

“I See the Potential in You”: HBCU Provosts’ Use of Purposeful Perspective-Taking to Promote Broadening STEM Participation

Angelicque Tucker Blackmon

**Center for the Advancement of STEM Leadership,
Innovative Learning Center, LLC**

Karyl Askew

**Center for the Advancement of STEM Leadership,
University of the Virgin Islands**

Camille A. McKayle

**Center for the Advancement of STEM Leadership,
University of the Virgin Islands**

Kimarie Engerman

**Center for the Advancement of STEM Leadership,
University of the Virgin Islands**

Historically Black colleges and universities (HBCUs) were established to provide African Americans with higher education access. This article used phenomenological analysis to illuminate HBCU provosts’ perspectives on leadership styles and successes to broaden STEM participation within higher education’s historical hegemony. A diverse group of provosts representing public and private HBCUs was interviewed. The conservation of resources (COR) theory was used as an analytic framework. Findings showed that provosts exhibited nurturing behaviors in STEM leadership, characterizing their leadership styles as collaborative, supportive, and inclusive. Provosts used personal resources to facilitate STEM success, focusing on students’ potential through purposeful perspective-taking. The strategy of purposeful perspective-taking has implications for future research and leadership training.

Keywords: *purposeful perspectives, broadening participation, STEM, higher education, conservation of resources*

Efforts to diversify the United States science, technology, engineering, and mathematics (STEM) enterprise are a national priority and broadening the participation of African Americans in STEM higher education is a primary strategy. While research on higher education leadership is well-established, empirical evidence on the influence of purposeful perspective-taking and nurturing behaviors in higher education leadership to broaden African Americans’ participation in STEM remains scarce. Historically Black colleges and universities (HBCUs) were established to provide African Americans with higher education opportunities. Still, HBCUs were subjected to historical and persistently restricted access to requisite financial resources to provide educational experiences comparable to White students in higher education (Lovett, 2015). Despite these limitations and obstacles, HBCUs play a vital role in the postsecondary STEM education of African Americans and all students served (Owens et al., 2012).

Evidence of HBCUs primary role is observed in the number of STEM graduates. In general, HBCUs have produced more African American STEM graduates than well-resourced higher education institutions that have had access to seemingly limitless financial and human resources. Not answered, however, is the question of what other resources HBCU leaders were using to generate STEM success for the faculty and students they were responsible for leading and educating. Another question is, “Is it plausible, but not written, that due to limited financial

This work was supported by the National Science Foundation through the Center for the Advancement of STEM Leadership (CASL) under NSF Grant No. 1818424, 1818425, 1818447, and 1818459. Any opinions, findings, conclusions, or recommendations expressed in this report are those of the authors and do not necessarily reflect the views of the National Science Foundation.

resources, leaders pulled from their personal resources to generate success for faculty and students?” We have some insight into HBCU presidents and the resources they used to generate success. However, in contrast to narratives that place presidents as schools’ sole leaders, provosts and vice presidents play supporting yet essential leadership roles in generating student success and providing quality educational experiences (Newkirk, 2012). This article illuminates the epistemological perspectives and intentional behaviors of HBCU provosts related to broadening STEM participation and developing student success within higher education’s historical hegemony. Specifically, this study brings to the forefront provosts’ perspectives on leadership styles and successes to broaden STEM participation. Within higher education’s hegemony with the well-documented and intentional limitation of financial resources to HBCUs, this article provides insight on how provosts perceive enacting, navigating, and performing leadership on their campuses to generate STEM success for students.

CONSERVATION OF RESOURCES THEORY

Conservation of resources (COR) theory states that humans are motivated to protect their current resources and acquire new resources (Halbesleben et al., 2014). Halbesleben and others posit that people who possess ample resources tend to proactively acquire further resources and invest resources in actions above the minimum expectations. If we follow this thread for financially well-resourced universities, we see the creation of large endowments, for instance. These endowments are held in high regard. Conversely, institutions built from the extrapolation of personal resources, inclusive of individual and cultural wealth, have not experienced the conversion of personal resource expenditures to large endowments. Historically, endowments are not established based on personal resources expended to increase the station of disadvantaged or low socioeconomic status students. Yet, HBCU leaders, specifically senior leaders, have drawn from their personal resources to generate student success (Esters & Strayhorn, 2013). HBCUs that convert low-income students to citizens with access to higher incomes do not receive leadership or financial credit for using personal resources to produce this conversion within higher education’s hegemonic structure. In contemplating HBCUs’ historical configuration within the hegemonic construct of higher education, the onus now should acknowledge that HBCU leaders expend personal resources to generate student success. Personal resources could convert into institutional financial rewards. The way forward is by describing the types of personal resources expended to generate success, particularly in STEM education.

