Hello. Jerlando Jackson committed research misconduct.

Part A

Unreported research misconduct

1

Engaging, Retaining, and Advancing African Americans in Student Affairs Administration: An Analysis of Employment Status. Jerlando F. L. Jackson, Ph.D. NASP Journal v. 6 n. 9, 2003, 9-11 [federally funded research https://eric.ed.gov/?id=EJ669362]

Abstract

As the higher and postsecondary education enterprise has expanded, there has been increased scrutiny of the effect of policies on full access and equal treatment for people of color, more specific to this investigation - African Americans. Decision makers at colleges and universities have developed policies and programs to increase diversity, while making substantial progress with African American students; access into student affairs administration is still limited. Decisions to include African Americans into student affairs administration, particularly in senior-level positions, appear to have far-reaching effects on the experiences of African American students at institutions of higher and postsecondary education. This article calls for a stronger research agenda explicitly focusing on the engagement, retention, and advancement of African Americans in the student affairs profession.

American colleges and universities have been transformed in the past generation from a racially and gendered homogenous population to a fairly diverse one, although not yet in proportion to the general population (Cohen, 1998). The enrollment for African American students has soared since the 1950s, and institutional affirmative action policies have reflected, in turn, both the liberal tendencies of the 1960s and the conservative movement of the 1980s (Nettles & Perna 1997). College access for African Americans expanded greatly from the 1960s through the 1990s, and presently colleges and universities are becoming less accessible (Harvey, 2002). This phenomenon has resulted in more African American students attending predominantly White institutions (PWIs) rather than historically Black colleges and universities (HBCUs) (Allen, 1992; Harvey, 2002).

The relationship between student experiences and contact hours with professionals on campus (faculty and administrators) has been a fundamental concept developed in the literature on college student development (Pascarella & Terenzini, 1991). African American college student experiences in relation to engagement with faculty have been more fully addressed in the literature. To provide a comprehensive view of African American student engagement this inquiry focused on the connection with college administrators (Davis, 1994). Toward that end, the articles in this special theme issue were solicited from researchers with a wide variety

of disciplinary orientations, institutional affiliations, and ideologies that collectively address the growing need to increase the diversity of student affairs administrators and service providers.

Each makes an important contribution to the challenge of engaging, retaining, and advancing African Americans in student affairs administration. The differences of emphasis and interpretation reflect both the complexity of the overall situation and the less-than-settled nature of the research. This collection is intended to advance the quality and rigor of research associated with African Americans in student affairs. Given the paucity and problems with the extent research, it is difficult to address directly many of the major issues and challenges. In spite of the diversity of perspectives and complexities, important common themes are apparent in these studies and other recent research:

1. African American student affairs professionals are playing an important role in the lives of college students.

2. Institutional policies are reflecting rather than altering societal norms of disparate treatment of African Americans.

3. Some institutional policies have made a difference, but if colleges and universities are to be instruments for expanding opportunity; substantially stronger policies will be needed.

4. There has been a general trend toward policies that diminish access for African Americans to top-level positions in student affairs.

5. There are serious questions about the success of predominantly White institutions in solving the dilemmas of administrative diversity.

This introductory article offers a broad interpretation of the issues and suggests how the various papers, other research, and official reports contribute to a better understanding of the benefit for engaging, retaining, and advancing African American student affairs professionals.

Public Policy and College Opportunity by Gary Orfield, American Journal of Education, Aug., 1990, Vol. 98, No. 4, 317-18

As higher education has expanded and become far more important economically, there has been increasing scrutiny of the effect of college policies on full access and equal treatment forwomen, minorities, and students from lower-income families. Colleges and federal and state officials have been raising costs rapidly while substantially reducing the adequacy of scholarship assistance, and those policies have limited access. Decisions about the structure of public higher-education systems, particularly their reliance on community colleges to provide wide access, appear to have far-reaching social effects. This article calls for a stronger research agenda explicitly focusing on social effects of policies and considering a broader array of educational approaches.

Introduction

American colleges have been transformed in the past generation from important but secondary institutions for distributing status and opportunity to primary institutions of growing importance. Their resources and enrollments have soared since the 1950s, and their policies have reflected, in turn, both the liberal tendencies of the 1960s and the conservative movement of the 1980s. College choices and aid first expanded greatly from the 1960s through the mid-1970s, and then colleges became less accessible. The relationship between education and opportunity in American society is an elemental political and social question. The articles in this special issue were commissioned from researchers with a wide variety of disciplinary orientations, institutional affiliations, and ideologies to respond to the growing debates about access to college. Each makes an important contribution to interpreting the relationship between higher education and society. The differences of emphasis and pretation reflect both the complexity of the overall situation and the less-than-settled nature of the research. This collection is intended to move research to a more sophisticated level, not to provide all the answers. In spite of the diversity of perspectives, important common themes are apparent in these studies and other recent research:

1. Higher education is playing a more decisive social and economic role.

2. The institutions and policies are reflecting rather than altering the underlying opportunity structure in the society.

3. Some public policies can make a difference, but, if colleges are to be instruments for expanding opportunity, substantially stronger policies will be needed.

4. There has been a general trend toward policies that diminish access in the past decade.

5. There are serious questions about the success of the two-year campuses in solving the dilemmas of college access.

This introductory essay offers a broad interpretation of the issues and suggests how the various papers and other research and official reports contribute to a better understanding of the social consequences of higher-education policy.

Basic Questions about African Americans in Student Affairs Administration

There are several critical questions that should guide any assessment of the changing patterns of opportunity for African Americans in student affairs administration. Who will be employed? What kinds of institutions employ African Americans? Who decides on access, and are the grounds for the decision fair? Are institutions funded similarly for student affairs activities? Are salaries equitable for those performing similar positions? Are African American student affairs administrators represented in areas that serve a high percentage of the African American student population? All of these are part of the larger question surrounding the engagement, retention, and advancement of administrators of color in higher and postsecondary education. Institutional policies that have changed the answers to these questions are very important targets of research.

Public Policy and College Opportunity, Gary Orfield, 322

Basic Questions about College Opportunity

There are a few basic questions central to assessing the changing patterns of opportunity for advantaged and for traditionally excluded groups in American higher education. Who is getting in? What kind of institutions are they attending? Who decides on access, and are the grounds for decision fair? How influential are family income and wealth in determining access? Do the various institutions permit lateral transfers, or do they constitute a hierarchy in which few students ever move up? Who finishes? What difference do degrees make for their future lives? All these are part of the larger question about the relationship between college opportunities and an American society stratified by income, race, and sex.

3

Jackson, Engaging, Retaining, and Advancing African Americans in Student Affairs Administration, 21

Possible Policy Implications and Research Agenda

Americans have supported higher and postsecondary education with the belief that it is a vital opportunity for their children's future and critical to sustaining democracy and enhancing economic growth. However, colleges and universities often reflect or transmit rather than change underlying social and economic dispositions. The research in this issue indicates that the substantial expansion of colleges and universities has produced very different opportunities for African Americans in student affairs related positions. These opportunities may be allocated not by ability but race or gender. Mirroring the changing demograph- ics of society in general, the undergraduate and graduate student population is becoming more ethnically and racially diverse each year. Colleges and univer- sities are no longer operating in a period of homogenous student representation; clearly, they are in an era where a highly diverse

faculty, staff, and administrative team is essential for maintaining institutional integrity with legislators, parents, employers, and most importantly students.

Some of the most difficult research and policy challenges concern achieving administrative diversity in student affairs administration. Key targets for research, for instance, should includedemonstrating the impact of institutions with diverse leaders versus those who do not have voices from culturally diverse backgrounds represented in decision-making roles. Another research and policy goal is to determine the most effective combination of activities that enable African American administration to be engaged, retained, and advanced to se- nior level student affairs administrative positions. Of universal interest, is the need to explain whether the measures used by institutions to achieve diversity in student affairs are most effective from various stakeholder perspectives. There are many partial and preliminary findings in the literature but no comprehensive solutions or strategies. Solid data documenting the effects ofadministrative diversity in student affairs on increasing campus-wide (e.g., students, faculty, and staff) diversity would be invaluable. These collective inquiries would lead to an overall understanding of what institutional factors and staffing plans maximize the graduation outcomes for minority students. Authors of the articles in this issue have made significant contributions to the systematic investigation of important issues related to African Americans in the student affairs profession. However, much essential work remains to be done.

Public Policy and College Opportunity, Gary Orfield, 345-48

Possible Policy Implications and the Research Agenda

Americans have heavily supported higher education in the belief that it is a vital opportunity for their childrens' future and critical to the continuing growth of the American economy. Colleges, however, often reflect rather than change underlying social and economic cleavages. The research in this issue indicates that the vast expansion of colleges has produced very different opportunities for students, opportunities that may be allocated not by ability but by wealth, race, where they went to high school, and the type of public higher-education system their states have decided to provide. Sometimes they are allocated by sex. Increasing barriers to access to four-year campuses, rising tuition, and greatly diminished real levels of financial aid reflect policies of the last decade that are making college less accessible for many students. Colleges are no longer in the period of rapid growth; they are in a time when good information is essential in making hard choices.

…

Some of the most difficult research and policy challenges concern financial aid. Key targets for research, for instance, should include simplifying the very complex system of financial aid applications for poor families. Another research and policy goal is determining the most effective combination of grant aid, work study, and so forth, for increasing college participation in low-income, working-class, and minority families. There are many partial findings in the research literature but no good experiments. Counseling is a research subject of obvious

importance when considering the complexity of entering college and the very limited knowledge that many students and parents possess about negotiating the systems. Solid data proving the effect of various practices on increasing retention of disadvantaged students or examining the efficacy of various forms of precollegiate and collegiate support systems would be invaluable.

…

The authors of the articles in this issue have made significant contributions to systematic investigation of those issues. Much essential work remains to be done.

4

Decanal work: Using role theory and the sociology of time to study the executive behavior of college of education deans by Jerlando F. L. Jackson. A dissertation submitted to the graduate faculty in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY, Iowa State University Ames, Iowa 2000, 45-46

The academic dean position is defined as the head of an academic unit, division, college, or school of a university. Furthermore, deans report to the president through the provost or vice president of academic affairs, which represents the administrative side of the university (Gould, 1964; Simpson, 1996), while also representing the faculty of their college through the leadership of the departmental chairs (Morris, 1981). These two sides do not always share a common vision. This research was designed to study the work inherent to heading a college or school.
A consensus of the definition for activity is not easily achieved. A cross-trainer calls the physical act of stretching and warming up for the race an activity; observers may see the execution of the race as an activity. In this study, the term activity was used to refer to an administrative event with a stimulus and participant(s), such as meetings, telephone calls, campus tours, or the receipt of mail.

It is stated in the first premise that all deans engage in the same basic set of activities.Therefore, it is inherently implied that this set of activities is finite and determinable, permitting the researcher to categorize all the dean's work into one set of activities, ultimately to aggregate these activities to form roles. Secondly, the premise states that academic deans are different in two ways. First, there are different degrees to which they engage in activities. The mix of activities will vary, and this will likely depend on the type of college or school headed(i.e., public vs. private institution) (Bryan, 1980; Corson, 1968; Dill, 1980). For example, one would expect the dean at a private institution to be more involved than a public institution dean in fundraising activities. Second, administrative style differs for each individual (Bernier, 1987; Gieger, 1989; McCarthy & Reyes, 1987). Personalities will shape the way deans approach a given situation. For example, all deans will have to resolve conflict situations, but the methods used to reach resolution will be different (Burke, 1969; Feltner & Goodsell, 1972).

The manager at work; determining his activities, roles, and programs by structured observation. Massachusetts Institute of Technology, Alfred P. Sloan School of Management. Thesis. 1968. Ph.D. Mintzberg, Henry, 55-56

The manager is defined simply as that person in charge of a formal organization. If the organization is one that is concerned with operating production machines within the context of a larger organization, the manager is called a "foreman". If the work of his organization is relatively unspecialized, he may be called a "general manager". The term "executive" usually refers to a high-ranking manager in an organization that has many managers, and the "chief executive" is the man who heads a relatively autonomous organization. This research is designed to study the work inherent in the running of formal organizations, and it matters l i t t l e whether the organizations are government departments, conglomerate companies, or machine shops contained in conglomerate companies. The term "activity" cannot be defined easily. An industrial engineer calls the physical act of grabbing a machine tool an activity; others may see the execution of NASA's Apollo Program as an activity, In this research, the term "activity" will be used to refer to a managerial event with a particular stimulus and particular participants, such as a meeting, a telephone call, a plant tour, or the receipt of a piece of mail.

The first premise states that all manager engage in the same basic set of activities, It is further implied that the set is finite and determinable, that we can realistically categorize all managerial work into one set of activities and then show that all managers do these things. For example, a l l managers engage in ceremonial and Information gathering activities, among other things.?

However, the premise further states that managers differ in two ways. First, they engage in these activities to different degrees, that is, the mix of activities varies, and it likely depends largely on the type of organization being managed. For example, one would expect thepresident of a university to engage in more purely ceremonial work than does a factory foreman. Second, managerial style -- "predictable ways of coping with the reality of the work environment" - differs. Depending on the personality of the particular manager, he will approach an activity in a particular way. Thus, for example, all managers must resolve personnel conflicts in their organizations, but their methods of reaching solutions will vary widely.

5

Jerlando F. L. Jackson, Dissertation, 46

Unfortunately, this research did not focus on administrative style or the mix of activities. The attempt was to define the kinds of activities in which academic deans engage and the reason for their involvement. Consequently, any activity that was found to be common to all deans was defined as a decanal activity. A conscious attempt was made to relate any work performed by deans in their position before the activity was dismissed from the study.

The manager at work, Mintzberg, 57

Thus, this research is unconcerned with managerial style, and only marginally concerned with the mix of activities. The emphasis is on defining the kinds of activities in which managers engage, and the reasons for their involvement.

It follows from the first premise that any activity which can be found to be common to all managers must be defined as a managerial activity. And a thorough attempt must be made to relate any work that a manager is found doing to his position as manager before that work can be dismissed as non-managerial. This view is in direct conflict with one stated by Peter Drucker, and found frequently in the literature:

6

Jerlando F. L. Jackson, Dissertation, 64

Role conformity was used to compare the dean's roles against the executive roles generated by Mintzberg (1973). Conformity connotes compliance to some pattern of behavior; sometimes that pattern is conceived as the modeling of behavior by others. Conformity is achieved when a person correctly imitates the role of another. Studies of conformity generally investigate the relationship between expectations and behaviors. Role expectations are certain normative obligations and responsibilities of one's role. The role conformity phase will expose similar and dissimilar behavior between roles identified in the present study and executive roles previously found by Mintzberg (1973). The literature of role theory contains numerous references to role as some particular common behavior of persons (Biddle, 1979; Burt, 1982); '"shared" and "patterned" are other terms that often have the same meaning, while "unique" and "deviant" have the opposite connotation' (Biddle & Thomas, 1966, p. 59). In short, the study will take the structure and content of the dean's daily activities to delineate roles and then aggregate them to form the executive behavior of academic deans. Figure 1 visualizes this data analysis conceptual model.

Ann. Rev. Social. 1986. 12:67-92. RECENT DEVELOPMENTS IN ROLE THEORY. B. J. Biddle, 78-9

Conformity connotes compliance to some pattern for behavior. Sometimes that pattern is conceived as the modeling of behavior by others, and a good deal of research has been published on conformity as social imitation. But why do persons imitate the behaviors of others? Most role theorists answer this question by invoking the concept of expectation. They argue that others' actions either reflect or lead the person to form expectations and that it is the latter that induce conformity. Thus, for role theorists, studies of conformity generally investigate the relationship between expectations and behaviors.

Biddle, B. J., & Thomas, E. J. (Eds.). (1966). *Role theory: Concepts and research.* John Wiley & Sons, 59

The literature of role contains numerous references to role as some particular common behavior of persons; “shared” and “patterned” are other terms that often have the same meaning, while “unique” and “deviant” have the opposite connotation.

7

Jerlando F. L. Jackson, Dissertation, 3

The enormous responsibility of leading the formal organization and administration of the college of education falls on the dean; this organization continues to become larger and more complex (Clark & Guba, 1980; Culbertson, 1980; Tucker & Bryan, 1991). The activities of the dean ranges from faculty development (Gray, Adam, Froh, & Yonai, 1994) to obtaining external financial support (Hall, 1993; Sivage, Bryson, & Okum, 1982). Now more than ever, we must be able to understand the work of academic deans and the academy as a whole, so that incumbents may benefit from the research allowing us to train potential deans. One reason for this urgency is because of the increased accountability placed on colleges and universities by taxpayers (Gould, 1964; Riggs & Huffman, 1989). Taxpayers are demanding that colleges and universities operate efficiently and deliver on their mission statements.

