Analysis of Self-identified Institutional Values among High Research Capacity HBCUs

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Abstract: Among Historically Black Colleges and Universities (HBCUs), only 10 percent of institutions currently meet the criteria for designation as a "high research activity institution (R2)", as designated by the Carnegie Classification of Institutions of Higher Education. Despite this occurrence, other Minority Serving Institutions (MSIs) also have aspirational goals to expand their capacity to fund and conduct quality research, as well as develop critical infrastructure to achieve sustainability of their research efforts. Engagement of a diverse set of institutional types is needed to expand national research capacity in STEM and maintain the competitive advantage of the U.S. in STEM innovation and prepare faculty and students from underrepresented backgrounds for the future STEM workforce. A better understanding of the core values of high research capacity institutions may provide greater insight into the factors that contribute to their effectiveness in building institutional research capacity and maintaining sustainability of their efforts, while providing a road map for other MSIs to achieve success in research and development. Thematic analysis was utilized to evaluate the core values of 11 high research capacity HBCUs as noted in their respective institutional strategic plans. Analysis revealed 7 emergent themes that characterize these institutions. The two most frequent themes were Community and Excellence. Additional themes included Respect/Integrity, Innovation, Social Responsibility, Accountability, and Diversity & Inclusion. This collection of shared values may be one of the key factors leveraged by R2 HBCUs to promote research capacity building. This insight may provide a model for value- based decision making to support research capacity and sustainability at MSIs and broaden participation of faculty and students from underrepresented backgrounds in STEM-related research.

Keywords: Historically Black College and University (HBCU), Research Capacity Building (RCB), Carnegie Classification of Institutions of Higher Education (CCIHE), Institutional values

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Introduction

There are approximately 101 Historically Black Colleges and Universities (HBCUs) within the U.S. (NCES, n.d.) HBCUs are institutions of higher education established prior to 1964, with a principal mission of serving the educational needs of the African American community (NCES, 2010). Among HBCUs, only 10 percent of

institutions (11 institutions) currently meet the criteria for designation as a “high research activity” institution (CCIHE, n.d.-b), while no HBCUs have attained the designation of “very high research activity” institution (CCIHE, n.d.-c). Despite this occurrence, these “high research activity” or R2 HBCUs and other Minority Serving Institutions (MSIs) have aspirational goals to expand their capacity to fund and conduct quality research, as well as develop critical infrastructure to achieve sustainability of their research efforts.

These 11 R2 doctoral institutions, as designated by the Carnegie Classification of Institutions of Higher Education, are characterized as having total research expenditures of more than 5 million dollars and having awarded a minimum of 20 research/scholarship doctorates (CCIHE, n.d.-a). While “Very high research activity” or R1 doctoral institutions meet the same criteria, in addition to having a higher level of research activity as assessed by a research activity index that considers several factors correlated to research: “research & development (R&D) expenditures in science and engineering; R&D expenditures in non-S&E fields; S&E research staff (postdoctoral appointees and other non-faculty research staff with doctorates); doctoral conferrals in humanities, social science, STEM (science, technology, engineering, and mathematics) fields, and in other fields (e.g., business, education, public policy, social work)” (CCIHE, n.d.-a). However, under the soon to be revised and more succinct CCIHE framework in 2025 (CCIHE, n.d.-d), some current R2 institutions may receive the designation of R1 (Zhang, 2024; NSTC, 2024; Fletcher et al., 2024).

Research capacity building (RCB) is the process of enhancing the ability of individuals and institutions to develop, implement, and sustain high- quality research and research infrastructure.

