni could return to speak to the scholars about time management and balancing demands.

Participants identified quantitative statistics as a major struggle in graduate school. The majority of the participants were humanities majors as undergraduates, which may explain the strength of qualitative methodologies. Thus, the McNair Program should encourage students to do both qualitative and quantitative methods in their research projects. With reading and writing strategies, the McNair Program seems to be presenting the necessary tools, but perhaps the undergraduates are not yet ready to absorb them. Programs can provide additional resources for scholars to draw from when reading or writing issues come up in their graduate programs.

Preparedness for content in a specific discipline can be addressed by an institutional follow up of all graduates. Different graduate programs will have varying expectations of the prior knowledge necessary for graduate students. By having regular conversations with their alumni, McNair Program administrators can begin to see patterns of data that will inform them of the academic content that should be reconsidered, and in turn inform the specific departments within their institutions.

Other learning curves have more to do with navigating the world in general. Juggling financial issues; learning how to navigate a new setting; and moving away from home, family, and friends, without the time or resources to stay physically connected, are personal issues that take a toll on a student's ability to succeed in graduate school. For many, just knowing that others have experienced these issues and survived can be helpful. Therefore, research faculty and McNair staff and alumni need to mentor scholars about these graduate school realities.

The least identified learning curves for these non-traditional students were learning how to develop academic relationships and social networks, learning how to conduct research, and learning to address racist and prejudiced behaviors in the academic and community settings. We believe that the participants' experiences with being in a cohort during their McNair Program, having strong undergraduate faculty mentors, having the opportunity to make public presentations of their research, and having McNair Program faculty and staff provide pressure and support for academic excellence are all factors related to these findings. That so many alumni in this study mentioned keeping in touch with their McNair faculty and peers after leaving for graduate school, and reaching out to them for support in times of crisis, speaks to the strength and importance of the psychosocial connections formed within the McNair Program.

We believe that McNair staff can best assist students by providing specific strategies related to time management, graduate level reading and writing, and diverse research methods. Because McNair Scholars, as undergraduates, are exposed to an extensive amount of knowledge and information, it would be beneficial to have an accessible database of this knowledge and information for alumni to access when needed. . For example, downloadable versions of the resources, templates, and strategies presented in a time management seminar can be saved onto a program's web site for future reference.

This study illuminated the value McNair alumni place on their continued connections with what one alumnus, Bill, specifically called his "McNair Family". A desire for contact with McNair peers speaks to the need for a national McNair Network. **C**ontinuing participation in the McNair community should not be left to chance and McNair Programs should provide scholars with a network of peer and faculty mentors who are available on graduate campuses. Additionally, faculty mentors should be encouraged to introduce McNair mentees to professional peers and others who can support the scholars. McNair alumni, on campus and within the larger community, should be used as a resource to encourage and support all FLU students on a campus. Utilizing social networking sites, such as Facebook, is one way to keep cohorts connected once they disperse to their graduate programs. Graduate schools can have McNair group meetings on campuses where all the McNair alumni on campus can meet and share their common bond. Perhaps McNair could incorporate a service expectation of graduates, asking them to give back service hours to any one of the 200 McNair Programs across the country.

To prepare first-generation, low-income, and underrepresented students for successful participation in graduate school, undergraduate experiences must be intentionally designed to provide students with the skills, knowledge and dispositions necessary to address potential graduate school learning curves. We believe the Ronald B. McNair Postbaccalaureate Achievement Program offers universities a structure for better preparing non-traditional students, and possibly all students, for graduate school.

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