The manager at work, Mintzberg, 13

To the manager falls the enormous responsibility of guiding the formal organizations of society, organizations that are continually becoming larger and more complex. Now, more than ever before, we must be able to understand the work of managing, so that managers may derive the benefits of scientific investigation and so that we may train in a meaningful way those who are to assume managerial positions,

8

Jerlando F. L. Jackson, Dissertation, 46-47

Mintzberg states “It is a truism that the totaljob of the manager [academic dean] is no more than the sum of all the individual activities” (1968, p. 58). Hence, understanding these individual activities are key in understanding the executive behavior of academic deans. The research methodology employed must provide the opportunity to generate hard data on the activities of academic deans so that theories can be tested or constructed on empirical foundations. An inductive approach was needed. Other researchers who have attempted to study executive behavior have reached the same conclusion:

> We have hewed close to an inductive procedure. Given our desire to describe executive action accurately, we sought to let the descriptive materials speak loudly to the theory. We think this is fundamentally necessary if organization theory is to be grounded in the study of organizational behavior. (Dubin & Spray, 1964, p. 108)

The manager at work, Mintzberg, 58

But what can be expected from such a procedure? It is a truism that the total job of the manager is no more and no less than the sum of all the individual activities. Since we know nothing of these individual activities, what can we know about the composite? Thus, the research methodology must provide the opportunity to start at the beginning, to generate hard data on the particular activities of particular managers so that theory can be constructed on empirical foundations.

Thus, it is necessary to use an inductive approach. Deduction is only possible once a phenomenon has bean categorized and understood. Other researchers who have attempted to study managerial work empirically have reached the same conclusion:

> We have hewed close to an inductive procedure. Given our desire to describe executive action accurately, we sought to let the descriptive materials speak loudly to the theory. We think this is fundamentally necessary if organization theory is to be grounded i n the study of organizational behavior. (Dubin and Spray, op. cit., p. 108.)

9

Jerlando F. L. Jackson, Dissertation, 47

A number of methodologies were used previously to study executive behavior, and they were considered for this study as well. During this process each of them was considered and deemed inappropriate for this research. The methodologies are discussed below.

Interview and Questionnaires. To ask deans what they do transfers the responsibility of the research to them, making them the researcher. Danger exists because the description offered could be normative rather than descriptive. Therefore, deans may provide a distorted picture of their activities. However, interviews were used as a research aid to gather supplemental data (Dexter, 1970; Fontana & Frey, 1994).

Diaries. A popular method employed requires the subject to record activity tabulations on a number of parameters. The standard procedure is that the researcher would provide precoded pads, listing the set of words from which the subject is to choose. An advantage is that the dairy approach makes it possible to study many subjects for extended time periods. However, the disadvantages are: there are limitations on what can be studied, the neat categories required for diary recording are not characteristic of executive behavior, and the subject would be far too busy to record properly. The most noted studies on executive behavior employing this method are: Carlson (1951), Bums (1954), Dubin and Spray (1964), Home and Lupton (1965), and Stewart (1967).

The manager at work, Mintzberg, 59-63

A number of methodologies were considered, but it was felt , at a very early stage, that each of them was Inappropriate for inductive research. The methodologies that were considered are discussed below:

1. Interview and Questionnaire: To ask the manager what he does is to make him the researcher. There is the danger that the description will be expressed in normative rather than in descriptive terms. In the previous chapter, it was demonstrated that managers tend to use the words of POSDCORE when generalizing about their work. It is indeed strange to imply that managers should be unable to provide generalized insight Into their own activities, but this implication is reinforced by the words of Douglas McGregor: … Thus, interviews and questionnaires could only be considered as research aids.

2. Diaries: The most popular method to date has been recording by diary - an activity-by-activity tabulation of a number of parameters recorded by the manager. To ease the time pressures on the participants, the researchers have used precoded pads, listing the set of words from which the managers were to choose. Figure I shows the form used by Sune Carlson in h i s study.

In an article entitled "The Use of Diaries to Study Managers' Jobs", Rosemary Stewart explained that diaries were chosen instead of observation because they made it possible to study many managers for extended time periods, with recording done "by the man who knows what he is doing. However, she made the choice recognizing the diary's disadvantages:

> There are great limitations on what can be studied if one is aiming at comparability. The limitations are not quite as great if one 1s studying a homogeneous group of managers.

…

Two further criticisms, which become apparent during the research are that (1) the neat categories required for diary recording are not characteristic of managerial work, and (2) the manager is far too busy to record properly.

10

Jerlando F. L. Jackson, Dissertation, 61-62

CHAPTER IV
DEFINING DECANAL ROLES

What roles does the dean play in his or her college? The answer to this question is basic to the management of colleges; however, the literature on the deanship does not provide an empirically derived answer. Moreover, the answer to this question will help build a theory of what deans do, and add to the existing knowledge base of what executives do in general.
As stated in Chapter I, the dean's roles are gleaned from the job advertisement and university regulations. More accurately stated, the job qualifications and requirements are developed by

search committees for the former, and university committees for the latter. For the most part, these committees consist of faculty members who may or may not be familiar with the dean's work. Consequently, words such as plan, budget, and implement are frequently used to describe what deans should do.

The widely accepted words used to explain what deans do are based on generalities and assumptions; therefore, they are vague. These words (please see Chapter I) places a label on the dean's work, but they have never been explained. For example, it is reasonable to expect the dean to "collaborate" with individuals within and outside the college, but what other meaning does this word convey? What does a dean actually do when "collaborating" with others? While the dictionary can clearly delineate the meaning of "collaborate," can the dean do so in his or her daily activities? Empirical research has done little to develop meaningful relationships between many of the words used to describe the dean's work and actual decanal activities. Clearly, there is a need to find better words to describe the roles deans play in their college. The description of these roles should be derived from empirical research. Therefore, it should be possible to relate the set of roles back to all observable decanal activities.

The manager at work, Mintzberg, 208-10

CHAPTER VI
REDEFINING THE MANAGER"S ROLES

What roles does the manager play in his organization? The answer to this question is very basic to the study of management, yet the literature of management does not provide very adequate answers. As discussed in Chapter II, only one answer continues to appear in the literature. This view of managerial "functions" was developed by Henri Fayol at the turn of the Century, and was labeled "POSDCORB" by Luther Gulick in the 1930's. POSDCORB stands for planning, organizing, staffing, directing, coordinating, reporting, and budgeting. These words have permeated the field of management to such an extent that today they are widely accepted without question as the management functions: Textbook writers still use them to describe managerial work; management analysts turn to them as a basis for analysis; managers themselves tend to define their functions in these terms.

Despite its widespread acceptance, POSDCORB has been strongly criticized for a few basic reasons. The words of POSDCORB are vague, they simply label those aspects of the manager's job that have never been explained, It seems reasonable to expect that a manager should somehow "coordinate" the parts of his organization, but what other meaning does the word convey? What does a manager actually do when he performs the coordination functions? And while the dictionary can distinguish between "coordinating" and "planning", can the manager do so in his day-to-day activity? In fact, empirical researchers have been unable to develop any meaningful relationships between many of the words of the POSDCORB and actual managerial activity. POSDCORB defines certain vague objectives of managerial work; it does not provide much insight into managerial roles.

Clearly, there is a need to find better words to describe the roles that the manager plays in his organization, The description of these roles should be designed to serve the needs of research and management science, and should be derived from empirical research, It should be possible to relate the set of roles back to all observable managerial activity.

11

Jerlando F. L. Jackson, Dissertation, 12

The literature is more concerned with general speculations regarding the functions of the academic deanship than with actual descriptions of their work.

The manager at work, Mintzberg, 19

"The literature is more concerned with general speculations regarding the functions of executives than with actual descriptions of their work." (Sune Carleson, Executive Behavior (Stockholm: Strombergs, 1951)

12

Jerlando F. L. Jackson, Dissertation, 12

The term or title "dean" was derived from the latin term "decanus," which was a military officer status in the roman army meaning "set over ten people" (DeVane, 1968; Milner, 1936). The military designation eventually disappeared; however, it reappeared in the monasteries later. In the monastery the "decanus" was the chief monk who monitored ten monks (DeVane, 1968; Mobberley & Wicke, 1962). Senior monks were head of the monastic community in the absence of the abbot. "The deans in the monasteries carried administrative, disciplinary, and spiritual responsibilities" (Milner, 1936, p. 17). It is interesting to note here the similarity of the "decanus" to academic deans.

Oxford and Cambridge universities borrowed the monastatic term when they introduced the title dean in their colleges. This was not unusual since both of these colleges were subdivisions of the church (Mobberley & Wicke, 1962). These early deans were "appointed to supervise the conduct and studies of the junior members, to maintain discipline among them, to present them for graduation, and to preside at the disputation of scholars" (Milner, 1936, p. 18).

Milner, C. A. 1936. The dean of the small college. Boston, MA: Christopher, 17-18

The title "dean" came from the Latin term decanus which was a military grade in the Roman army, and designated an officer "'set over ten people." Although the military office seems to have disappeared, the title reappeared in the monasteries. The decanus was the chief and monitor of ten monks or hermits; the senior decanus served as the head of the monastic

community in the absence of the abbot. The deans in the monasteries carried administrative, disciplinary, and spiritual responsibilities. Thus it is interesting to note the similarity between the functions of the decanus in the monastery and the dean in the American college.

The title of dean, as it was used in the colleges of Oxford and Cambridge, came in the first place from the monastic usage of the term. The colleges, orig- inally being subdivisions of the church, naturally used church terminology. In the colleges one or more resident fellows were appointed to supervise the conduct and studies of the junior members, to maintain discipline among them, to present them for graduation, and to preside at the disputation of scholars.

13

Jerlando F. L. Jackson, Dissertation, 48

Considering the multiple types of academic deans (Dill, 1980; Gould, 1964; Griffiths, 1980), it is unrealistic to think one could obtain a representative sample of deans. The sample size would be entirely too large. Deans come from public or private institutions with different purposes, different disciplines, and varying sizes. The deans themselves will vary in years of experience, have been educated at different universities, may have experience in other administrative roles, and may have experience out of the academy (Moore & Sagaria, 1982).

No study therefore could claim to include all types of academic deans. Therefore, it is clear that this research will be exploratory because conclusions will be based on a few academic deans. However, assuming that all academic deans engage in the same basic set of activities (premise one), the theory could then be generalized to all types of deans. Thus, it was concluded that it will be more beneficial to probe deeply into the lives of a few deans, as opposed to attempting to control for the multiple variables of the deanship.

The manager at work, Mintzberg, 69-70

It cannot be argued realistically that research on the management activities must deal with a representative sample of managers. Such a sample will simply be too large. It is not difficult to demonstrate that there are many thousands of kinds of managers. Managers may come from public or private organizations, manufacturing or service organizations, organizations of varying size and of varying rates of growth. They may fill positions at the level of chief executive, upper or middle management, first-line supervisor. The manager himself may have varying years of experience in his job; he may have been educated at a business school, an engineering school, or he may not have attended university; he may be experienced in few or many managerial positions; he may or may not be an owner in addition to being a manager,

No study could claim to include all types from the managerial population. It became clear that any general research on the manager would have to be exploratory in the sense that conciusions would have to be based on the study of only a few types of managers. However,

given that all managers engage in the same basic set of activities (the fi r s t premise), the theory could then be extended to all types of managers.

Thus, it was clear that time would be spent more productively in probing deeply into the activities of a relatively few managers, and careful control of most of the varlables defining a managerial type was not considered to be a worthwhile exercise.

14

Jerlando F. L. Jackson, Dissertation, 54-55

Preliminary data was collected before any formal research activities began. The following data was collected before actual observations began:

One Month of Scheduled Appointments

Help from the dean's assistant was enlisted to collect information on all scheduled meetings that took place during the course of one month, preferably the month that included the week of observations. This information was used to determine whether the work week under study in typical or atypical.

Information about the College

Information that was requested included the organizational chart, appropriate articles, annual reports, and faculty handbook. This information was used to develop an understanding of the environment of the dean, to provide insight into potential questions that may surface during observations, and to become familiar with the names of members of the dean's administrative team.

Information about the Dean

Information was collected on the dean's background, personality, approximate working hours, work-related activities at home, administrative style, etc. A curriculum vitae, published materials authored by the dean, and interviews via telephone with the dean and/or assistant to obtain the remaining information was requested. This information was used to become familiar with the dean and to prepare for the actual week of observations.

The manager at work, Mintzberg, 72

Preliminary Data

Once a man had agreed to participate in the research, the following data were collected before the actual observation began:

One month of scheduled appointments: From the calendar pad,usually with the help of the manager's secretary, I collected information on all scheduled meetings (place, duration, participants) that took place during one month. I used this information to ensure that the work week under study was not atypical.

Information about the organization: Information collected included the organizational chart, reprints of appropriate articles, speeches by the manager, annual reports, books about the organization. This information was used to develop an understanding of the environment of the manager, to give insight into some of the strategy questions that might arise during observation, and to become familiar with the names of members of management who might interact with the manager during observation.

Information about the manager: I collected information on his background, personality, approximate working hours, work-related activity at home, managerial style, and so on. To get this information, I obtained a copy of his personal resume and other published information, and I Interviewed him, his secretary and/or his personal assistant. used this information to familiarize myself with the man and to prepare for the actual week of observation.

15

Jerlando F. L. Jackson, Dissertation, 43

The need for this research has been well documented. The actual activities performed by academic deans must be carefully studied as to their content and purpose.

The manager at work, Mintzberg, 53

The need for research has now been demonstrated. The actual activities performed by managers must be carefully studied as to their content and purpose.

16

PEABODY JOURNAL OF EDUCATION, 78(2), 88-110, 2003. How Associate Deans' Positions Are Designed Within the Context of the Top 50 Colleges and Schools of Education Jerlando F.L. Jackson, Walter H. Gmelch.

[The above uses “three design parameters of individual positions developed by Mintzberg (1983)” to examine how associate deans’ positions are designed. However Jerlando and Gmelch copy significant portions of Mintzberg’s text with attribution or quotation marks throughout, leading the reader to believe that they are original authors of text written by Mintzberg.]

Jackson and Gmelch 2003, 93

Job Specialization

Job specialization consist of two dimensions: (a) breath or scope-how many different tasks and how broad or narrow is each of these tasks (horizontal job specialization), and (b) depth-control over work (vertical job specialization). Horizontal job specialization is the predominant form of division of labor that is an inherent part of every organization and every human activity. The outcomes of horizontal job specialization are increased productivity, standardization of work from repetition, and focused attention on the worker. A prime example is working on an assembly line; each person is responsible for a different component of the final product. Vertical job specialization separates the performance of the work from the administration of it, simply the carrying out of activities. For example, when a chef is to prepare an order, he or she simply follows the recipe and prepares the dish as requested.

Job specialization creates a number of problems; most notable are com- munication and coordination. It is quite difficult to work across very specialized positions. As a result, there are methods to expand the position called job enlargement. These are attempts to address the problems associated with job specialization. Horizontal job enlargement would include the worker engaging in a wide variety of tasks associated with producing products and services. Vertically, job enlargement would entail the worker carrying out more tasks, but they also gain more control over them.

Mintzberg, H. T. (1983). Structures in fives: Designing effective organizations. Englewood Cliffs, NJ: Prentice Hall, 26

Job Specialization

Jobs can be specialized in two dimensions. The first is "breadth" or "scope"—how many different tasks are contained in each and how broad or narrow is each of these tasks.

…

Job specialization in the horizontal dimension—the predominant form of division of labor—is an inherent part of every organization, indeed every human activity.

28

Vertical job specialization separates the performance of the work from the administration of it.

…

job specialization creates a number of its own problems, notably of communication and coordination.

30

In horizontal job enlargement, the worker engages in a wide variety of the tasks associated with producing products and services.

…

When a job is enlarged vertically, or "enriched," not only does the worker carry out more tasks, but he also gains more control over them.