Scholars on the historical and contemporary environment at HBCUs have documented the use of personal resources but have not explored why valuable personal resources have not resulted in significant financial institutional gains. This research study recognizes that purposeful perspective-taking on students’ potential is drawing from provosts’ personal resources. Purposeful perspective-taking is a nurturing act brought forth from leaders’ personal resources and experiences. As a nurturing act, purposeful perspective-taking is defined as encouraging, nourishing, and caring for someone or something. Purposeful perspective-taking is an intentional decision taken by leadership to focus on students’ STEM potential instead of their STEM academic standing or financial resources. However, nurturing acts, such as purposeful perspective-taking, are rarely discussed in the national sphere of STEM education leadership. Nevertheless, purposeful perspective-taking focused on the whole person’s development is practiced repeatedly and intentionally at HBCUs and derives largely from the personal reserves of HBCU leaders (Favors, 2019).

Purposeful Perspective-Taking in Response to a Legacy of De Jure Segregation

To make sense of purposeful perspective-taking in leadership in the context of higher education’s hegemonies, we must understand HBCUs’ history, particularly the legacy of *de jure* segregation, which continues to impact the vitality and viability of HBCUs today (Lovett, 2015). Researchers have long documented the historic funding disparities between HBCUs and predominantly White, land-grant institutions of higher education, as well as many of the nation’s leading private, elite

colleges and universities. Federal legislation such as the *Higher Education Act* (1965), the *Morrill Act* (1862), and the *Morrill Act* (1890) contributed to HBCUs' founding and unequal funding. Southern states, where most HBCUs are located, used the first *Morrill Act* to create HBCUs within a two-tiered, land-grant university system to gain federal funds to benefit White land-grant colleges (Fryer & Greenstone, 2007). To evade the federal mandate of the second Morrill Act, southern states chose to advance separately under-resourced public colleges for African Americans rather than accept them to White colleges and universities (Moore, 1999).

Evidence supports state legislatures favoring predominantly White higher education institutions in state appropriations and federal funding distributions (Kujovich, 1993; United States Commission on Civil Rights, USCCR, 2010). According to the USCCR, 19 southern states violated Title VI of the *Civil Rights Act* (1964). Nonetheless, southern states continued the practice of distributing inequitable funding to HBCUs compared to nearly all White higher education institutions. Although 19 southern states were out of compliance with the Title VI act, federal funding flowed without hindrance and allowed southern states to operate state-sanctioned segregated colleges without consequence (USCCR, 2010).

The practice of inequitable funding and *de jure* segregation practices have continued from 1992 until the present time. Nonetheless, inequitable funding continues. Despite this, historic momentum has been building. In 2021, the governor of Maryland signed legislation to award Maryland HBCUs \$577 million in funding (Douglas-Gabriel & Wiggins, 2021). According to the Maryland Higher Education Commission (n.d.), Maryland state legislatures poured resources into its other public colleges while ignoring investment requests in facilities and academic programs that could attract and retain students and faculty at state HBCUs. Equally historical, in 2020, the U.S. Secretary of Education announced that through the Coronavirus Aid, Relief, and Economic Security (CARES) Act (2020), nearly \$1.4 billion in additional funding would be directed to minority-serving institutions (MSIs), including HBCUs (United States Department of Education, 2020).

Although federal and state funding agencies have made recent decisions to address inequitable funding to HBCUs, these authors observe that HBCU leaders have long countered historical funding inequalities by drawing on personal resources. Specifically, HBCU leaders apply nurturing leadership through purposeful perspective-taking to amplify focusing on students' potential instead of their academic and financial limitations. HBCU leaders use purposeful perspective-taking as a strategy to counter historical funding inequalities in STEM education.

HBCU Contributions to STEM Higher Education

Although state-sanctioned segregated education is no longer the land law, HBCUs are still underfunded, although they enroll a significant number of African American students. Many African American students attended HBCUs in the pre-civil rights era because they had no other option. By 1979, HBCUs awarded 35 percent of all engineering bachelor's degrees earned by African Americans (Ransom, 2015). Between 2001 and 2009, HBCUs graduated 39 percent of students receiving STEM degrees (Owens et al., 2012; Provasnik et al., 2004). In 2011, 24 percent of Black science and engineering doctorate recipients received their Bachelor of Science degrees from an HBCU (Fiegenger & Proudfoot, 2013). HBCUs remain responsible for the vast percentage of African American STEM and medical professionals in the nation.

In a more recent review of the literature designed to unpack HBCUs' contributions to STEM education, Ransom (2015) noted that HBCUs support and affirm STEM students and promote cooperative rather than competitive peer climates. Overall, students at HBCUs are also more likely to report a sense of belonging on their campuses and express feelings of being supported by their peers (Toldson, 2013). Within STEM education, research suggests that African American students attending HBCUs and majoring in STEM disciplines tend to have more positive perceptions of their educational experiences, higher self-efficacy, and more post-baccalaureate educational aspirations than African American students attending non-HBCUs.

HBCUs have brokered pathways toward STEM success for more than 100 years. Yet, a paucity of literature unpacks the leadership behaviors and intentional decisions that provosts and vice

presidents make in leading HBCUs' viability in undergraduate STEM education. Because of historical challenges related to financial resources, HBCU leaders, especially provosts, are likely to have different experiences than leaders at predominantly White institutions (PWIs). The leadership resources they have used to generate success are overlooked and undervalued within higher education's hegemonic structure.

HBCUs have played an integral role in preparing African American students for STEM achievement, fulfilling their historical mission. Within this hegemonic structure, leaders, primarily those responsible for the academic trajectory of STEM students, may not have known that social science has a term for their intentional and resilient leadership. It is called praxis, which are revolutionary acts directed toward the liberation of working- and lower-class people. Praxis applies empirical knowledge to help meet human needs and solve complex social problems (Kozaitis, 2013). The goal of capturing provosts' interpretative phenomenological perspectives is to characterize praxis leadership outcomes further.

METHODOLOGY

Design

Qualitative-Interpretive Phenomenological Analysis (IPA) was used for this study. IPA is an approach to qualitative research that focuses on discovering insights into how a person makes sense of a given phenomenon within a particular context. Usually, these phenomena relate to personally significant experiences, such as a significant life event or a significant relationship development. In this research study, the phenomenon of interest is academic STEM leadership in the context of public and private HBCUs. Specifically, this study sought to answer the following research question: How do HBCU provosts describe the specific ways they enact, navigate, and perform leadership on their campuses to broaden participation in STEM. Their responses were analyzed through the lens of the conservation of resources theory.

Participation Selection

This study draws from the Center for the Advancement of STEM Leadership's (CASL) HBCU 2020 Leader Dataset. The overall mission of CASL is to examine the leadership styles and strategies associated with the remarkable record of HBCUs in broadening participation in STEM and to use such knowledge to prepare leaders to advance further broadening participation in STEM. As such, CASL worked with an HBCU senior administrator to select STEM leaders, including senior administrators (presidents, chancellors, and provosts), mid-level administrators (deans, chairs, or STEM program directors), faculty, and additional personnel most likely to be knowledgeable about the legacy of leadership that has been associated with the advancement of STEM at their institutions. Between one and six leaders per institution participated in interviews.

Sample

The HBCU 2020 Leader Dataset included 38 leaders employed at one of 13 HBCUs. This study's analytic sample included eight provosts who represented five public and three private four-year HBCUs. Five of the provosts included in the sample were women. Four provosts worked at small HBCUs, and one worked at a large HBCU. Provosts were selected because they were academic leaders whose thoughts and perceptions about advancing HBCUs, especially regarding broadening participation in STEM, had not been discussed in the higher education and undergraduate STEM education literature.

The disciplinary degrees among provosts varied. There were four provosts with degrees in a STEM field (e.g., biology, environmental science, mathematics, and computer science), all women. Other provosts had disciplinary degrees in psychology, English, social work, and education. Except for one provost, provosts with non-STEM degrees were men. See Table 1 for provost demographics and institutional characteristics.

Table 1*Gender of Provost and Institutional Characteristics*

Provost Demographics		Institutional Characteristics			
Gender	Degree Area ^a	Institutional Type	Highest Degree Level	Student Enrollment	Size ^b
Female	Social Work	Private	Bachelor's	800-2500	Small
Female	Biology	Private	Bachelor's	800-2500	Small
Female	Mathematics	Public	Doctorate	800-2500	Small
Female	Computers	Public	Doctorate	800-2500	Small
Female	Environmental Science	Public	Doctorate	5001-10000	Large
Male	Education	Private	Doctorate	800-2500	Small
Male	Psychology	Public	Doctorate	2501-5000	Medium
Male	English	Public	Doctorate	2501-5000	Medium

Note. ^a. Degree area was self-reported by the provosts; ^b. CASL classified institutions as small (700-2500 students), medium (2501-5000 students), and large (>5000 students). The CASL classification is based on student enrollment as reported in the Integrated Postsecondary Education Data System (IPEDS; National Center for Education Statistics, 2020)

Data Collection

The HBCU provost interviews were conducted virtually in fall 2020. Provosts participated in 60-minute, one-on-one, semi-structured interviews with a CASL research team member, including the lead author, whose lived experience is grounded in HBCU education as both an alumnus and former faculty member. One question the interviewer asked was, “How would you describe your leadership style or characteristics?” Another question asked was, “What do you think is the relationship between your leadership and STEM success at your college/university?” Interviews were conducted by video conference and were recorded with participants’ consent, adhering to IRB protocols.