17

Jackson and Gmelch 2003, 93-94

Behavior Formalization

The formalization of behavior translates to the standardization of work processes for a particular position. There are three basic ways to formalize behavior: (a) by the position (job itself), (b) by the workflow (work), and (c) by rules (rules, regulations, and policies). Formalized behavior leads to vertical specialization because the worker simply carries out prescribed activities. Organizations formalize behavior to reduce its variability and ultimately to predict and control it. Formalization is used to promote efficient procedures for organizations. However, problems do exist for behavior formalization. For example, people are inherently composed to reject formalization and impersonalization (see authors such as Argyris, 1953, Bennis, 1966, Likert, 1961, McGregor, 1967, and Simon, 1965). The more stable and repetitive the work, the more programmed it is, and the more bureaucratic is the part of the organization that contains it. Behavior formalization is most common in the operating core of the organization (e.g., central office and dean's office). For instance, deans and associate deans operate within the core of the college or school; therefore, the work processes has been standardized to promote efficiency.

Mintzberg 1983, 34

Organizations formalize behavior to reduce its variability, ultimately to predict and control it.

36-38

Subsequently, people like Argyris, Bennis, Likert, and McGregor build their careers on the analysis of the psychological dysfunctions of highly formalized structures. They pointed out man's inherent propensity to resist formalization and impersonalization, and they showed the organizational "pathologies" that result from excesses in this direction.

…

the more stable and repetitive the work, the more programmed it is and the more bureaucratic that part of the organization that contains it.

…

behavior formalization is most common in the operating core of the organization.

18

Jackson and Gmelch 2003, 94

Training and Indoctrination (Socialization)

The third parameter training and indoctrination (socialization) is conceptualized as the specifications of the requirements for holding a position. Training specifically refers to the process by which job-related skills and knowledge are taught. Training is a key design parameter in all work we call professional. Professionals are trained over long periods of time, before they ever assume their positions. Once potential incumbents have demonstrated the required behavior, a professional association certifies them as appropriate candidates for the position. Professional training seldom imparts all the required knowledge and skills; therefore, some kind of on-the-job training takes place before the person is considered fully trained and assumes full responsibility for the position.

Indoctrination (socialization) is conceptualized as the process by which organizational norms are acquired. Socialization refers to "the process by which a new member learns the value systems, the norms, and the required behavior patterns of the society, organization, or groups which he or she is entering" (Schein, 1968, p. 3). Hence, socialization is strongly guided and related to the culture of the organization. Additionally, indoctrination (socialization) programs are particularly important where jobs are sensitive or remote and where the culture and ideology of the organization demands a strong loyalty to it.

Mintzberg 1983, 39

Training refers to the process by which job-related skills and knowledge are taught, whereas indoctrination is the process by which organizational norms are acquired.

40

training is a key design parameter in all work we call professional.

…

Professionals are trained over long periods of time, before they ever assume their positions.

…

Once the trainees have demonstrated the required behavior—that is, have internalized the standard skills and associated body of knowledge—they are duly certified by the professional association as appropriate for the job, and are subsequently hired by the organization to perform it.

Of course, the professional training program can seldom impart all the necessary skills and knowledge; some must always remain beyond specification and standardization.
So professional training must generally be followed by some kind of on-the-job apprenticeship before the person is considered fully trained.

41

Socialization "refers to the process by which a new member learns the value system, the norms, and the required behavior patterns of the society, organization, or group which he is entering" (Schein, 1968: 3).

…

But much socialization is related to the "culture" of the specific organization,

42

And indoctrination is most important where jobs are sensitive or remote, and where the culture and ideology of the organization demand a strong loyalty to it.

19

Jackson and Gmelch 2003, 100

Training and Indoctrination(Socialization)

The third parameter addresses the specifications of the requirements for holding an associate dean's position. For the most part, colleges and schools of education specify what knowledge and skills associate deans must have and what norms they must exhibit. This, in turn, helps to establish recruiting and selection processes to screen applicants in reference to position requirements. Furthermore, institutions can develop pro- grams to provide training for those holding associate dean's positions.

Mintzberg 1983, 39

Training and Indoctrination

The third aspect of position design entails the specifications of the require- ments for holding a position in the first place. In particular, the organization can specify what knowledge and skills jobholders must have and what norms they must exhibit. It can then establish recruiting and selection procedures to screen applicants in terms of those position requirements; alternatively, it can establish its own programs to develop them in the candidates it hires.

20

Jerlando Jackson, Retention of African American Administrators at Predominantly White Institutions: Using Professional Growth Factors To Inform the Discussion, 9-10 https://files.eric.ed.gov/fulltext/ED457818.pdf [federally funded; later published as: Jackson, Jerlando F. L. "Retention of African American Administrators at Predominantly White Institutions: Using Professional Growth Factors to Inform the Discussion." College and University, vol. 78, no. 2, 2002, pp. 11-16.]

Methodology

This Delphi study was conducted from an interpretivist perspective (Geertz, 1973). This approach seeks an informed, sophisticated understanding and explanation of actual meanings (e.g., events, situations, and behaviors) from participants. The focus on meaning is central to what is known as the "interpretive" approach or perspective (Geertz, 1973; Maxwell, 1996).

Study Design

The Delphi method was originally developed by the RAND Corporation to predict future military defense needs (Lindstone & Turoff, 1975). This method is a process for formulating a group consensus on subject matter where conclusive information is lacking (Cochran, 1983). Delbecq, Van de Ven, & Gustafson (1975) define the Delphi method as " a method for the systematic solicitation and collection of judgments on a particular topic through a set of carefully designed sequential questionnaires interspersed with summarized information and feedback of opinions derived from earlier responses" (p. 10). It is useful in gathering data from subject-matter experts without requiring face-to-face contact. The method was especially useful in this study because it helped pool the knowledge base of a group of African American administrators from across the country.

In general, the Delphi procedure consists of gathering individual answers to pre-formulated open-ended questions usually by questionnaire, using multiple rounds of questionnaires where the information feedback between rounds is carefully controlled by the researcher (Cochran, 1983). The major disadvantage or limitation of the Delphi method is the selection of participants. The sample must include those who are willing to participate, familiar with the subject matter, willing to donate their time, and at the same

time, capable of being randomly selected in the interests of validity (Cochran, 1983).

Key Ethical Issues for Human Resource Development in the Future: A Delphi Study. Julie C. Roberson, Ed.D. Barbara E. Hinton, Ed.D. 12-13 https://files.eric.ed.gov/fulltext/ED441117.pdf

Methodology

This Delphi study was conducted from an interpretivist perspective (Geertz, 1973, 1980). The interpretivist seeks an informed and sophisticated understanding and explanation of actual meanings for study participants meanings of events, situations, and actions or behaviors. Focus on meaning is central to what is known as the 'interpretive" approach or the interpretivist perspective (Geertz, 1973; Maxwell, 1996). By bringing together the individual experiences and expert opinions of a panel of HRD experts, consensus was reached regarding ethical issues to be faced by HRD professionals in the future.

Delphi as a Research Method

The Delphi method was originally developed by the RAND Corporation to predict future military defense needs (Lindstone & Turoff, 1975). The Delphi method is a process for formulating a group judgment for subject matter where conclusive information is lacking (Cochran, 1983). Delbecq, Van de Ven, and Gustafson (1975) define the Delphi method as `b method for the systematic solicitation and collection of judgments on a particular topic through a set of carefully designed sequential questionnaires interspersed with summarized information and feedback of opinions derived from earlier responses" (p.10). It is useful in gathering data from subject-matter experts without requiring face-to-face contact. The method was especially useful in this study because it helped pool the opinions of a group of HRD experts from across the country without getting them together or forcing the researcher to travel to the different experts' locations to gather data.

The Delphi procedure consists of gathering individual answers to pre-formulated open-ended questions usually by questionnaire, using multiple rounds of questionnaires where the information feedback between rounds is carefully controlled by the researcher, and presenting statistical group responses (Cochran, 1983).

Appropriateness of the Delphi

…

The major disadvantage or limitation of the Delphi method is the selection of participants. The sample must include those who are willing to participate, familiar with the subject matter, willing to donate their time, and at the same time, capable of being randomly selected in the interests of validity (Cochran, 1983).

Jerlando Jackson, Retention of African American Administrators at Predominantly White Institutions, 10-11

Data Collection

A modified, two round Delphi method was used to collect data for this study (Delbecq, Van deVen, & Gustafsun, 1975). The Delphi method began with identifying a group of individuals who have knowledge of the subject matter under study (Cochran, 1983). After the potential panel of experts was identified, a request to participate was issued. The potential panel members were contacted and explained the Delphi method. Included in this explanation was information regarding the subject of study and the amount of time required for participation.

Upon identifying the panel of experts, two rounds of questionnaires were used to collect data (Murry & Hammons, 1995). The first round used an opened question to obtain opinions of the panel of experts regarding what professional growth factors could predominantly White institutions implement to help retain African American administrators. Murry and Hammons (1995) describes this round as an "anonymous brainstorming session" (p. 424). After the responses were returned, these data were analyzed and used to develop a list of practical steps for the next round. In the second round, participants were asked to rank, edit, and comment on the steps from the first round. Upon receipt of the second round of responses, the original list was modified with the feedback from the panel of experts. The whole data collection process was facilitated through electronic mail.

Key Ethical Issues for Human Resource Development in the Future: A Delphi Study. Julie C. Roberson, Ed.D. Barbara E. Hinton, Ed.D. 13

Delphi Procedures

The Delphi method begins with identifying a group of individuals who have knowledge of the subject under study (Cochran, 1983). After the potential panel members are identified, a request to participate is issued. The researcher contacts potential panel members and explains the Delphi method. Included in the explanation is information regarding the subject of the study and the amount of time required for participation . The request includes the characteristics of the Delphi method and assures anonymity for each member. According to Uhl (1983), the request to participate should be extended by someone whom the individuals respect and should include the importance of the study.

Upon identification of the panel of experts, the researcher then uses multiple rounds of questionnaires to collect data (Murry & Hammons, 1995). The first round typically uses open-ended questions to obtain opinions of a panel of experts regarding a particular topic or issue under study. Murry and Hammons describe this round as an `anonymous brainstorming session" (p. 424). After the questionnaires are returned, the researcher analyzes the data and uses that analysis to design the questionnaire for the next round. In this round, participants are

asked to rate or rank, to edit and to comment upon the responses from the initial round. Most often, participants are asked to rank the items using a Likert scale. Upon receipt of the second round of questionnaires, the researcher conducts statistical analysis, most often computing frequency distributions, means and standard deviations (Murry & Hammons, 1995).

22

Jackson, Jerlando F. L. An Emerging Retention Model for Administrators of Color at Predominately White Institutions: The Results of Two Delphi Studies https://files.eric.ed.gov/fulltext/ED469647.pdf [federally funded; also published in A Long Way to Go: Conversations about Race by African American Faculty and Graduate Students, Chapter: 19, Peter Lang Inc., International Academic Publishers, Ed. Darrell Cleveland]

ABSTRACT

… This paper is the first step in a long process of refining the properties of this model and testing hypotheses about their interactions. The next step will be empirical research that attempts to further classify strategies according to the four phases of the model. (Contains 24 references.) (SLD)

Educational Evaluation and Policy Analysis. Summer 1987, Vol. 9, No. 2, pp. 133-152. Getting the Job Done: Alternative Policy Instruments. Lorraine M. McDonnell, Richard F. Elmore: 150

We view this paper as a first step in a long process of refining our categories of instruments and empirically testing hypotheses about their interaction with different policy problems and contexts. The next step will consist of empirical research that attempts to classify a diverse set of policies, operating in different institutional contexts, according to our four instrument types.\

23

Jackson, Jerlando F. L. An Emerging Retention Model, 3-4

A major challenge for colleges and universities, as it relates to retaining administrators of color, is the application of past research studies to build a conceptual framework, while at the same time producing more useful local knowledge for policy implementation … The long-term purpose in pursuing this task is to be able to answer the question: Under what conditions are administrators of color most likely to remain at their respective predominantly White institution?

Educational Evaluation and Policy Analysis. Summer 1987, Vol. 9, No. 2, pp. 133-152. Getting the Job Done: Alternative Policy Instruments. Lorraine M. McDonnell, Richard F. Elmore: 149

A major challenge for the next generation of policy research will be to apply the lessons of past implementation studies in building a more powerful conceptual framework and at the same time, in producing more useful information for policymakers. By focusing on alternative policy instruments, we are attempting to do just that. Because we view the instruments through which substantive goals are translated into action as lying at the core of any policy, we feel this approach will allow us to develop a parsimonious framework that specifies the key relationships among problem definition, instrument choice, organizational context

134

Our long-term purpose in pursuing this approach to policy analysis is to be able to answer the question: Under what conditions are different instruments most likely to produce their intended effects?

24

Jackson, Jerlando F. L. An Emerging Retention Model, 5

The focus on administrators of color stems from two interests, one empirical and the other practical. As noted above, the empirical reason is a desire to help develop a model for retaining administrators of color at PWIs. To achieve this goal, the approach employed was to merge the results of two Delphi studies with the outcome of retention based on variables that have produced the greatest explanatory connections.

Empirically, the most insightful studies have focused on two aspects of retention: (1) students; and (2) faculty. This research has produced a greater sensitivity toward diversity as it relates to representation, but has not produced a complete explanation, which may have led some researchers and policymakers to assume that these outcomes are the most important to attain.

Educational Evaluation and Policy Analysis. Summer 1987, Vol. 9, No. 2, pp. 133-152. Getting the Job Done: Alternative Policy Instruments. Lorraine M. McDonnell, Richard F. Elmore: 134-35

Our focus on policy instruments stems from two interests, one conceptual and the other practical. As indicated above, the conceptual reason is a desire to help forge a next generation of implementation research. In our judgment, the most promising approach is to work toward a more parsimonious model of the determinants of implementation outcomes and ultimate policy effects, while retaining those variables that have produced the greatest explanatory pay-off—namely, ones embedded in the local political and organizational context. Policy implementation research now faces a dilemma. The most insightful studies have tended to focus on one aspect of the process such as organizational context or practitioner response to new programs. This research has produced a greater sensitivity to the sources of variation in

implementation outcomes, but has not produced a complete explanation (and may even have led some analysts and policymakers to assume that implementation outcomes are largely idiosyncratic).

25

Jackson, Jerlando F. L. An Emerging Retention Model, 5-6

Further, Jackson (2001a, 2001b) explored environmental and professional growth factors necessary to retain African American administrators at PWIs. Although little conceptual and empirical work has yet been done on this topic, institutions are beginning to view it as useful (Bennefield, 1999). A conceptual model focused on retaining administrators not only holds the potential for moving beyond static progress for retaining this single group, but it also embeds concepts that could help to recruit and retain the other two populations (i.e., students and faculty).

The second, more practical reason arises from a concern that past research has done little to expand knowledge about retaining administrators of color in the form of concepts or models for colleges and universities. Key stakeholders on college campuses often lack information about the full range of options available for them to retain administrators of color. Many times the imposition of new programs seem to be the most feasible because it appears convenient and seemingly appropriate, except it may not be the most beneficial for those the programs are being developed.

Although these programs may sometimes be used together or in combination with other approaches, key stakeholders rarely have sufficient information about how such strategies can most effectively be integrated with one another for maximum benefit. Key stakeholders also lack systematic knowledge about the relative effectiveness of alternative programs in addressing retention for administrators of color. Additionally, there is little information about how well these programs fit with the overall retention efforts at the respective campuses. As a result, the link between research and practice is not as strong as it might be, because of the lack of information about retaining administrators of color.

Consequently, the chief purpose of this research is to expand previous work into a model that could be implemented into practice. These two approaches are not dichotomous (empirical and practice), but rather represent two ends of the same continuum. At one end lies a set of theoretical constructs; at the other more instrumental concepts, but both linked. Because the analysis for this paper is designed both to advance theory and produce useful information for decision makers, attempts are being made to draw on the strength of both approaches and negotiate these boundaries. Subsequently, the next section of this paper describes the two Delphi studies, followed by presenting the formal properties of the emerging retention model.

A conceptual framework focused on policy instruments not only holds the potential for moving beyond static descriptions of the implementation process, but it also embeds key variables such as local response patterns in a larger, theoretically richer context.

Although little conceptual or empirical work has yet been done using this approach, other policy analysts are also beginning to view it as a useful one. For example, one author has suggested that a fruitful way to maneuver the field of implementation research out of its current "rut" is not to continue to focus on individual programs or groups of programs, but instead to concentrate "on the generic tools of government action, on the 'techniques' of social intervention that come to be used, in varying combinations, in particular public programs" (Salamon, 1981, p. 256). Our research is an attempt to do that by analyzing what is meant by the successful application of a given instrument, and by identifying the conditions necessary for different policy instruments to work as intended. The second, more practical, reason arises from a concern that past research has done little to expand knowledge about the choice of instruments available to motivate policy action. Policymakers often lack information about the full range of instruments available to them. Many times the imposition of new mandates seems the most feasible option because it appears relatively inexpensive and presumably sends a clear signal about what policymakers expect from those being regulated.