Data Analysis

Transcribed interviews were analyzed using the coding methods outlined by Miles and associates (2019). Data were analyzed using the ATLAS.ti text analysis software (ATLAS.ti version 8.0, <https://atlasti.com>). Researchers uploaded code definitions to the data analysis software. Once researchers set up the text corpus within the analysis software, they assigned existing codes and conducted in-vivo coding. Responses to the semi-structured interview questions were coded based on the primary code within the question. For instance, leaders were asked to describe their leadership styles or characteristics. Provosts’ responses to this question were coded as “leadership styles.” Next, in-vivo codes were created using the words and phrases that leaders mention to describe their perceptions and enacted behaviors related to leadership styles resulting in large numbers of African American STEM graduates. Researchers created pattern codes after the initial codes were assigned. Miles and colleagues (2019) describe pattern codes as explanatory or inferential codes. Pattern codes helped identify emergent themes revealing a more in-depth understanding of leadership behaviors.

STUDY FINDINGS AND DISCUSSION

Provosts in this study shared their perspectives on their leadership styles to broaden participation in STEM. This section starts with a presentation of provosts' primary research and program funding sources and their career trajectories, which provide a picture of the broader institutional contexts that likely influenced their perceptions and our understanding of their leadership styles and success in STEM education.

Provosts' Institutional Contexts: Funding Records and Career Trajectories

A track record of federal funding. HBCUs in this study have benefitted from federal funds explicitly designated for higher education institutions with the congressional designation of historically Black colleges and universities (National Science Foundation, NSF, n.d.). All provosts in this study had served as principal investigators on a federal grant from one or more of three federal agencies, specifically NSF, the U.S. Department of Education, and the Department of Energy within the U.S. Environmental Protection Agency. When asked to provide sources of research funding, one provost at a small HBCU said, "We have some various Title III grants that we were able to utilize and do various things to strengthen our HBCU." The provost at another small HBCU said:

I have been at HBCUs that are not research-intensive universities or colleges. So, therefore, most of the federal money that I have been involved with . . . has been for programmatic activities to put students in the pipeline. So, I've had the Department of Energy, Department of Education, and I think some National Science Foundation funding. And I would say here at [our college], we just finished the 2019 last fourth year and no-cost extension year for the Department of Education.

Another provost who had only been in the position for less than one year at the time of the interview shared more insight about the benefits of research funding. This provost said:

I started my career as a new professor at [a non-HBCU]. It was for five years. I was recruited to [another non-HBCU] as an associate professor and moved . . . up through the ranks of promotion for full professor and stayed at [a second non-HBCU] . . . before moving on to [a third non-HBCU] as vice president, academics and student affairs. Over the course of my career, I have had constant or consistent research funding from groups, including the National Science Foundation, the U.S. Department of Education, and more generally, like philanthropic foundations, state agencies, and contracts, all funding my research on student success. And either funding the science of my work . . . I'll highlight one because I think it's connected to the kind of . . . good work that you're doing . . . with this project, and that is with the National Science Foundation . . . I was a Career Award recipient. It's a five-year funded project looking at understanding the critical junctures...where we lose students of color in the pathway to STEM degrees.

Although state funding was mentioned, most provosts described competitive federal funding as the primary financial resource to strengthen STEM programs at their colleges or universities. Unlike state funding, which largely consists of general-purpose appropriations, federal awards are largely directed to students and research programs requiring considerable fiscal management.

Leadership trajectories. All provosts began their careers as assistant professors and rose through the ranks to be appointed or promoted to the role of provost. After tenure, the provosts in this study held administrative leadership roles starting from the chair of their departments to the dean of the college and then the provost. For some, their academic trajectory was not all within HBCU institutions. For instance, some of the provosts began their careers at primarily White higher education institutions. They intentionally pursued the advanced leadership position at an HBCU and were offered the provost administrative position. One HBCU provost, when asked to highlight his career trajectory, said:

I just joined [the HBCU] as provost and senior vice president for academic affairs . . . I was vice president for academic and student affairs and chief academic officer at [non-HBCU]. Prior to that, I've served in increasing roles on the faculty, moving from assistant professor up through the ranks to full tenured professor at [a non-HBCU].

HBCU education and experience as resource. Some provosts described their educational trajectories and work experiences as primarily at HBCUs. One provost shared his prior experience, the significant impact the HBCU had on him as a student, and the motivation to be an HBCU STEM leader. He said:

Leaders who come to historically black colleges and universities to work with students and to work with faculty . . . particularly if you have attended a historically black college, you reverberate back to the impact that institution had on your life. And so, as I think about my 25 years in higher education, my HBCU experience had an incredible impact. And so, what I have found in my colleagues who through conversations have come back to HBCUs or other minority-serving institutions, they want to have [an] impact because they believe that they have learned something along their professional journey in STEM education and leadership by which they can contribute to have a major impact.

Another provost shared her perspective about the impact of attending an HBCU on her leadership style. She said:

I am a product of HBCUs. So, I guess I'm sort of shaped and molded by those . . . My leadership style . . . reflects I am a product of [an HBCU]. So, I would attribute some of those characteristics to leaders essentially at HBCUs.

Thus, provosts' diverse academic preparation and experiences in the workforce together inform their leadership styles within the HBCU context. It is what they experienced as students, and these experiences suggest a lifetime impact on their career trajectory.

Provosts' Nurturing Leadership Styles as Purposeful Perspective-Taking

Five themes emerged in the analysis of provosts' descriptions of their leadership styles that demonstrate purposeful perspective-taking as nurturing leadership behavior. Provosts described their leadership styles as supportive, collaborative, leading from different positions, and leading by example. Their leadership styles are seemingly rooted in intentional decisions to harness and illuminate the potential of those they serve into a transformative vision of future possibilities.

Exemplifying support, when asked to describe her leadership style, one provost said, "I try to work with my faculty and my direct reports to really *enable their dreams*. So, what they find is important, I think is important." Another provost at a small university HBCU said,

I think, for me, serving in the role of the chief academic officer and provost, my leadership style is . . . highly collaborative. I really believe that *we hire subject matter experts* to perform jobs in their various domains, so working with deans and department chairs, I approach my leadership as one that is being highly collaborative . . . really understanding the needs of individuals is critically important to me as a leader, so that if there are any *blind spots or gaps* . . . we are really surrounding them with the resources and the professional development that is needed to close those gaps.

Exemplifying collaboration, another provost at a medium-sized HBCU shared her perspective on leadership as deep and engaged coaching to bring about new understandings:

I believe that my leadership style is one that is also about coaching, coaching individuals, and mentoring individuals such that they fully understand the range of involvement and . . . that there is depth and breadth. Oftentimes, when we talk about leadership, there is depth, but not breadth. And what I really believe leadership is in terms of where I sit seems to have both depth and breadth.

Another provost at a medium-sized HBCU located approximately 185 miles away had nearly identical perspectives. This provost described collaboration in team building to affirm and make plain her view that each individual at the table had value. She said:

I try to do . . . team-building leadership style. I want the people who are in the positions below me to give me their recommendations. They are there for a reason. They have the expertise, so unless there is a good reason not to take their recommendation, I depend on them to advise me, and I try to take their advice.

Leading from different positions appeared to be a complimentary leadership style to collaboration. Like the perspectives already shared, another provost at a large HBCU who had been in the position for only eight months at the time of the interview honed into her leadership style as a core part of her belief system and described nuances of collaborative leadership as making visible the leadership potential and ability of others. She said:

I try to be what I call a collaborative leader, and walk with the pack, so to speak . . . I don't have to be the person that's out front and getting all the visibility. I do firmly believe that you can lead equally from behind or in the midst.

This provost's beliefs inform her perspectives, and her views are like those of a provost at a small HBCU, who said, "Sometimes for other people to buy-in, you have to step back and let [faculty] take charge, because if that's [what's] necessary for them to lead, then you let them do that."

The provost at another small HBCU demonstrated an act of purposeful perspective-taking requiring personal fortitude. This provost said, "I tried to get a lot of input and a lot of ideas. Sometimes it might mean losing your voice."