Although they may sometimes use these two instruments together or in combination with other approaches, policymakers rarely have sufficient information about how such strategies can most effectively be integrated with one another or what other instruments are available. Officials also lack systematic knowledge about the relative effectiveness of alternative instruments in addressing different types of problems, their underlying dynamics, comparative costs, attendant problems, and how well they fit into the existing policy environment. This deficiency is a particular problem in policy areas like education because of the wide range of problems that must be addressed and the numerous local settings in which policy must operate. As a result, the link between policy and action is not as strong as it might be and policymakers may turn to mandates by default, because they lack information about the full range of policy instruments, their feasibility, and
likely effects. Consequently, one purpose of this research is to help expand the policy community's range of choice in the instruments it uses to solve different policy problems.

However, as Behn (1981) suggests, these two approaches are not dichotomous, but rather represent two ends of the same continuum. At one end lies a set of theoretical constructs; at the other, more instrumental concepts. But they are linked. The politician does consider what kinds of assumptions or conditions are necessary for different policies to operate effectively, and the analyst typically incorporates some elements of institutional context into his models.

Because our analysis of alternative policy instruments is designed both to advance theory and produce useful information for policy-makers, we have attempted to draw on the strengths of both approaches, and to negotiate the boundary between what formal constructs tell us can be done and what policymakers actually do.

26

Jackson, Jerlando F. L. An Emerging Retention Model, 9

This work is concerned about the range of options available for addressing the research problem, the underlying theoretical premises of those options, the fit between the problem and options, and the implementation problems associated with the task of retaining administrators of color at PWIs. The concerns of retention can be captured by a set of phases, which have been labeled: pre-engagement; engagement; advancement; and outcome (see Figure 1).

Educational Evaluation and Policy Analysis. Summer 1987, Vol. 9, No. 2, pp. 133-152. Getting the Job Done: Alternative Policy Instruments. Lorraine M. McDonnell, Richard F. Elmore: 136

We are concerned about the *range* of options available for addressing a particular problem, about the underlying theoretical premises of those options, about the "fit" between problems, objectives, and options, and about the special implementation problems associated withcertain classes of options. These concerns can be captured, we think, by a relatively parsimonious set of categories, which we have labelled mandates, inducements, capacity-building, and system-changing. Table 1 presents these categories and their constituent elements.

27

Jackson, Jerlando F. L. An Emerging Retention Model, 16-17

In this sense, this work was aimed at producing useful information about retaining administrators of color, but also to show how this may help increase the retention of students and faculty.

This paper is the first step in a long process of refining the properties of this model and empirically testing hypotheses about their interactions. The next step will consist of empirical research that attempts to further classify a diverse set of strategies, operating in different institutional contexts, according to the four phases of this model. The goal is to make certain that the properties of the model can be implemented at most, if not all colleges and universities. One empirical test for this model will be the degree to which the proposed properties can fit the variation of institutional types in academe.

The initial approach to this research was a multi-year examination of strategies for retaining African American administrators at predominantly White institutions. Consequently, this focus

provided a unique opportunity to explore retention. If this initial research was productive, it applies to other people of color, as well as various institutional settings. Another component of the empirical research will be aimed at developing fine distinctions within and across components of this model based on how they actually operate. In conceptualizing properties for this model they were done singly in order to make the distinctions among them clearer. However, it is understood that when choosing from a menu of options, key stakeholders often choose a combination of strategies for achieving a particular goal. Albeit, the model is set up for key stakeholders to select a dominant approach, but others approaches may be used to supplement or follow the primary one. This line of research will not only identify the different ways that these properties can be used with one another, but also various options for use within each phase.

Despite the number of unanswered questions and the size of the future research agenda, the focus on retaining administrators of color at PWIs is a productive one. Because it seeks to develop a predictive framework that links the major properties of previous research, it holds the potential for producing a theoretically richer generation of knowledge on retention. Yet the ability to provide the higher and postsecondary education community with new insight, beyond that gained from other theories or analytical frameworks, may be the strongest test of whether this model constitutes a valid depiction of retention for administrators of color and its effects.

Educational Evaluation and Policy Analysis. Summer 1987, Vol. 9, No. 2, pp. 133-152. Getting the Job Done: Alternative Policy Instruments. Lorraine M. McDonnell, Richard F. Elmore: 149-50

In this sense, our approach to the next generation of policy research is also aimed at producing useful information about the broader range of policy instruments. We view this paper as a first step in a long process of refining our categories of instruments and empirically testing hypotheses about their interaction with different policy problems and contexts. The next step will consist of empirical research that attempts to classify a diverse set of policies, operating in different institutional contexts, according to our four instrument types. We want to make certain that the policy instruments we have defined actually exist in that form in the policy arena. … One empirical test of our framework will be the degree to which the variation across classes of instruments is greater than the variation within any one type (e.g., among different kinds of mandates).

Our initial approach to this research is a multi-year examination of state-initiated education reforms in six states. While working in the same time frame and addressing similar problems, states have chosen to emphasize very different instruments and to use them in diverse combinations. Consequently, this focus provides a unique opportunity to explore the concept of alternative policy instruments. If this initial research is productive, we hope that other education policies, as well as ones in other policy areas, can be examined using the same framework.

…

Another component of the empirical research will be aimed at developing finer distinctions within and across categories of instruments based on how they actually operate. In conceptualizing classes of instruments, we have discussed them singly in order to make the distinctions among them clearer. However, we know that in selecting from a menu of options, policymakers often choose a combination of strategies for achieving a particular policy goal. At this point, we would hypothesize that for any given policy problem, policymakers will select a dominant policy instrument, but that others may be used to supplement or follow the primary one. … This line of research will not only identify the different ways that instruments can be used in combination with one another, but also which factors influence whether such combinations occur.

Despite the number of unanswered questions and the size of the future research agenda, we feel that a focus on policy instruments is a productive approach. Because it seeks to develop a predictive framework that links the major components of the policy stream, it holds the potential for producing a theoretically richer generation of policy research.

…

Yet the ability to provide the policy community with new insight, beyond that gained from other theories or analytical frameworks, may be the strongest test of whether our four classes of policy instruments constitute a valid depiction of public policy and its effects.

Part B
Publicly reported research misconduct

It was reported publicly that close to 20% of the paper "Using Culturally Responsive Practices to Broaden Participation in the Educational Pipeline: Addressing the Unfinished Business of Brown in the Field of Computing Sciences" by Sherri Ann Charleston, LaVar J. Charleston, and Jerlando Jackson (*Journal of Negro Education*, Volume 83, Number 3, Summer 2014) was published before in a 2012 paper by LaVar Charleston in the *Journal of Diversity in Higher Education*, including much of the language used to describe the study, its methods, and its results. As reported, the 2014 study is substantially a reprint of the 2012 journal article by LaVar Charleston. About 2/3 of the section entitled "Findings" in the 2014 paper was previously published as the "Conclusion" to the 2012 paper (see item B10 below). What the 2012 study described as its "major findings" are practically identical to what the 2014 study described as its "results" (see item 12 below). The description of the study participants is also the same across both papers, as are a number of long-form testimonies from participants treated as "data." For example

The participants in the 2012 were described as follows (225):

- "A total of 37 individual interviews were conducted"
- Interviews "ranged from 30 to 45 min"
- "22% of interviewees were undergraduate students"
- "48% were graduate students"
- "30% were PhD-minted professors or researchers"
- "50% of all participants either attended or were in the process of attending predominantly White institutions"
- "42% attended historically Black colleges and universities"
- "8% attended predominantly Black institutions"
- "The average participant age was 28.5 years"

The participants in the 2014 were then described as follows (406):

- "Thirty-seven computing sciences aspirants and practitioners were interviewed"
- "Interviews ranged from 30 to 45 minutes"
- "22 percent were undergraduate students"
- "48 percent were graduate students"
- "30 percent were PhD-minted professors or researchers."
- "50 percent of all participants either attended or were in the process of attending predominantly White institutions"
- "42 percent attended historically Black colleges and universities (HBCUs)"
- "8 percent attended predominantly Black institutions."
- "The average participant age was 29 years."

Also for example, the 2014 and 2012 study both report that a participant answered an interview question thusly:

One of my friends started teaching me about programming C++. The next semester I took an intro to programming . . . As an undergrad, I was an applied mathematics person. My friend told me to join the Olympiad (Computing and Robotics) team…

In fact the 2014 study presents itself as original research filling a gap in the literature, saying on page 403:

"Despite these findings, there is still a scarcity of research regarding specific, culturally relevant-practices that successfully engage African American students and steer them toward entering computer sciences pipeline. This study sought to bridge this gap. In doing so, this study was guided by the following research question: What factors contributed to the successful pursuit and persistence of African Americans in the computing science educational and occupational pipeline?"

In the 2012 study LaVar wrote on page 224:

"Within the body of literature that pertains to African American involvement in STEM fields, very few results have been reported on other programs or interventions that target this demographic as it relates to computing science. … As such, the primary research question within this study was as follows: "What key factors contribute to African Americans' pursuit of computing science degrees?"

Further, the 2014 paper lifts many pages of text from LaVar Charleston's 2012 paper and other authors without proper attribution. Below, to clarify, I highlight correct and incorrect but relevant references in red. Where there is no red highlight, it is because I can find no relevant citation at all in the Charleston passage.

Sherri Ann Charleston, LaVar J. Charleston, Jerlando Jackson. "Using Culturally Responsive Practices to Broaden Participation in the Educational Pipeline: Addressing the Unfinished Business of Brown in the Field of Computing Sciences" *Journal of Negro Education*, Volume 83, Number 3, Summer 2014

1

Charleston, Charleston, and Jackson 2014, 405

Stassen (2003) found that living-learning program participants had higher first-semester GPAs, tended to persist more readily from the first to the second year, and reported higher levels of institutional commitment and integration into the institution's academic systems than non-participants. Pike (1999) found gains in intellectual development, a point further supported by Inkelas and Weisman (2003) who noted living-learning program participants reported greater gains in critical thinking skills and greater enjoyment of challenging intellectual pursuits than resident students who were not participating in a living learning program. Another benefit is that in many living-learning programs, faculty members teach courses directly in students' residence halls. According to Johnson and others (2006), in doing so, opportunities for both formal and informal interaction are maximized. Additionally, students who participated in living-learning programs were more likely to report that their residence hall was academically and socially supportive than those who were not in living-learning programs, and they reported

a greater number of discussions with their peers around academic and social issues than non-participants. Similarly, living-learning participants reported more frequent instances of faculty mentorship than those students who were not in living- learning programs (Johnson et al., 2006).

Johnson, D., Soldner, M., & Inkelas, K. K. (2006, June). *Facilitating success for Women in STEM through living-learning programs.* National Conference of the Women in Engineering Programs and Advocates Network, Pittsburgh, PA, 3, 2-3, 4

Stassen (2003) found that participants had higher first-semester GPAs, tended to persist more readily from the first to the second year, and reported higher levels of institutional commitment and integration with the institution's academic systems than non-participants. Pike (1999) found gains in intellectual development, a point further supported by Inkelas and Weisman (2003) who noted living- learning participants reported greater gains in critical thinking skills and greater enjoyment of challenging intellectual pursuits than resident students who were not participating in a living- learning program.

Of the many benefits espoused by living- learning programs, some of the most consistently offered are those that relate to increased faculty and peer interactions. In many living-learning programs, faculty members teach courses directly in students' residence hall. In doing so, opportunities for both formal and informal interaction are maximized (Pike, 1999).

Students who participated in living- learning programs were more likely to report that their residence hall was academically and socially supportive than those who were not in living-learning programs, and they reported a greater number of discussions with their peers around academic and social issues than non-participants. Interestingly, living-learning participants reported more frequent instances of faculty mentorship than those students who were not in living- learning programs.

Charleston, Charleston, and Jackson 2014, 407

Using Strauss' (1995) constant comparison method, emergent themes were analyzed after all data were collected through participant interviews. Themes of particular interest to the researchers were those associated with elucidating the research question for this study. The themes were labeled and described independently by two researchers. These themes and their descriptions were cross- verified by the researchers together, re-labeled, and defined. Each researcher then re-examined the original transcripts for separate verification of the presence of the emergent themes. Original transcripts from these data were extracted as supportive evidence for the existence of each theme. The researchers combined findings from the separate analyses to produce a final description of each theme, along with their properties and dimensions.

Jackson, J. F. L., & Daniels, B. D. A pilot study of the workplace experiences for White student affairs professionals at historically Black colleges and universities: Implications for organizational culture and future research. NASAP Journal, 8(1), 2006, 33

Using Conrad's (1982) constant comparison method, emergent themes were analyzed after all data were submitted to the web-based data collection site. Themes of particular interest to the researchers were those associated with elucidating the research question for this study. Thesethemes were labeled and described independently by the two researchers. These themes and their descriptions were then cross-verified by the researchers together, re-labeled, and defined. Each researcher then re-examined the original transcripts for separate verification of the presence of the emergent themes. Original transcripts from these data were extracted as supportive evidence for the existence of each theme. The researchers combined findings from the separate analyses to produce a final description of each theme, along with their properties and dimensions.

3

Charleston, Charleston, and Jackson 2014, 407-408

Coding was an integral part of analysis within this study. Through first-level coding, data were extracted and placed into many themes and meaning categories, which enabled the researcher to summarize portions of data (Strauss & Corbin, 1990). Additionally, analyzing the data through codes achieved the goal of dissecting the interview data in a meaningful way, which in turn helped the researcher maintain the relationships of thematic representations (Miles & Huberman, 1994). Through the coding process, the emergence of categories and their theoretical underpinnings began to align and make sense. The theoretical implications that gradually formed from the categories that created meaning formed relative patterns. Strauss and Corbin (1990) posited that pattern coding enables the placement of first-level coding into more concise themes. Similarly, the patterns and thematic representations that emerge

embody grounded theory (Glaser & Strauss, 1967). When all the incidents were readily classified and the categories were saturated as represented through the emergence of much regularity, the researcher concluded the data collection and analysis portion of the study (Lincoln & Guba, 1985).

LaVar J. Charleston. Journal of Diversity in Higher Education 2012 Vol. 5, No. 4, A Qualitative Investigation of African Americans Decision to Pursue Computing Science Degrees: Implications for Cultivating Career Choice and Aspiration, 225

Open coding was an integral part of analysis in this study. Through first-level coding, I extracted data and placed them in many themes and meaning categories, which enabled me to summarize portions of the data (A. C. Strauss & Corbin, 1990). In addition, analyzing the data through codes achieved the goal of dissecting the interview data in a meaningful way, which in turn helped maintain the relationships of thematic representations (Miles & Huberman, 1994). Through the coding process, the emergence of categories and their theoretical underpinnings began to align and make sense. The theoretical implications that gradually came from the categories that created meaning formed relative patterns. A. C. Strauss and Corbin (1990) posit that pattern coding enables the placement of first-level coding into more concise themes. Likewise, the patterns and the- matic representations that emerge embody grounded theory (Glaser & Strauss, 1967). When all the incidents were readily classified and the categories were saturated as represented through the emergence of much regularity, I concluded the data collection and analysis portion of the study (Lincoln & Guba, 1985; A. L. Strauss, 1987).

4

Charleston, Charleston, and Jackson 2014, 407

Validity

In an effort to address reliability and validity of the qualitative inquiry within this study, the researchers employed a naturalistic approach. While traditional empirical research addresses validity in terms of reliability, internal validity, and external validity of measures and

procedures, the corresponding terms in naturalistic inquiry include audibility, credibility, and fittingness (Guba & Lincoln, 1981). Reliability in qualitative research involves the ability to replicate the study given a similar set of circumstances. Through naturalistic inquiry, the raw data ascertained by the researcher were coded in a manner whereby the contrived themes and theories are not only understood by another individual, but that individual is also able to arrive at a similar conclusion through the consistencies of the coded raw data.