Provosts' purposeful perspective-taking, eliciting and often privileging the voice of others over their own, as well as stepping back so others can step forward, are acts of nurturing and self-sacrifice often associated with behaviors of women STEM academic leaders (McKayle, 2021). However, male provosts in our study also discussed collaboration and being supportive through purposeful perspective-taking, but in different ways. One male provost at a small HBCU said, "In my leadership style, [I] connect social sciences and STEM sciences in ways that I'm not sure all individuals can do." This provost continued describing the reaction of STEM faculty as they learned about his ability to broker social sciences to advance STEM education. To paint a vision of possibilities, he said:

You know, when STEM faculty read the announcement about their new provost and learn that, although he's an education scholar, he's a Career Award winner from the National Science Foundation, and has had consistent funding in the National Science Foundation for years . . . they're like, wait, what . . . who's doing this? Who is this guy?

As the provost continued to describe the faculty members' reactions, he illustrated that his collaborative style was a motivational factor in service to others, saying:

When we meet, and they're talking to me about their needs for infrastructure, to support their science, or to support their laboratories, I understand it. And I can not only speak to them using the same language but draw from my own experiences . . . There's synergy and connectedness that's not just for me . . . I watch how it [synergy] moves through the faculty. And what it really does, is, I think . . . it raises the level of respect amongst scientists. Scientists in natural sciences and biology and chemistry are looking across the aisle at those in the social sciences, like, wait a minute, they're doing science too, and they've been doing it the whole time, right? They just have not seen good role models that bring the whole academic community together.

Here, this provost is working to create a collaborative vision of the potential for natural scientists and social scientists to advance STEM success.

Similarly, a provost from a small HBCU with a STEM background articulated that collaboration was used to garner support for a unifying vision, a strategic component of her leadership style. She said,

I think collaborative leadership . . . I was good at really taking a lot of different people's ideas and trying to make it into a program that *everyone could see themselves in*. And I'm hoping that if you can see yourselves, then you will be that much more motivated to help me.

As the provost continued to reflect, she began to weave purposeful perspective-taking together with elements of collaboration and support in the description of her leadership style. She said,

What I have learned is that I am a transformational leader in terms of really trying to provide a lot to people. [I learned that] *you provide the vision, the inspiration*, and hope that you're providing what they need in order to really show up and do well. And I think it's the whole idea of together we can do more, or if you're part of an exciting project, then you will show up, and you will show up ready.

In the knowing that "together we accomplish more," "stepping back," or "leading within the midst," HBCU provosts characterized their leadership as signaling an understanding of specific infrastructural needs that collectively illuminate their nurturing leadership through purposeful perspective-taking to generate STEM success for their faculty and, ultimately, students under their leadership.

Another recurring theme emerged as provosts described their leadership styles. Four of eight provosts described their leadership style as "by example." That is, providing a vision of future possibilities for those they serve. One provost at a small HBCU said, "Whether it is leading the project or trying to get people [to lead], I would always have a role in the project. I always felt like I wouldn't ask anyone to do something that I wouldn't do myself."

Another provost at a medium-sized HBCU described his leadership style as setting an example and creating an environment for buy-in through a sense of shared vision of a future goal, saying, "[You have to be] rallying for those to get done what the collective is wanting to do." Another provost at a small HBCU said:

Well . . . as far as leadership, I feel that you set an example that you create in an environment that sort of welcomes and invites people to buy into whatever it is you're trying to do. A leader, I feel, is really a person who can get others, rally them, and *get them to see* the common good and work together to get it done.

In conclusion, provosts characterized their leadership styles as supportive, collaborative, leading from different positions, leading by example, rallying people, and getting them to see the transformative power of their potential. The provosts' leadership styles illuminate purposeful perspective-taking. Specifically, the provosts in this study reported that what faculty think is important and what they take on is important. The provosts exemplified support through collaboration and inclusion, uniting the community around a shared vision for what is possible. They described eliciting and privileging the voices of others over their own and leading from different positions, including "from behind" or "in the midst." Both styles can require tapping into a personal grit that is not always visible. Participants perceived that they lead by example to offer a concrete vision for what is possible for others. Collectively, these leadership styles were coded as purposeful perspective-taking as fuel for nurturing leadership behaviors in undergraduate STEM education. These intentional behaviors are what provosts attested led to their leadership success.

Leadership Success in STEM

To further explore HBCU provosts' phenomenological perspectives about leadership and STEM education, provosts were asked about their greatest success as a leader, particularly regarding STEM education. Capturing the essence of purposeful perspective-taking, one provost from a small

private college said, “To inspire those students, we have to have wonderful faculty in the classrooms to say if you want to be a doctor, this is your path to being a doctor.” Another provost at a small HBCU reflected,

My feeling is this. I look at them, and I say, I hope that they appreciate that they are about to embark on one of the most important journeys. And at this point . . . [in their lives], I hope they realize they can do anything they want to do now. That’s what I’m thinking when they’re walking across the stage.

Another provost said, “I think my greatest success up until now with STEM was actually working with our faculty to get the [NSF] program.” These provosts described their perceptions of success as helping students see their potential and hiring faculty who will see students’ potential and work to bring forth success for students.

As one provost reflected, her success each year was embodied as students walked across the stage during graduation onto the next phase of their lives and careers. However, a provost who moved through the ranks at non-HBCUs said:

[The] one thing that I count as a success is that I bring the social sciences, natural and physical sciences together, and help us speak the same language, though we have very different work. We’re all advancing knowledge . . . I’ve been able to recruit some remarkable talent in our STEM fields.

This provost shared his leadership success as a specific action taken to bring the social, natural, and physical sciences together and generate a shared vision, albeit in different work—all to advance knowledge. This provost’s success recognizes that collaboration across academe is a strategy to ensure faculty and students share a vision of success based on the transformative potential of the talents they bring and will nurture together.

DISCUSSION AND CONCLUSION

HBCUs defy the odds to educate generations of African American scientists. Provosts perceived that they enact leadership that produces success for faculty and students. They create STEM success using personal resources that we characterized as purposeful perspective-taking. Personal resources come from provosts’ stores of wealth, and these are often not monetarily rewarded but should be. Scholars of the historical and contemporary environment at HBCUs have documented the use of personal resources but have not interrogated why valuable personal resources have not resulted in significant financial institutional gains. This paper provides a way forward by describing the types of personal leadership resources called upon to generate success, particularly in STEM education.

Nurturing leadership most often encompassed support for others and leading from different positions to harness and illuminate the potential of those they serve. Provosts reported enacting this type of leadership by recognizing that, at times, they must make personal sacrifices and quiet their voices to privilege the voices of other leaders (formally or informally appointed) to advance the HBCU STEM mission. In compliment, purposeful perspective-taking was manifested by intentionally seeing and communicating a vision of possibilities regardless of students’ and faculty members’ current state or station. Purposeful perspective-taking encompasses behaviors enacted by both male and women provosts, regardless of disciplinary backgrounds.

A paucity of examples connects the intersecting praxis of nurturing, leadership, and STEM education, leading to societal advancement for African Americans. We hypothesize that nurturing is rarely discussed and often backed away from because nurturing is associated with women’s work in a patriarchal society, including at HBCUs. Yet, the value of this type of leadership has been echoed by male and women provosts in this study and beyond (McKayle, 2021). Nurturing work is labor-intensive for the nurturer—in this case, the nurturing leader. For far too long, conversion of HBCU provosts’ (and other leaders’) personal resources into capital resources, with precision, to implement nurturing leadership has been systematically denied by inequitable funding structures.

Future research must continue to examine and illuminate the intersectionality of nurturing and purposeful perspective-taking in STEM education leadership. Findings apply to new, aspiring, foreign-born, and non-HBCU trained provosts because COR and nurturing leadership behaviors, like purposeful perspective-taking, suggest a posture or disposition that can be learned through training, mentoring, and practice. Future studies should explore the possibilities and limitations of transferability to these groups. Future research may compare gender differences in perspective-taking behaviors of academic leaders with social and natural science disciplinary training. Emerging STEM leaders must know the intentionality behind nurturing leadership decisions; to this end, we are indebted to the provosts and other leaders who entrusted their stories to CASL.