Credibility within this study, in concert with naturalistic inquiry, was achieved by corroborating the structures that made up the study. More plainly, corroboration was ascertained by spending ample time with study participants to check for distortions, which facilitated prolonged engagement with study participants. Consequently, the participants' experiences were explored in sufficient detail that exemplified persistent observation. Additionally, multiple data sources were checked through comparing various forms of data such as digital audio recordings, physical transcriptions, consultation with other investigators, as well as researcher notes. The aforementioned processes of prolonged engagement, persistent observations, and checking multiple data sources embody the process of triangulation. Rudestam and Newton (1992) asserted that peer debriefing, revising working hypotheses throughout the data collection process, clarifying preliminary findings with study participants, and audio-/videotaping the interviews in an effort to compare to other means of data collected are customarily the procedures used to ensure the credibility of a study. Through the current study's primary method of individual interviews, triangulation occurred through corroborating persistent observations, checking multiple sources of data through an in-depth literature review, recording field notes, and the clarification of categories and narrative stories among study participants. These processes fostered structural corroboration of the study.

Charleston 2012, 226

Validity and Trustworthiness

In an effort to address reliability and validity of the qualitative inquiry within this study, I employed a naturalistic approach. Whereas traditional empirical research addresses validity in terms of reliability, internal validity, and external validity of measures and procedures, the corresponding terms in naturalistic inquiry include audibility, credibility, and fittingness (Guba & Lincoln, 1981). Reliability in qualitative research involves the ability to replicate the study given a similar set of circumstances. Through naturalistic inquiry, I coded the raw data in a manner whereby the contrived themes and theories are not only understood by another individual, but

that the individual is able to arrive at a similar conclusion through the consistencies of the coded raw data.

Credibility in this study, in concert with naturalistic inquiry, was achieved by corroborating the structures that made up the study. More plainly, corroboration was ascertained by spending ample time with study participants to check for distortions, which facilitated pro- longed engagement with study participants. Likewise, the participants' experiences were explored in sufficient detail, which exemplified persistent observation. In addition, multiple data sources were checked by comparing various forms of data such as digital audio recordings, physical transcriptions, and consultation with other investigators, as well as researcher notes. The aforementioned processes of pro- longed engagement, persistent observations, and checking multiple data sources embody the process of triangulation. Rudestam and Newton (1992) assert that peer debriefing, revising working hypotheses throughout the data collection process, clarifying preliminary findings with study participants, and audio-/videotaping the interviews in an effort to compare with other means of data collected are customarily the procedures necessary to ensure the credibility of a study. Through the current study's primary method of individual interviews, triangulation occurred through corroborating persistent observations, checking multiple sources of data through an in-depth literature review, recording field notes, and clarifying categories and narratives among study participants. These processes fostered structural corroboration of the study.

5

Charleston, Charleston, and Jackson 2014, 408

Positionality

This study was designed in an attempt to make meaning of African American participants' experiences throughout the course of their STEM education trajectory. As such, the authors repeatedly reflected on their own positionality and the impact of their complex racial, gender, and socioeconomic status, as well as educational identity of the interactions with participants and the interpretation of the resultant data. Moreover, inductive data strategies were employed, allowing the data to serve as the foundation of understanding while the findings are acutely descriptive and conveyed through direct quotes and thematic analyses.

Charleston 2012, 226

Positionality

This study was designed as a qualitative inquiry into the educational and occupational trajectories of African Americans into the field of computing sciences in an attempt to make meaning of participants' experiences through- out the course of their education. As such, I repeatedly reflected on my own positionality and the impact of my own complex racial, gender, and socioeconomic status, as well as educational identity with regard to interactions with participants and the interpretation of the resultant data. Moreover, I employed inductive data strategies, allowing the data to serve as the foundation of understanding wherein the findings are acutely descriptive and conveyed through direct quotes and thematic analyses.

6

Charleston, Charleston, and Jackson 2014, 414

Familial cultivation and encouragement was very instrumental in the trajectories of the study participants. Parental support in the form of verbal and moral encouragement, educational encouragement, and opportunity-seeking (e.g., science and computer clubs), as well as financial support (e.g., computer purchasing) has an integral effect on students' disposition toward mathematics, sciences, and computing. It is the support of parents and surrogate parents that motivate young African Americans to succeed in the computing sciences. Even where parental predispositions were not geared toward computing, positive encouragement proved to enable the participants and foster their aspirations in computing. The purchase of computers and computer- related products for use in the home benefits young African Americans and enhances the likelihood of computing aspirations. However, where finances do not permit, verbal and moral encouragement serve as a technological incubator, if the individual has access to computers elsewhere. Essentially, access to technology is a significant factor for generating interest in and facility with computers.

Charleston 2012, 235

Parental nurturing was very instrumental in the trajectories of the study participants. Parental support in the form of verbal and moral encouragement, educational encouragement, and opportunity seeking (e.g., science and computer clubs), as well as financial support (e.g., computer purchasing) has an integral effect on students' disposition toward mathematics, sciences, and computing. It is the support of parents that motivates young African Americans to succeed in the computing sciences. Even where parental predisposition was not geared toward computing, positive encouragement proved to enable the participants, perpetuating their aspirations in computing. The purchase of computers and computer-related products for use in the home benefits young African Americans and enhances the likelihood of computing aspirations. However, where finances do not permit, verbal and moral encouragement serves as a technological incubator if the individual has access to computers elsewhere. Essentially, access to technology is significant to the techno- logical incubation phase.

7

Charleston, Charleston, and Jackson 2014, 415

While the home serves as the first line of technological incubation, schools can and do play a significant role in nurturing African Americans toward science, technology, and computing-related interests. The participants within this study often cited schools as their first introduction to computers. As such, the school is an ideal place to begin the trajectory toward STEM-related fields and disciplines. Schools must reach beyond facilitating remedial engagement with computers (simply consuming information as oppose to creating it), and move toward encouraging and facilitating advanced engagement. Teachers shape children's lives and often serve as role models. When teachers encourage and facilitate technology use in the class room, it not only has the ability to enhance the learning outcomes of students, it also exposes them to technology and its variety of uses, which has the potential to spark an interest in computing sciences and other STEM fields. When teachers facilitate the creation of information and knowledge, African American students become exposed to computing, thereby sparking their interest in the field.

Charleston 2012, 234

Although the home serves as the first line of technological incubation, the school plays a significant role in nurturing African Americans toward technology and computing. The participants in this study often cited schools as their first introduction to computers. School is an ideal place to begin the trajectory toward computing sciences. However, schools must reach beyond encouraging remedial engagement with computers and move toward increasing advanced engagement. Teachers shape children's lives and, often, the teachers serve as role models for students. When teachers encourage and facilitate technology use in the classroom, it not only enhances the learning outcome of students, it also exposes them to technology and its variety of uses, which has the propensity to spark an interest in computing sciences. When teachers facilitate the creation of information and knowledge, African American students become exposed to computing, thus sparking their interest in the field.

8

Charleston, Charleston, and Jackson 2014, 415

Computing sciences is a White, male-dominated field that encompasses many constructs that are foreign to African American life. These constructs range from technical application methods to social construction. As such, the best chance of persistence among African Americans is to make use of peers as academic and social resources. Positive community building and culturally relevant practices through the educational trajectory minimizes alienation and isolation within the field. The development of a sense of belonging and community improves prospects of degree attainment, cultivating a sense of accountability among African American students.

The field of computing sciences is associated with a variety of stigmas, which serve as deterrents for potential African American contributors. Some of these stigmas include the idea that computing sciences is for nerds, only for White people, only for geniuses, or that in order to participate in computing, it is necessary to be isolated in a cubicle and buried under work. Therefore, the anomaly of participating in advanced level computing demands a robust support network. Add the social isolation that comes with being an anomaly (African American) in an already isolated field (computing sciences or other STEM fields), and the necessity of culturally relevant practices and pedagogy becomes more apparent. Participation in a community around computing is often the deciding factor determining persistence in challenging domains such as computing sciences. As such, cohort-building and participation in a community of practice or a living-learning community is an essential recommendation stemming from results of this investigation and its implications.

Charleston 2012, 236

Computing sciences is a White male-dominated field and, as such, encompasses many constructs that are foreign to African American life. These constructs range from technical application methods to social construction. The best chance for persistence among African Americans is to make use of peers as academic and social resources. The cohort model minimizes alienation and isolation within the field of computing sciences. Likewise, cohorts contribute to the prospect of degree attainment as there is a sense of accountability that is built among African American members.

The field of computing sciences is associated with a variety of myths concerning the field. Many of these myths serve as deterrents for potential African American contributors. Some of these myths include the idea that computing sciences is only for nerds, only for White people, only for geniuses, or that to participate in computing, it is necessary to be isolated and buried in a cubicle. Therefore, the anomaly of participating in advanced-level computing demands a robust support network. Add the social isolation that comes with being an anomaly (African American) in an already analogous field and the necessity of the cohort model be- comes more apparent. The participation in a cohort is often the deciding factor for persistence in challenging domains such as computing sciences. Cohort building and participation are central elements of the computing career choice model.

9

Charleston, Charleston, and Jackson 2014, 406

Thirty-seven computing sciences aspirants and practitioners were interviewed based on their individual time constraints and willingness to be participants in this study (55 percent female, 45 percent male). Interviews ranged from 30 to 45 minutes, one for each individual in the sample. Participants varied across educational levels: 22 percent were undergraduate students, 48 percent were graduate students, and 30 percent were PhD-minted professors or researchers. In addition, 50 percent of all participants either attended or were in the process of attending predominantly White institutions (PWIs), while 42 percent attended historically Black

colleges and universities (HBCUs) and 8 percent attended predominantly Black institutions. All participants resided in various regions of the United States ranging from the Southwest to the Northeast, and all were African American and had majored in or were majoring in a computing science-related field. The average participant age was 29 years. Participants had family socioeconomic status backgrounds across the spectrum of income categories. Most interviewees, however, were from middle-income, dual-parent households. In addition, the majority did not have a parent involved in computing sciences. The educational backgrounds of those participants with dual-parent households were similar insofar as they all attained similar levels of educational accomplishment, regardless of socioeconomic status.

Charleston 2012, 225

A total of 37 individual interviews were conducted for which the same protocol was applied. Interviews ranged from 30 to 45 min, one for each individual in the sample. From a percent- age standpoint, 22% of interviewees were undergraduate students, 48% were graduate stu- dents, and 30% were PhD-minted professors or researchers. In addition, 50% of all participants either attended or were in the process of attending predominantly White institutions, 42% at- tended historically Black colleges and universities, and 8% attended predominantly Black institutions. All participants were African American and had majored in or were majoring in a computing science-related field, and the average participant age was 28.5 years (see Appendixes A–D).

Participants had family socioeconomic status backgrounds that ranged across the spectrum of categories. Most participants, however, were from middle-income, dual-parent households. In addition, the majority did not have a parent involved in computing sciences. The educational backgrounds of those participants with dual-parent households were similar insofar as they all attained similar levels of educational accomplishment, regardless of socioeconomic status.

10

Charleston, Charleston, and Jackson 2014, 408

Study participants cited a number of experiences throughout their educational trajectories in which aspects of culturally relevant interactions were instrumental in their decisions to pursue the computing sciences. While other research regarding persistence in STEM has illuminated negative social influences that deter underrepresented populations from persisting (e.g., Moore, 2006), the participants within this study expressed mostly positive social interactions that aided them throughout their trajectories. The participants under study were those who had gained measurable success in computing, which may be reflective of the positive iterations regarding their social experiences relating to computing. This is not to say that there were not sociocultural barriers experienced by the participants; however, these participants overcame these negative experiences—namely, with positive ones.

Although some participants cited their own interest and curiosity as a contributor to their information-seeking and knowledge-attainment surrounding computing careers, most of the participants credited their parents, professors, advisors, teachers, and friends who either majored in computing sciences, or encouraged and supported them throughout their trajectory as their primary reason for obtaining educational and occupational success. The thematic representations of these sentiments emerged in the form of culturally situated experiences that formed three major sub- themes: (a) peer and community modeling; (b) positive familial cultivation; and (c) multi-faceted mentorship.

Charleston 2012, 228

Participants cited a number of positive social interactions as being instrumental in their decisions to pursue computing science degrees. Whereas other research pertaining to STEM disciplines has illuminated negative social in- fluences that deter underrepresented populations from persisting (ACT, 2006; Gilbert, Jack- son, George, Charleston, & Daniels, 2007; Moore, 2006), the participants in this study largely described social interactions that aided them in their educational and computing development. Although interviewees had often gained measurable success in computing, this is not to say that barriers related to social aspects of their experiences did not exist. These iterations, however, generally came in the form of retrospective considerations about computing, as well aspects about it that they liked least.

Although some participants cited their own curiosity as a contributing factor toward an in- creased and more focused pursuit of computing, many credited their parents, professors, advisors, teachers, and friends as significant influences. These individuals majored in computing sciences, or encouraged, supported, and in some cases sponsored them to do so.These sentiments emerged thematically in the form of positive social interactions and computing socialization, forming three major subthemes: (a) peer modeling or positive peer influence, (b) parental nurturing, and (c) mentorship.

11

Charleston, Charleston, and Jackson, 410

Parental and familial support and encouragement also played a significant role in culturally situated practices that influenced decision-making toward the computing sciences among participants—mainly up and through undergraduate entry and matriculation. This positive familial cultivation was often developed through moral, educational, and financial support for study participants. It generally began through early computer purchases, as well as the cultivation of computer adeptness through subsequent support by means of hardware and software purchases, encouraging or sponsoring supplementary education toward computing, or individualized efforts toward computer-related knowledge-gaining (e.g., having a friend teach their children programming).

Charleston 2012, 229

Parental nurturing also played a significant role with regard to positive social interaction, primarily through entry and settling into undergraduate education. These positive social interactions often presented themselves in the forms of moral, educational, and financial support.Such development was found to generally begin through computer purchases, progressing into the cultivation of computer savvy through hard- ware and software purchases. Parental encouragement or sponsorship of supplementary education toward computing or individualized efforts toward computer-related knowledge acquisition—the teaching of programming, for example—also proved to be common.

12

Charleston, Charleston, and Jackson, 412

The results of this study suggest that the factors leading to the pursuit and persistence of the STEM field of computing sciences are largely attributed to culturally responsive practices whereby social construction trumps academic outlook among African Americans. Many participants demonstrated levels of aptitude, ambition, and self-initiative; however, these findings were not salient factors contributing to their pursuit and persistence in STEM. What proved more salient were the positive social influences, community building, and sense of belonging, which developed self-efficacy and relevant self-concepts. These factors were often the catalyst for not only the introduction to computing sciences among the participants, but also the underlying rationale for successful matriculation and persistence in their STEM area through degree completion.

Charleston 2012, 231-32

Major findings in this study suggest that the decision to pursue computing sciences degrees among African Americans was dependent on factors that were mainly socially constructed. Although some participants did demonstrate high levels of ambition and self-initiative, these were not salient contributing factors to their actual degree attainment. What proved more salient were the positive social influences that often were the catalyst for not only the intro- duction to computing sciences among the participants but also the underlying rationale for persistence in the field through degree attainment.

13

Sherri Ann Charleston, LaVar J. Charleston, Jerlando Jackson. “Using Culturally Responsive Practices to Broaden Participation in the Educational Pipeline: Addressing the Unfinished Business of Brown in the Field of Computing Sciences” Journal of Negro Education, Volume 83, Number 3, 2014, 407

Coding was an integral part of analysis within this study. Through first-level coding, data were extracted and placed into many themes and meaning categories, which enabled the researcher to summarize portions of data (Strauss & Corbin, 1990). Additionally, analyzing the data through codes achieved the goal of dissecting the interview data in a meaningful way, which in turn helped the researcher maintain the relationships of thematic representations (Miles & Huberman, 1994). Through the coding process, the emergence of categories and their theoretical underpinnings began to align and make sense. The theoretical implications that gradually formed from the categories that created meaning formed relative patterns. Strauss and Corbin (1990) posited that pattern coding enables the placement of first-level coding into more concise themes. Similarly, the patterns and thematic representations that emerge embody grounded theory (Glaser & Strauss, 1967). When all the incidents were readily classified and the categories were saturated as represented through the emergence of much regularity, the researcher concluded the data collection and analysis portion of the study (Lincoln & Guba, 1985).

Graham 1997, 49-50

Strauss and Corbin (1990), utilizing an inductive technique called a constant comparative method (Glaser & Strauss, 1967), provided a model for this process of analysis. Data were collected, written up, and reviewed line by line, typically within a paragraph. Codes were written in the left-hand margins while reflective remarks were written in the right-hand margins. Coding is analysis; therefore, data were first systematically coded into as many themes and meaning categories as possible through first level coding which provided a device for summarizing segments of data (Strauss & Corbin, 1990). The goal of coding is to review a set of field notes, transcribed or synthesized, and to dissect them meaningfully, while keeping the relations between the parts intact (Miles & Huberman, 1994). As the categories emerged, the relationships between those categories and their theoretical implications began to make sense. Gradually the theoretical properties of the meaning categories crystallized and formed a pattern. Pattern coding is a way of grouping first level coding summaries into a smaller number of sets, themes, or constructs (Strauss & Corbin, 1990). The patterns that emerge are sometimes called “grounded theory” (Glaser & Strauss, 1967).