REFERENCES

- Civil Rights Act of 1964, Pub. L. No. 88-352, 78 Stat. 241 (1964).
<https://www.govinfo.gov/content/pkg/STATUTE-78/pdf/STATUTE-78-Pg241.pdf>
- Coronavirus Aid, Relief, and Economic Security (CARES) Act, Pub. L. 116-136, §1, Mar. 27, 2020, 134 Stat. 281
- Douglas-Gabriel, D. & Wiggins, O. (2021, March 24). Hogan signs off on \$577 million for Maryland's historically Black colleges and universities. *The Washington Post*.
<https://www.washingtonpost.com/education/2021/03/24/maryland-hbcus-lawsuit-settlement/>
- Esters L. L., & Strayhorn T. L. (2013). Demystifying the contributions of public land-grant historically Black colleges and universities: Voices of HBCU presidents. *The Negro Educational Review*, 64, 119-134.
- Favors, J. M. (2019). *Shelter in a time of storm: How Black colleges fostered generations of leadership and activism*. University of North Carolina Press.
- Fiegener, M. K., & Proudfoot, S. L. (2013). *Baccalaureate origins of US-trained S&E doctorate recipients*. National Center for Science and Engineering Statistics.
- Fryer, R. G., & Greenstone, M. (2007). *The causes and consequences of attending historically Black colleges and universities* (No. w13036). National Bureau of Economic Research.
- Halbesleben, J. R., Neveu, J. P., Paustian-Underdahl, S. C., & Westman, M. (2014). Getting to the "COR" understanding the role of resources in conservation of resources theory. *Journal of Management*, 40, 1334-1364.
- Higher Education Act of 1965, Pub. L. 89-329, 79 Stat. 1219 (1965).
- Kozaitis, K. A. (2013). Anthropological praxis in higher education. *Annals of Anthropological Practice*, 37, 133-155.
- Kujovich, G. (1993). Public Black colleges: The long history of unequal funding. *The Journal of Blacks in Higher Education*, 2, 73-82.
- Lovett, B. L. (2015). *America's historically Black colleges & universities: A narrative history from the nineteenth century into the twenty-first century*. Mercer University Press.
- Maryland Higher Education Commission. (n.d.). *Maryland's report and the partnership agreement between the state of Maryland and the U.S. Department of Education*. Office for Civil Rights.
<https://mhec.maryland.gov/Pages/ocrplan.aspx>
- McKayle, C. (2021). Creative leadership in the face of crisis: From hurricanes to pandemic. In Schnackenberg, H., & Simard, D. (Eds.), *Women and leadership in higher education during global crises* (pp. 107-115). IGI Global.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2019). *Qualitative data analysis: A methods sourcebook* (4th ed.). Sage.
- Moore, J. A. (1999). Are state supported historically Black colleges and universities justifiable after *Fordice*? A higher education dilemma. *Florida State University Law Review*, 27, 547-567.
- Morrill Act of 1862, Pub. L. 37-108, 12 Stat 503 7 U.S.C. § 301 et seq.
- Morris Act of 1890, Pub. L. 37-130, 12 Stat. 503 (1890).
- National Center for Education Statistics. (2020). *Integrated postsecondary education data system*. <https://nces.ed.gov/ipeds/>

- National Science Foundation. (n.d). *Historically Black colleges and universities-undergraduate program* (HBCU-UP). https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5481
- Newkirk, V. (2012). *New life for historically Black colleges and universities: A 21st-century perspective*. McFarland.
- Owens, E. W., Shelton, A. J., Bloom, C. M., & Cavil, J. K. (2012). The significance of HBCUs to the production of STEM graduates: Answering the call. *Educational Foundations*, 26, 33-47.
- Provasnik, S., Shafer, L. L., & Synder, T. D. (2004). *Historically Black colleges and universities, 1976 to 2001*. National Center for Education Statistics. <https://vtechworks.lib.vt.edu/bitstream/handle/10919/90719/HBCUReportHigEduc.pdf?sequence=1&isAllowed=y>
- Ransom, T. (2015). Clarifying the contributions of historically Black colleges and universities in engineering education. In Slaughter, J. B., Tao, Y., & Pearson Jr., W. (Eds.), *Changing the face of engineering: The African American experience* (pp. 120-148). Johns Hopkins University Press.
- Toldson, I. A. (2013). Historically Black colleges and universities can promote leadership and excellence in STEM (Editor's commentary). *The Journal of Negro Education*, 82(4), 359-367. <https://doi.org/10.7709/jnegroeducation.82.4.0359>
- United States Commission on Civil Rights. (2010). *The educational effectiveness of historically Black colleges and universities*. <https://files.eric.ed.gov/fulltext/ED513988.pdf>
- United States Department of Education. (2020, April 30). *Secretary DeVos delivers nearly \$1.4 billion in additional CARES act relief funds to HBCUs, minority-serving institutions, and colleges and universities serving low-income students*. [Press release]. <https://www.ed.gov/>

AUTHORS

ANGELIQUE TUCKER BLACKMON is Visiting Scholar, Department of Research and Evaluation Center for the Advancement of STEM Leadership and Director of Research an Evaluation of Innovative Learning Center, LLC, Atlanta, Georgia.

KARYL ASKEW is Senior Research Scientist, Center for the Advancement of STEM Leadership, University of the Virgin Islands.

CAMILLE A. MCKAYLE is Provost, Office of the Provost, Center for the Advancement of STEM Leadership at the University of the Virgin Islands.

KIMARIE ENGERMAN is Dean and Professor of Psychology, Center for the Advancement of STEM Leadership at the University of the Virgin Islands.

All comments and queries regarding this article should be addressed to ablackmon@ilearningcenter.education or ablackmon@ilearningconcepts.com

Copyright of Journal of Negro Education is the property of Howard University and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.