Graham 1997, 51

Strauss (1987) and Lincoln and Guba (1985) suggest that coding and recoding are over when the analysis itself appears to have run its course, that is, when all of the incidents can be readily classified, categories are “saturated,” and sufficient numbers of “regularities” emerge. This rule of thumb was also used as a guideline for ending the data collection and analysis phases of the study.

14

Charleston et al 2014, 407-8

Validity

In an effort to address reliability and validity of the qualitative inquiry within this study, the researchers employed a naturalistic approach. While traditional empirical research addresses validity in terms of reliability, internal validity, and external validity of measures and procedures, the corresponding terms in naturalistic inquiry include audibility, credibility, and fittingness (Guba & Lincoln, 1981). Reliability in qualitative research involves the ability to replicate the study given a similar set of circumstances. Through naturalistic inquiry, the raw data ascertained by the researcher were coded in a manner whereby the contrived themes and theories are not only understood by another individual, but that individual is also able to arrive at a similar conclusion through the consistencies of the coded raw data.

Graham 1997, 51

3.7. Addressing Reliability and Validity in Qualitative Inquiry

In traditional empirical research the importance of reliability, internal validity, and external validity of measures and procedures are of utmost importance. Qualitative inquiry should also address the issues of reliability and validity; however, when traditional definitions of reliabilityand validity are applied to qualitative research, problems emerge. The corresponding terms in naturalistic inquiry are “auditability,” “credibility,”, and “fittingness” (Guba & Lincoln, 1981).

Reliability concerns the replication of the study under similar circumstances.The naturalistic investigator derives consistency through coding the raw data in ways so that another person could understand the themes and arrive at similar conclusions.

15

Charleston et al 2014, 408

Credibility within this study, in concert with naturalistic inquiry, was achieved by corroborating the structures that made up the study. More plainly, corroboration was ascertained by spending ample time with study participants to check for distortions, which facilitated prolonged engagement with study participants. Consequently, the participants’ experiences were explored in sufficient detail that exemplified persistent observation. Additionally, multiple data sources were checked through comparing various forms of data such as digital audio recordings, physical transcriptions, consultation with other investigators, as well as researcher notes. The aforementioned processes of prolonged engagement, persistent observations, and checking multiple data sources embody the process of triangulation. Rudestam and Newton (1992) asserted that peer debriefing, revising working hypotheses throughout the data collection process, clarifying preliminary findings with study participants, and audio-/videotaping the interviews in an effort to compare to other means of data collected are customarily the procedures used to ensure the credibility of a study. Through the current

study's primary method of individual interviews, triangulation occurred through corroborating persistent observations, checking multiple sources of data through an in-depth literature review, recording field notes, and the clarification of categories and narrative stories among study participants. These processes fostered structural corroboration of the study.

Graham 1997, 51-52

In naturalistic inquiry credibility or truth is ascertained through structural corroboration. Such corroboration might be accomplished by spending sufficient time with subjects to check for distortions (prolonged engagement), exploring the participants' experience in sufficient detail (persistent observation), and checking multiple sources of data such as other investigators, written records, diaries, field notes, and so on. This is the process of triangulation. Peer debriefing, revising working hypotheses as more data become available, clarifying tentative findings with the participants, and videotaping interviews for comparisons with the recorded data are typical procedures for adding to the credibility of the study (Rudestam & Newton, 1992, pp. 38-39). The present study utilized two corroborative methods of data collection (interviews and focus group interviews). The following methods of triangulation were also utilized: persistent observation, checking multiple sources of data through a comprehensive literature review, recording field notes, and clarification of categories and narrative stories with the participants as techniques of structural corroboration.

More publicly reported research misconduct

16

Journal of Diversity in Higher Education 2014, Vol. 7, No. 3, 166–176. Navigating Underrepresented STEM Spaces: Experiences of Black Women in U.S. Computing Science Higher Education Programs Who Actualize Success. LaVar J. Charleston, Phillis L. George, Jerlando F. L. Jackson, Jonathan Berhanu, and Mauriell H. Amechi, 167

Accordingly, researchers also found that students who do not adopt a field-specific identity circumscribed by faculty expectations (e.g., mastery of implicit knowledge and dominant discourses in the field) may be deemed incompetent in that particular field (Etzkowitz et al., 2000; Herzig, 2004).

Review of Educational Research Summer 2004, Vol. 74, No. 2, pp. 171–214. Becoming Mathematicians: Women and Students of Color Choosing and Leaving Doctoral Mathematics. Abbe H. Herzig, 177

Thus, a doctoral student also needs to adopt the identity of a mathematician, or at least of a mathematics graduate student. Students who do not fit faculty expectations for graduate students in a given field—those who do not master the tacit knowledge and dominant discourses of the field—may not be judged to be competent in that field (Etzkowitz et al., 2000).

17

PREPARING THE NEXT GENERATION OF AFRICAN AMERICAN COMPUTING SCIENCE FACULTY: A RESPONSE TO THE OBAMA ADMINISTRATION'S SCIENTIFIC WORKFORCE PRIORITIES. LaVar J. Charleston, Jerlando F. L. Jackson and Juan E. Gilbert. The Obama Administration and Educational Reform Advances in Education in Diverse Communities: Research, Policy and Praxis, Volume 10, 2014, 208

Though several disciplines have researched the benefits and rewards of mentoring African Americans, the most notable are business and education (e.g., Davidson & Foster- Johnson, 2001; Dreher & Cox, 1996; Green-Powell, 2007; Levinson, 1978; Thomas, 1990; Zey, 1984)

THE ROLE OF MENTORING IN THE DEVELOPMENT OF AFRICAN AMERICAN NURSE LEADERS A Dissertation Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy By Jacqueline J. Hill 2004, 19

Several disciplines have researched the benefits of mentoring of African Americans. Most notably are the areas of business and education (Davidson & FosterJohnson, 2002; Dreher & Cox, 1996; Lee, 1999; Levinson, 1978; Thomas, 1990; Zey, 1984).

18

Journal of Diversity in Higher Education 2014, Vol. 7, No. 3, 166–176. Navigating Underrepresented STEM Spaces: Experiences of Black Women in U.S. Computing Science Higher Education Programs Who Actualize Success. LaVar J. Charleston, Phillis L. George, Jerlando F. L. Jackson, Jonathan Berhanu, and Mauriell H. Amechi, 168

Tinto (1993) asserted three stages of persistence toward the doctoral degree. The first stage involves students' adjustment to academic and social communities within their home departments. It is within this initial stage that students make judgments about the relevance of their program of study as it relates to their career goals (for the purposes of this study, computing sciences). However, it is within the second stage that students develop the knowledge base and skills necessary for doctoral research, wherein their competence is assessed through comprehensive exams and other requirements that demonstrate a mastery of the field's literature and practices. Though the third stage involves the completion of the dissertation, it is within the first two stages that student persistence reflects the tenor of social interactions be- tween faculty and students alike (Tinto, 1993). Ultimately, these interactions significantly affect the development of competence within the students themselves, as well as the judgments faculty and peers make toward the knowledge and skills the individual has developed. Those judgments are also, in turn, shaped by social circumstances outside of classroom interactions (Herzig, 2004; Tinto, 1993).

A sociocultural perspective of education dictates that the process of learning occurs, and is inseparable from, students' participation in the communities of practice available to them within their individual graduate programs (Boaler, 2002; Herzig, 2004; Rogoff, 1994). This intertwining of scholarship and community that is required for learning comes in a variety of forms, such as collaborating with peers to solve problems, attending seminars, observing lectures, teaching and grading assignments, conducting research, as well as studying. These activities represent learning opportunities; participation in a community of practice is not simply a distinct educational activity, but a lens for analyzing the broader environment in which students engage (Herzig, 2004). Therefore, it is helpful to focus on learning as participation, as opposed to simply a process of acquiring or transmitting knowledge (Herzig, 2004; Rogoff, 1994). As such, evaluating the structure of doctoral education requires examining the specific activities and practices in which students participate, the nature of their participation, as well as the knowledge students gain as a result of their participation (Herzig, 2004).

Review of Educational Research Summer 2004, Vol. 74, No. 2, pp. 171–214. Becoming Mathematicians: Women and Students of Color Choosing and Leaving Doctoral Mathematics. Abbe H. Herzig, 177-78

Tinto (1993) discussed three stages of persistence toward a doctoral degree. In the first stage, students adjust to the academic and social communities within graduate school and make judgments about the relevance of the program to their career goals and the desirability of membership in the community. In the second stage, students develop the knowledge and skills, or "competence," deemed necessary for doctoral research, culminating in comprehensive exams. The third stage of persistence is completion of a dissertation. According to Tinto, student persistence through the first two stages reflects not only individual characteristics but also interactions between students and faculty in the department and program. These interactions play a role in developing competence and affect the judgments others make about these competencies; faculty judgments of student competence within the classroom also are shaped by social judgments arising from interactions outside of the classroom.

19

Journal of Diversity in Higher Education 2014, Vol. 7, No. 3, 166–176. Navigating Underrepresented STEM Spaces: Experiences of Black Women in U.S. Computing Science Higher Education Programs Who Actualize Success. LaVar J. Charleston, Phillis L. George, Jerlando F. L. Jackson, Jonathan Berhanu, and Mauriell H. Amechi, 169

CRF theory emerged from critical race theory, and was inspired by the exclusion of racial and/or ethnic legal women scholars by their male peers and White feminist legal scholars(Few, 2007). Contrary to some critical race theorists, CRF rejects essentialist arguments and generalizations concerning all minorities. As articulated by Adrien K. Wing, "our antiessentialist premise is that identity is not additive. In other words, Black women are not white women plus color, or Black men, plus gender" (Few, 2007, p. 456).

Integrating Black Consciousness and Critical Race Feminism Into Family Studies Research. April L. Few. Journal of Family Issues, Volume 28 Number 4 April 2007,

Critical race feminist theory emerged from critical race theory as a result of racial and/or ethnic legal women scholars feeling excluded by their male peers and White feminist legal scholars. It should be noted that critical race feminists depart from some critical race theorists by rejecting blanket essentialization of all minorities (Wing, 2000). As Wing stated, "our anti-essentialist premise is that identity is not additive. In other words, Black women are not white women plus color, or Black men, plus gender" (p. 7). They are antiessentialists in that they recognize the multiple locations and identities that women inhabit (DeReus et al., 2005; Wing, 2000).

20

Journal of Diversity in Higher Education 2014, Vol. 7, No. 3, 166–176. Navigating Underrepresented STEM Spaces: Experiences of Black Women in U.S. Computing Science Higher Education Programs Who Actualize Success. LaVar J. Charleston, Phillis L. George, Jerlando F. L. Jackson, Jonathan Berhanu, and Mauriell H. Amechi, 169

Although the concepts of CRF and BFT have been well-developed by a cadre of scholars (Collins, 1986; Crenshaw, 2003; Wing, 1997), empirical assessments employing these frameworks have been more limited. Critics of feminism and critical theory have generally presented two claims: (a) "it is difficult to measure feminist concepts," and (b) "such theories cannot help researchers to predict individual or group behavior" (Few, 2007, p. 464). Although these theories cannot be used to predict behavioral outcomes for targeted groups, CRF and BFT are critical tools that provide a context for examining how women come to understand themselves through the development of Black female subjectivities—those identities that are most significant to an individual in various social contexts (Few, 2007). Likewise, both theories assert that identity politics and the politics of location are predicated on differences that can at times either marginalize or empower groups or individuals (Few, 2007). Ultimately, CRF and BFT provide the necessary critical lens that takes into account the sociohistorical context of a specific group or community when examining behavior—in this case, the African American woman in computing sciences in higher education.

Few 2007, 464

Criticisms lodged against feminist and critical theory consist of two general claims: (a) it is difficult to measure feminist concepts and (b) such theories cannot help researchers to predict individual or group behavior.

Few 2007, 466

Critics may ask whether Black feminism and critical race feminism can predict behavioral outcomes for targeted groups. Cause and effect of specific individual behaviors cannot be predicted by these theories;

Few 2007, 454

First, as social scientists, we must examinehow Black women come to understand themselves through the development of Black female subjectivities, as can be articulated through Black feminism and critical race feminism. Subjectivities are those identities that become most salient to an individual in different social contexts (hooks, 1984).

Few 2007, 457

Both theories emphasize that identity politics and the politics of location are contingent on difference and that differences can have strategic value to empower or marginalize individuals and groups.

Few 2007, 458

Both theories offer critical lenses that place not only behavior under scrutiny but also the sociohistorical context of a specified group or community.

21

PREPARING THE NEXT GENERATION OF AFRICAN AMERICAN COMPUTING SCIENCE FACULTY: A RESPONSE TO THE OBAMA ADMINISTRATION'S SCIENTIFIC WORKFORCE PRIORITIES. LaVar J. Charleston, Jerlando F. L. Jackson and Juan E. Gilbert. The Obama Administration and Educational Reform Advances in Education in Diverse Communities: Research, Policy and Praxis, Volume 10, 2014, 209

Although higher education is one of the few sectors of the U.S. economy that has been praised for its innovative approaches to integrating cultural diversity, African Americans unfortunately remain highly underrepresented in doctoral programs (Davidson & Foster-Johnson, 2001). This problem appears even worse when considering STEM fields in particular, and worse still with respect to computing sciences (Charleston & Jackson, 2011; Jackson et al., 2009). While some studies cite the high costs of graduate education, limited financial support, and availability of more lucrative opportunities outside of academia as reasons for the low enrollment of African Americans in PhD programs (e.g., Boykin, Franklin, & Yates, 1979; Brazziel, 1988), other researchers (e.g., Adams, 1992; Charleston et al., 2014; Davidson & Foster-Johnson, 2001; Phillip, 1993) have high-lighted the importance of mentoring relationships between graduate students and their professors as a determinant of successful completion of graduate programs and the career trajectories of students as professionals.

Mentoring in the Preparation of Graduate Researchers of Color. Martin N. Davidson and Lynn Foster-Johnson. Review of Educational Research, Winter, 2001, Vol. 71, No. 4, 549

The growing proportion of people of color in the U.S. population (Grieco & Cassidy, 2001) challenges many institutions and industries to work effectively with the emerging dynamics of cultural diversity. One sector that has often been lauded for its innovative approaches to integrating cultural diversity is higher education. It is ironic, then, that doctoral level education is an area in which there has been woeful underrepresentation of populations of color. Many explanations are posited for the relatively small numbers of students of color entering PhD programs: today's sluggish market for college instructors, the high costs of graduate education, limited financial support, and more lucrative opportunities in other professional fields (Boykin, Franklin, & Yates, 1979; Brazziel, 1988). However, we argue that the cultivation of developmental or mentoring relationships between graduate students and their professors is a critical factor in determining the successful completion of graduate programs (Adams, 1992; Phillip 1993).

22

Journal of Progressive Policy & Practice Volume 2 – Issue 3 Fall 2014 – "Intersectionality and STEM: The Role of Race and Gender in the Academic Pursuits of African American Women in STEM." LaVar J. Charleston, Nicole M. Lang, Ryan P. Adserias, Jerlando F. L. Jackson, 280

Validity

Prolonged engagement, persistent observations, field notes and the analysis of multiple data sources helped to establish credibility based on triangulating these multiple data sources. Through spending ample time with study participants to check for distortions during the data collection process, both corroboration and prolonged engagement with study participants were simultaneously achieved. Due to the allotted length of the focus group (90 minutes), the participants' experiences were explored in sufficient detail, enabling persistent observation to occur. The significant number of open-ended (and follow-up) questions enabled the researcher to more effectively comprehend the nature of the participants' assertions. Additionally, the multiple sources of data were attended to through the process of comparing digital audio recordings, field notes as well as physical transcriptions. The aforementioned comparisons of multiple forms of data enabled the in-depth assertions from participants to be captured by the researchers, and was illustrative of the collective the collective and individual voices of African American women's experiences in the STEM educational pipeline. The collaboration of the researchers, along with the interaction with study participants, assists with the credibility of this study through the process of peer debriefing, revising working hypotheses throughout the data collection process, clarifying preliminary findings with study participants, and audio/video taping the interviews in an effort to compare to other means of data collected, which Rudestem and Newton (1992) asserts are necessary procedures to ensure the credibility of a study.

Graham 1997, 51-52

In naturalistic inquiry credibility or truth is ascertained through structural corroboration. Such corroboration might be accomplished by spending sufficient time with subjects to check

for distortions (prolonged engagement), exploring the participants' experience in sufficient detail (persistent observation), and checking multiple sources of data such as other investigators, written records, diaries, field notes, and so on. This is the process of triangulation. Peer debriefing, revising working hypotheses as more data become available, clarifying tentative findings with the participants, and videotaping interviews for comparisons with the recorded data are typical procedures for adding to the credibility of the study (Rudestam & Newton, 1992, pp. 38-39). The present study utilized two corroborative methods of data collection (interviews and focus group interviews).

23

Texas Education Review Arizona's Rising STEM Occupational Demands and Declining Participation in the Scientific Workforce: An Examination of Attitudes among African Americans toward STEM College Majors and Careers. Jerlando F. L. Jackson, LaVar J. Charleston, Chance W. Lewis, Juan E. Gilbert, Walter P. Parrish III. Volume 5, Issue 2, pp. 91-111 (2017) Available online at www.txedrev.org, 97

Ultimately, perceived efficacy and mechanisms that foster self-evaluation facilitate the growth of intrinsic interests, enabling individuals to persist in activities that promote feelings of satisfaction and efficacy (Bandura, 1986). As such, these interests serve to explain participants' self-efficacy and their subsequent likelihoods of thriving and persisting in STEM fields throughout their educational and occupational careers. These earlier studies were instrumental in relating self-efficacy and career trajectories.

Lent, Brown, and Larkin (1984) reported that while vocational interests alone were not significant predictors of persistence in career fields, self-efficacy and interest both contribute to unique variance in occupational considerations. The researchers found that technical and scientific self-efficacy is predictive of both grades in technical courses and the range of considered career options, as well as persistence in technical majors. Additionally, PostKammer and Smith (1986) found that interest and self-efficacy are strong predictors of math and non-math-related occupational considerations among economically disadvantaged women, and that interest alone was a strong predictor of the aforementioned occupational considerations among economically disadvantaged men.

Graham 1997, 14

Bandura (1986) posited that perceived efficacy and self-evaluative mechanisms foster the growth of intrinsic interests, with people exhibiting enduring interest in activities that engage their feelings of personal efficacy and satisfaction.

Graham 1997, 28

The same authors utilized a sample of economically disadvantaged students between the ages of 16-24 (Post- Kammer and Smith, 1986). They found that females had extremely low self-

efficacy for engineering and drafting courses (Post-Kammer and Smith, 1986). Furthermore, both interests and self-efficacy were significant predictors of math- and nonmath-related occupational considerations for women, but only interests were predictive for men (Post-Kammer and Smith, 1986).

Although vocational interest was not a significant predictor of persistence in a career field, both self-efficacy and interest added unique variance in predicting occupational consideration (Lent, Brown and Larkin, 1986). Technical and scientific self-efficacy was predictive of grades in technical courses, persistence in a technical major and range of career options considered (Lent, Brown and Larkin, 1986). Comparing male-dominated with female-dominated occupations. Robert, Brown and Ware (1987) found that self-efficacy was a significant predictor of range of options for male-dominated but not for female-dominated occupations.

24

Jackson et al 2017, 97

Prior research has applied self-efficacy theory to the process of occupational choice (e.g.,Hackett & Betz, 1981; Hackett & Campbell, 1987; Lent & Hackett, 1987) and has established the relevance of performance accomplishments or successes as avenues that lead to increases in self-efficacy. These studies have also demonstrated that ability ratings, interest, and attributions are all influenced by performance (Hackett & Campbell, 1987). This body of research posits that self-efficacy beliefs predict significant indices to career-entry behavior (i.e., college choice and academic performance) within particular fields (Lent & Hackett, 1987). This research also shows that self-efficacy ratings among college students decrease upon failing tasks, further illuminating the relationship between performance accomplishment and self-efficacy (Hackett & Campbell, 1987). Ultimately, perceived efficacy and mechanisms that foster self-evaluation facilitate the growth of intrinsic interests, enabling individuals to persist in activities that promote feelings of satisfaction and efficacy (Bandura, 1986).

Graham 13-14

Other studies have extended Hackett and Betz' (1981) early work of applying self-efficacy theory to the career choice process. Campbell and Hackett (1985) and Hackett and Campbell (1985) (as cited in Betz and Hackett, 1986) found that performance accomplishments (success) led to an increase in self-efficacy, while failure resulted in a decrease in level and strength of self- efficacy. Performance also influenced ability ratings, interest, and attributions(whether success was attributed to luck or a lack of ability).

Several studies on the topic were published in 1987. Lent and Hackett (1987) found that self-efficacy beliefs are predictive of important indices of career-entry behavior, such as college major choices and academic performance in certain fields. Because career self-efficacy and other measures of self-esteem and career indecision were not significantly correlated, their work provided support for the idea that self-efficacy is a unique construct (Lent and Hackett,

1987). Hackett and Campbell (1987)found that college students' self-efficacy ratings and task interest decreased as a result of failing a task. Women in a "success" condition were more likely than men to attribute their performance to luck while women in the "failure" condition were more likely than men to attribute their performance to a lack of ability (Hackett and Campbell, 1987). These authors concluded that a lack of past performance accomplishments may be more detrimental to women's self-efficacy than men's (Hackett and Campbell, 1987). Lent, Brown and Larkin (1987) found that self-efficacy was a more useful predictor of perceived options than Holland's (1985) theory of person-environment congruence.

Bandura (1986) posited that perceived efficacy and self-evaluative mechanisms foster the growth of intrinsic interests, with people exhibiting enduring interest in activities that engage their feelings of personal efficacy and satisfaction.

TEXT RECYCLING 2

LaVar and his coauthors also recycled additional studies.

For example compare

Journal of Progressive Policy & Practice Volume 2 – Issue 3 Fall 2014 – "Intersectionality and STEM: The Role of Race and Gender in the Academic Pursuits of African American Women in STEM." LaVar J. Charleston, Nicole M. Lang, Ryan P. Adserias, Jerlando F. L. Jackson

With

Journal of Diversity in Higher Education 2014, Vol. 7, No. 3, 166–176. Navigating Underrepresented STEM Spaces: Experiences of Black Women in U.S. Computing Science Higher Education Programs Who Actualize Success. LaVar J. Charleston, Phillis L. George, Jerlando F. L. Jackson, Jonathan Berhanu, and Mauriell H. Amechi

The two studies are largely identical. I include some selections of LaVar's verbatim copy and paste:

25

JDHE 169

Method

The researchers conducted a qualitative inquiry into the lives of African American women in the computing sciences, as we attempted to understand and describe the participant's lived experiences (Creswell, 2002). A phenomenological design was well-suited to the study because the aim of our inquiry was understanding a common experience of a group of people, allowing

the researcher to use data from participants to develop foundational knowledge about the phenomenon (Moustakas, 1994; Shank, 2002). In this context, the goal of the inquiry was to explore African American women's perspectives on their participation in the historically White, male-dominated field of computing science. Conducted by an African American woman, the focus group lasted approximately 60 to 90 min in duration. Informed consent was given orally, and participants were made aware of their right to suspend the session at any time. The focus group session was video- taped, and upon completion of the session, the tape was transcribed and filed for possible future use as a promotional or professional aid (depend- ing upon the consent of the participants). The session was comprised of a series of closed and open-ended questions designed to gather informa- tion relative to the participants' experiences, with specific attention to the role gender and race plays within the computing sciences (see Appendix).

JP3 279

METHOD

…

A phenomenological design was well-suited to the study because our inquiry aims to understand a common experience of a group of people, allowing the researchers to use data from participants to develop foundational knowledge about the phenomenon (Moustakas, 1994; Shank, 2002). A focus group was conducted lasting approximately 90 minutes in duration and moderated by an African American woman. Participants provided consent orally and were made aware of their right to suspend the session at any time. The focus group session was recorded and the tape was transcribed and filed for possible future use as a promotional/professional aid (based on the consent of the participants). The session was comprised of a series of closed and open- ended questions designed to gather information relative to the participants' experiences, with specific attention to the roles gender and race play within their academic trajectories within the computing sciences.

26

JDHE 169-70

Characteristics of Focus Group Participants

Purposeful sampling techniques were employed to ensure that all participants met the fol- lowing criteria (Lincoln & Guba, 1986): (a) identify as "African American" or "Black" women, (b) are enrolled full time or were recently (in the last 3 years), and (c) are between the ages of 18 and 35 years. All 15 of the focus group participants were African American females and were recruited from the 2007 African American Researchers in Computing Sciences (AARCS) Conference. All of the focus group participants had either majored or were majoring in an area within or related to computing as an undergraduate or graduate stuent. Moreover, at the time

of the study, two participants had already obtained a PhD in com- puting sciences, 12 were current graduate students (PhD aspirants), and one participant was complet- ing her baccalaureate degree. All undergraduate student participants were attending a historically Black college and university, and all graduate students and current PhD-holder participants were receiving or had received their graduate degrees from a predominantly White institution (PWI).

JP3 279

Characteristics of Focus Group Participants

This study employed purposeful sampling techniques (Lincoln & Guba, 1986), wherein all participants identified as “African American” or “Black” women, were enrolled full-time or were recently (in the last three years) in an academic computing program, and were no younger than 18 years of age and no older than 35 years of age. Fifteen African American women participants from a 2007 conference dedicated to African Americans in STEM were recruited and took part in this study. Each participant either majored in or were majoring in a computing- science related area of study as an undergraduate or graduate student. While all participants attended colleges within the continental United States, their schools were geographically dispersed. Likewise, at the time of the study, two participants had already obtained a PhD in computing sciences, 12 were current graduate students (PhD aspirants), and one participant was completing her baccalaureate degree. The undergraduate student participant was attending an HBCU, and all graduate students and current PhD holder participants were receiving or had received their graduate degrees from a PWI.

27

JDHE 170

Validity

In an effort to address reliability and validity of the qualitative inquiry within this study, the researcher employed a naturalistic approach. As prescribed by Lincoln and Guba (1986), this approach to qualitative research addresses validity in terms of credibility and fittingness.Reliability in qualitative research involves the ability to replicate the study, given a similar set of circumstances. Through naturalistic inquiry, the researchers coded data in a manner in which emerging themes and theories are replicable.

Credibility was brought to this study using tri- angulation techniques: prolonged engagement, persistent observations, field notes, and the analysis of multiple data sources. First, corroboration was ascertained by spending ample time with study participants to check for distortions, which facilitated prolonged engagement with study participants. As noted earlier, focus groups lasted an average of 60 to 90 min. Second, the participants’ experiences were explored in sufficient detail, which exemplified persistent observation. This is evidenced from

the interview protocol, which included a significant number of open-ended ques- tions to understand and capture the essence of participants' experiences. Third, multiple data sources were checked through comparing various forms of data such as digital audio recordings and physical transcriptions. For instance, the inclusion of information-rich responses from participants also enhanced our ability to capture and illustrate the collective and individual voices of African American women in STEM. Moreover, credibility was brought to the study via consultation with other investigators. Rudestem and Newton (1992) asserts that peer debriefing, revising working hypotheses throughout the data collection process, clarifying preliminary findings with study participants, and audio- and videotaping the interviews in an effort to compare with other means of data collected are customarily the procedures necessary to insure the credibility of a study.

JP3 280

Validity

The researchers employed a naturalistic approach to address reliability and validity of the qualitative inquiry within this study. Validity in terms of credibility and fittingness were the main goals of this qualitative approach as prescribed by Lincoln & Guba (1986). More clearly, special care was taken to create a research design that could be replicated if so desired contingent upon a similar set of circumstance in an effort to establish reliability. Moreover, in the tradition of naturalistic inquiry, data were coded based upon replicable themes and theories that emerged from the data.

Prolonged engagement, persistent observations, field notes and the analysis of multiple data sources helped to establish credibility based on triangulating these multiple data sources.Through spending ample time with study participants to check for distortions during the data collection process, both corroboration and prolonged engagement with study participants were simultaneously achieved. Due to the allotted length of the focus group (90 minutes), the participants' experiences were explored in sufficient detail, enabling persistent observation to occur. The significant number of open-ended (and follow-up) questions enabled the researcher to more effectively comprehend the nature of the participants' assertions. Additionally, the multiple sources of data were attended to through the process of comparing digital audio recordings, field notes as well as physical transcriptions. The aforementioned comparisons of multiple forms of data enabled the in-depth assertions from participants to be captured by the researchers, and was illustrative of the collective the collective and individual voices of African American women's experiences in the STEM educational pipeline. The collaboration of the researchers, along with the interaction with study participants, assists with the credibility of this study through the process of peer debriefing, revising working hypotheses throughout the data collection process, clarifying preliminary findings with study participants, and audio/video taping the interviews in an effort to compare to other means of data collected, which Rudestem and Newton (1992) asserts are necessary procedures to ensure the credibility of a study.

28

JDHE 170

Positionality

As cultural outsiders, this study was approached not only with sensitivity but also with a desire to uplift the voices and experiential realities of African American women in STEM fields. As such, the team of researchers reflected on their own positionality, and the impact of their own complex identities with regard to interactions with participants and the interpretation of the results. Throughout the research analysis process, the authors debriefed about their interpretations to be reflective, address potential assumption and biases, and to ensure consistency with phenomenology. Although some members were not involved in every step of the research (e.g., some were involved in coding but not interviews), the presence of multiple researchers allowed us to function as auditors of the overall process (Creswell, 1997). Multiple members of the research team transcribed and coded the focus group recording, which allowed for peer debriefing and the inclusion of thick-rich descriptions in the findings. Moreover, the use of inductive data strategies al- lowed the data to serve as the foundation of understanding, wherein the findings are acutely descriptive and conveyed through direct quotes and thematic analyses.

JP3 280-81

Positionality

As cultural outsiders as it relates to race, gender, and/or educational foci, this study was approached with both sensitivity and a strong desire to uplift the voices and experiential realities of African American women in STEM fields. In order to do so, the team of investigators sought to be reflective of our own positionality and how our multiple identities might interplay with the data collection process and analysis. As such, the researchers regularly interrogated their interpretations to be reflective, addressed potential assumptions and biases, and attempted to ensure consistency with phenomenology. While the investigators had varying roles throughout the research process (e.g., some were involved in analyses but not focus group interviews), having multiple team members enabled each team member to serve as an auditor of the research study as a whole (Creswell, 1997). Multiple members of the research team transcribed and coded the focus group recording, which allowed for peer debriefing and the inclusion of thick-rich descriptions in the findings. Moreover, the use of inductive data strategies allowed the data to serve as the foundation of understanding wherein the findings are acutely descriptive and conveyed through direct quotes and thematic analyses.

29

JDHE 171

Discussion

The findings within this study fostered several thematic representations relating to the participants' experiences in the field of computing science. The following themes arose from the data: (a) the challenges of being a Black woman in the computing sciences, (b) commonality of isolation and subordination, and (c) sacrifices related to computing science pursuance. It is also important to note that some of the data collected did not fit easily in a singular category. As such, there are places in this inquiry in which various themes emerged in more than one category.

JP3 281

FINDINGS AND DISCUSSION

Utilizing the guidance of the intersectionality framework, this study explored the role that race and gender play in the academic pursuits of African American women in the STEM field of computing sciences. Two main themes emerged from the data: (a) racial and gender challenges related to the computing sciences educational trajectory; and (b) a shared sense of isolation.

30

JDHE 171

The Challenges of Being a Black Woman in the Computing Sciences

In accordance with the tenets of BFT and CRF, participants in this study grappled with their self-identity as women of color in racially and sexually exclusive academic spaces. Although participants described their experiences with regard to being a woman of color in the field of computing sciences in a variety of ways, the group's consensus can be summarized in the simple exclamation of one participant: "It's tough." Depending on the situational context, they noted that they identified as either "Black" or "a woman," or, in some cases, both. As one participant stated, "At different times, different identifications come to the fore- front."

Although some participants described the difficulty they felt in determining whether they were being treated a certain way because they were Black or a woman, other participants self-identified as being Black, first and foremost.As one participant shared, "My belief is that the perception is that I am seen as a Black person first." Others expressed an inability to entirely separate their identities as Black and a woman. Consider this example: "At the end of the day, I am who I am. I am a Black woman, and there's no middle ground." The majority of participants were at- tuned to societal stereotypes about being a Black woman in the field. As one focus group participant expressed, "There are often assumptions that I am supposed to act a certain way because I am a Black woman." She continued to describe how she felt that others expected her to get upset or defiant when events would occur that were not particularly in her favor. Collectively, all 15 participants expressed how the computer science culture in their respective

departments was not very welcoming to women, and even less so to African American women.
Participants also recognized that misperceptions and stereotypes about their academic and intellectual abilities were driven by their identity as Black women.One participant described an instance in which a White male classmate who was assigned as her partner blatantly questioned her academic competence. She explain how this partner made decisions without her input, such as submitting components of the group assignment and attempting to fully dictate how it would be carried out. “Maybe there was the perception that I was female, I was Black, and I was incompetent. His perception was I was going to pull him down,” she added. Another participant went on to share a similar story: “I get to XXX and the first question someone asked was if I was someone’s secretary . . . because I’m Black? A woman? I can’t tease those things apart.” The aforementioned example illustrates the complexities and intersections of race and gender for Black women in computer science.

JP3 281-82

Racial and Gender Challenges Related to the Computing Sciences Educational Trajectory

Conflicts and integrations of racial, gender, and academic identities arose repeatedly as participants reported grappling with their self-identities as women of color in race- and gender- exclusive academic spaces. Although participants described their experiences as women of color in computing sciences in a variety of ways, the group’s consensus was that it is exceptionally challenging and difficult. One participant simply and directly exclaimed, “It’s tough.” Participants’ racial and gendered identities were proclaimed largely depending upon the situation context. In other words, their primary identities varied based upon the social space within a particular educational environment. One participant relays this sentiment like this: “At different times, different identifications come to the forefront,” demonstrating a set of unique—although previously-documented—challenges facing Black women at the intersections of race, gender, and science identities.

Many participants indicated that ascertaining the root of maltreatment proved difficult, wondering whether this treatment was based upon either their racial or gendered identities (e.g., a result of being a woman or a result of being Black). Several participants emphasized that their skin color was the initial focus of identity that dictated how others would treat them. “My belief is that the perception is that I am seen as a Black person first,” expressed one participant. However, other participants indicated that their intersections of race and gender were inseparable. “At the end of the day, I am who I am. I am a Black woman, and there’s no middle ground,” exclaimed one participant. The stereotype regarding being a Black woman in a STEM field was an area of confluence among all study participants. One participant described it like this: “There are often assumptions that I am supposed to act a certain way because I am a Black woman,” continuing that it was clear that others expected her to act angry or attitudinal when challenges or conflicts would occur. … Collectively, and against the backdrop of perceived stereotypes associated with their intersectional identities as Black women, all 15 participants

expressed how the computer science culture in their respective departments was clearly unwelcoming to women, and even more ostracizing to African American women.

Among participants, identifying as a Black woman conjured a wealth of misperceptions and stereotypes regarding their academic identity as well as their intellectual capacity. Like similar stories told by many of the participants, one participant described an encounter with a White male peer who blatantly questioned her academic abilities when they were paired on a team assignment. This participant explained how her teammate would submit components of the group assignment, making all of the decisions for the group, fully dictating how the project would be carried out without her input. “Maybe there was the perception that I was female, I was Black, and I was incompetent. His perception was I was going to pull him down,” she shared. Another participant added, “I get to [University] and the first question someone asked was if I was someone’s secretary... because I’m Black? A woman? I can’t tease those things apart.” These aforementioned examples illustrate the complexities and intersections of race and gender in computer science and support previous scholarship documenting the broader challenges associated with establishing oneself and gaining legitimacy as a Black woman academic (Brewer, 1999).

31

JDHE 171-72

Commonality of Isolation and Subordination

Participants in this study also described how they experienced feelings of isolation and subordination to varying degrees during their computing science pursuits. Participants reported instances in which there was limited, if any, social interaction with peers in their graduate program. It took “a good 6 weeks before people were finally opening up to me,” one participant shared. Given the virtual absence of institutional and faculty support within and outside of their respective pro- gram, several participants began to reevaluate whether they had chosen the best discipline for graduate studies. In response to the sexist nature of some conditional stimulus (CS) departments, one participant asserted the following: “This isn’t seen as a discipline for women.” Some participants elaborated on the nexus between race, gender, and erroneous assumptions of incompetence. “Why are you still in school?” and “Why aren’t you married and taking care of somebody?” were common expressions of surprise among their White colleagues during their initial interactions. The anecdotes highlighted here shed light on the inseparability and confluence of race and gender for Black women in CS departments. These findings support this article’s theoretical constructs of BFT and CRF.

Given that most CS departments are skewed, primarily White-male dominated spaces, participants expressed feelings of cultural isolation and subordination through exclusion. Although feelings of cultural isolation may be associated with acclimating to environments in which Black women are underrepresented, participants elaborated in detail how race and gender were intersect- ing factors that negatively affected their academic experience. In the next example,

one participant shares her challenges in obtaining lab partners for course assignments: “[As] the only Black [stu- dent], no one wants to partner with you and you have to do all the experiments by yourself.” Like- wise, participants reported that favoritism would often develop, in which other classmates “no lon- ger want to work with you,” creating tension among students and putting them in an inequitable position with the professor. The confluence of race and gender for Black women in CS departments is also illustrative in the following example: “Just having other females there just doesn’t cut it be- cause there’s no one there that has your experi- ence . . . there are no common threads that connect you.” Others cited similar examples that empha- size divisions along race and gender, which reflect the significance of BFT and CRF in the academic experiences of participants.

Participants also cited computing science professors as central contributors to their sense of isolation. One participant described the reaction of a faculty member when an Asian friend, who was well-liked by the professor, confronted the profes- sor about his concern that the African American student was being mistreated. The faculty member replied,
I don’t think she has talent. I think White professors gave her grades because of her race and they felt bad about slavery. I don’t think there are any real computer scientists who are Black, and maybe she can be the first.

Women in this study were also cognizant that their isolation in academic spaces was parallel to the isolation they experienced in everyday life as a result of being a part of the Black race. Moreover, it should be noted that isolation for Blacks varied according to gender. For exam- ple, despite sharing similar racial experiences, participants noted how Black men and women were not always valuable sources for social support or camaraderie. As one participant elab- orated, “Just cause there’s another Black brother [in class] doesn’t mean they want to work with you either.” In sum, participants felt that Black men placed a strong emphasis on developing relationships with White males, whereas Black women were less inclined to do so.

JP3 282-83

A Shared Sense of Isolation

Feelings of isolation were salient findings among the participants in this study. Social interaction with peers proved limited among study participants throughout their STEM education trajectories, particularly in STEM graduate degree programs. One participant remarked how “it took a good six weeks before people were finally opening up to me.” The inundated consistency of isolation, precipitated by the lack of support from faculty and their respective institution alike, was a critical factor in participant’s considerations to withdraw from their programs and reconsider their choice in majoring in their computing-related discipline. Participants also indicated that the field of computing as a whole is very sexist in nature and indicated that based on their experiences, computing “isn’t seen as a discipline for women.” Additionally, participants posited comments they would receive from their White counterparts that they felt were directly resultant of their race, gender, and thoughts about their inability to achieve in STEM: “Why are you still in school?” and “Why aren’t you married and taking care of

somebody?" were common expressions of astonishment among their White colleagues during their initial interactions.

These stories highlight the confluence of race and gender for Black women in CS departments…

Given that most CS departments are heavily populated by White males, cultural isolation and was highly prevalent throughout participants' educational experiences related to STEM. While feelings of cultural isolation are commonly associated with acclimating to highly technological environments, wherein Black women are typically an anomaly, the intersection of race and gender were factors that proved salient in the negative experiences recounted in-depth by study participants. As many projects at the graduate level are collaborative in nature, the intersectionality of race and gender in these spaces facilitated consistent challenges to study participants. One participant explained it like this: "[As] the only Black [student], no one wants to partner with you and you have to do all the experiments by yourself." Additionally, this sort of discrimination, particularly if facilitated by the professor was contagious in that classmates "no longer want to work with you," as one participant recounted. As other students attempt to look favorable in the eyes of the professor, pairing with a Black woman in class was seen as detrimental to the academic progress of other students. In other words, participants felt that their experiences were definitively unique, even as it related to the subject of gender. "Just having other females there just doesn't cut it because there's no one there that has your experience... there are no common threads that connect you," asserted one participant. Participants consistently echoed each other in the context of the focus group that illuminated the unique divisions and experiences as a result of the intersections of race and gender identities.

Computing science and other STEM faculty were particularly instrumental in creating an environment characterized by isolation and ostracization for this study's participants. One participant tells a story of a fellow (Asian) graduate student who intervened to address the professor on her behalf after recognizing maltreatment. This Asian student had a good working relationship with the faculty professor and upon the Asian student's inquiry, the professor said:

I don't think she has talent. I think White professors gave her grades because of her race and they felt bad about slavery. I don't think there are any real computer scientists who are Black, and maybe she can be the first.

What was also salient among participants was their recognition of many similarities between being Black in highly technological domains, and being Black in broader society. They indicated that much of the isolation they experience in their academic department mirrors the isolation of the Black race in broader societal terms. However, the added intersection of the women gender on to the Black race also illuminated differential gender experiences among Black men and Black women in STEM educational spaces. More clearly, the isolation Black women experience could be remarkably different for Black men in the same space. Participants indicated that though many experiences are familiar due to issues germane to Blackness and

the Black race, another peer who is of the same race is not always a valuable source of support or collegiality. Gender, as well as the isolating and competitive nature of STEM fields themselves, promote and entirely new element. One participant summarized this sentiment like so: “Just cause there’s another Black brother [in class] doesn’t mean they want to work with you either.” Participants posited that because White males were often seen in a favorable light, particularly from professors, Black men were more likely to establish relationships with them than their other Black women counterparts.

32

JDHE 173-74

Conclusions

Findings from this investigation contribute to the existing literature in at least three major ways. First, unlike prior research in this area, which has sought to identify factors that facilitate recruit- ment, retention, and advancement in STEM (Han- son, 2004; Jackson & Charleston, 2012; Jackson et al., 2009; Museus et al., 2011), the current inquiry shed light on the inseparability and confluence of race and gender in the lives of Black female aspirants in the field of computing. Specifically, the self-reports given expose the academic, social, and institutional barriers Black women face in a field of study that remains virtually exclusive in terms of racial and gender demographics. Despite their hardships, it is important to note that many participants had already persisted success- fully1 toward undergraduate and graduate degree attainment. These particular participants were (re)affirmed in their abilities through educational and academic gains, despite the many hindrances. From a BFT and CRF lens, participants’ responses suggest a collective understanding of the chal- lenges in the field of STEM as women of color.

…

The last contribution of this study is that it reinforces the notion that institutional culture is a significant consideration in the study of underrep- resented and underserved populations (Museus et al., 2011). In this study, BFT and CRF were useful in exposing how differently African American women experience computer science cultures. The inhospitable nature of computing at PWIs, as de- scribed by our participants, may be especially detrimental to the participation rates of minority women for which STEM degree attainment at the master’s and doctoral levels consistently lag be- hind the attainment rates of their White female counterparts (National Science Foundation, 2011). Although findings from this study are not representative of all women of color, they suggest that more concentrated efforts are required to ensure equitable and inclusive learning environments.

Several implications for practice can be derived from this study. First and foremost, in order to create more inclusive learning spaces for Black women in computing, faculty in the computing field should more critically examine their own prejudices and biases toward both racial-ethnic

minorities and women (Museus et al., 2011). As evidenced from the findings, students and faculty were both complicit in the subjugation of Black women in computing, which led participants in this study to question the fit between their aca- demic and professional goals. Also requisite for improving the learning environment in STEM- related fields is the implementation of student support groups, or "safe spaces" in which women of color can reflect on negative experiences, prac- tice self-care, and develop healthy responses.

Findings from the present study also reiterate national calls for greater parity in representation among faculty and students of color in computing programs and industry (American Council on Ed- ucation, 2006; National Science Board, 2012). Broadening diversity and participation among fac- ulty in computing may help mitigate the educa- tional climate, which our participants described as isolating and insensitive to their needs. For in- stance, improving the recruitment of women of color to the academy may help strengthen the pipeline for youth who aspire to enter the computing field but lack same-race and/or gender role models. Lastly, such efforts may increase opportunities for mentor- ing and advising Black women in the computing field. Collectively, these efforts may positively con- tribute to the retention and completion rates among Black female aspirants in computing.

As the United States and key governmental entities (e.g., National Science Foundation, Na- tional Institutes of Health) continue to support programs to improve participation rates in com- puting, institutional leaders must pay close atten- tion to the varying needs of African American females in order to improve representation in the sciences of women, in general, and women of color, in particular. Addressing gender- and race- specific nuances is likely to benefit the computing sciences workforce overall by enhancing the ef- fectiveness of current and future intervention pro- grams. Findings from this study might be ex- tended by investigating African American women who did not meet success (e.g., those who do not persist) in computing sciences. Lastly, future re- search might assess the particular ways in which existing programs that encourage broader STEM involvement may enhance or impede participation by gender,and these results can be used to im- prove current and future intervention programs.

JP3 284-86

CONCLUSION

…

The uniquely-situated Black woman identity described by study participants defines what is meant by intersectional identities and speaks to the basis upon which Crenshaw (1989) first outlined intersectionality as both a form of identity, and a theoretical framework for understanding how identities interact with and inform one another. Originating from her critique of the American justice system's treatment of Black women's experience of workplace discrimination, Crenshaw's (1989) original intersectionality framework sought to illustrate how Black women experienced systematic erasure not only within the justice system, but within feminist theory and social justice political organizing and broader identity politics. As a

departure from other research studies that aimed to explicate factors that increase recruitment, advancement, and retention in STEM fields among African American women (e.g., Charleston, 2012; Jackson & Charleston, 2012), the data from this investigation illuminates the inseparability and confluence of race and gender in the lives of Black women aspirants in the field of computing. Crenshaw (1989) further wrote, "Because the intersectional experience is greater than the sum of racism and sexism, any analysis that does not take intersectionality into account cannot sufficiently address the particular manner in which Black women are subordinated" (p. 140). Through the theoretical lens of intersectionality, the analysis from the data provided by participants' own stories within this study exposed academic, social, and institutional barriers that are unique to this population, particularly within the STEM educational trajectory that remains virtually cordoned off in terms of racial and gender demographics.

…

More concentrated and specific efforts are needed to ensure equitable and inclusive STEM education environments in order to reverse the trend of lagging attainment of master's and doctoral degrees among women of color (National Science Foundation, 2011).

Implications

... These may include developing and implementing student/faculty support groups or other efforts intended to create safe spaces where women of color can reflect on negative experiences, practice self-care, develop healthy responses to adversity, and develop a scientific identity that overcomes the negative external influences due to the intersection of race and gender.

In concert with the American Council on Education (2006) and the National Science Board (2012), the present study echoes the national call for broader participation and greater parity of representation among faculty and students of color in the computing sciences and other STEM fields, both within the academy and industry alike. Scholar Mary Howard-Hamilton (2003) suggested research concerning African American women in higher education is well suited for critical race theories and Black feminist thought theoretical frameworks—within and among which intersectionality is widely employed (Collins, 2000; Crenshaw, 1989, 1991). The utilization of these sorts of frameworks for research may help to illuminate ways to create more diverse faculty in scientific fields like computing, which may in turn promote a healthier educational climate that may serve to mitigate the isolating and insensitive culture of these fields, particularly toward women of color. Improving the recruitment and retention of women faculty of color serves to strengthen the pipeline for students who might aspire to enter STEM fields but lack same-race and/or same-gender role models. Broader representation among faculty may increase the likelihood for culturally specific mentoring and advising experiences for Black women that may result in increased entry and persistence in these fields.

The scientific leadership within the United States continues to support efforts to broaden STEM participation. Therefore, it is increasingly important that industry and institutional leaders address the varying needs of the diverse populations whose contributions are necessary in an effort to maintain a strong scientific workforce that enables the United States to remain globally competitive. The viability and effectiveness of current and future intervention programs will be greatly enhanced by recognizing and adequately addressing racial and gender issues affecting matriculation rates into computing science and other STEM-related programs.The merits of this study might be broadened by investigating African American women who did not persist in computing sciences and other STEM fields. Additionally, future research might investigate existing interventions and how they enhance or impede STEM participation by gender and race.