The National Science and Technology Council (NSTC) is tasked by the Executive Branch of the U.S. government to coordinate science and technology policy across federal entities that engage in research and development (NSTC, n.d.). Its 2024 report, “Advancing Research Capacity at High Research Activity Historically Black Colleges and Universities” identified 7 barriers to navigating federal funding that hinder the advancement of research and development in STEM fields at HBCUs. These barriers included: difficulty identifying funding across a diffuse and complex federal funding terrain; insufficient technical assistance; limited opportunities to build institutional capacity; limited clarity on how institutions build capacity; partnerships that are non-mutually beneficial; bias in the review process; and limited post-award information that HBCUs can use to inform funding opportunity selection (NSTC, 2024). Many of these challenges are also faced by other minority serving institutions (NSTC, 2024). To address these identified challenges, NSTC proposed practices that can be adopted by federal agencies to strengthen and enhance research capacity at HBCUs (NSTC, 2024). These recommendations included: Strengthen outreach and engagement activities; provide comprehensive technical assistance and training; increase the flexibilities and expand the funding available to support institutional capacity; demystify the funding process and support clearly defined pathways for building research capacity; Facilitate effective and equitable partnerships; combat biases during proposal review; and prioritize transparency (NSTC, 2024).

Research capacity building can be impacted by multiple factors related to research performance (Bland & Ruffin, 1992; Aydin, 2017). Bland & Ruffin (1992) identified 12 interdependent factors that promote high research productivity. Among these factors were "clear goals that serve a coordinating function" and "research emphasis" (Bland & Ruffin, 1992). Similarly, Aydin (2017) identified 51 factors, both internal and external, that impact research performance or research productivity. Among these were "leadership characteristics", "departmental culture supporting research", "institutional expectations regarding research". In a comparative study between high- and low- research performance groups, Edgar and Geare (2013) noted that features of high-performance research groups included achievement orientation, the extent to which norms and values are perceived to be shared, the commonality of research goals among departmental colleagues, and willingness to work toward achievement of shared research goals. One strategy for ensuring the development of clearly defined goals and expectations for institutional research productivity and performance is institutional strategic planning. The NSTC report noted that "all R2 HBCUs have included goals in their strategic plans to advance HBCUs' research capacities" (2024).

The strategic planning process and its outcomes may be influenced by an institution's strengths, weaknesses, threats, opportunities, (Helms & Nixon, 2010; Benzaghta et al., 2021) and values (Mueller, 2015; Hinton, 2022). Although values or a value statement is often an optional component of strategic plans, the strategic planning process should be grounded in and aligned with organizational values (Williams, 2002; Mueller, 2015; Hinton, 2022). Institutional values may guide value-based decision-making that informs the goal orientation of institutions (Fitzgerald & Desjardins, 2004; Mueller, 2015), such as the generation and implementation of aspirational goals related to research capacity building.

The R1 distinction has the ability to attract and retain research faculty, generate new research collaborations, and facilitate quality research experiences for undergraduate and graduate students. Although there are currently no R1 HBCUs, this subset of R2 institutions is at the forefront of research and innovation (Fletcher et al., 2024) and have embedded in their institutional strategic plans approaches and strategies to catapult them into the R1 designation (NSTC, 2024). These institutions can serve as a model for other minority serving institutions to strategically plan to enhance their research capacity and infrastructure which may promote greater equity in their access to research and funding opportunities. Engagement of a diverse set of institutional types is needed to expand national research capacity in STEM and maintain the competitive advantage of the U.S. in STEM innovation and prepare faculty and students from underrepresented backgrounds for the future STEM workforce.

A better understanding of the core values of these institutions may provide greater insight into the factors that contribute to their effectiveness in building institutional research capacity. These institutions may have shared values which are leveraged to promote research capacity building. This collection of values may be potentially emulated by other minority serving institutions that experience challenges in expanding their research capacity. The current article seeks to address the question, what are the emergent values that characterize high research

activity HBCUs? How can these institutional values impact research capacity building at minority serving institutions?

Method

HBCUs that met the criteria for R2 designation were identified using the institutional search tool on the Carnegie Classification of Institutions of Higher Education's website. An online search for the current or the most recent strategic plans of all R2 HBCUs was conducted. The strategic plans of each institution were reviewed to identify sections of the document that clarified the core institutional values of the respective institution. Self- identified institutional values were collated and Delve CAQDAS (computer- assisted qualitative data analysis software) was utilized as the tool to facilitate qualitative analysis via inductive coding. A single grader reviewed the text to ensure familiarity with the content prior to analysis, subsequently initial codes were generated. These codes were then analyzed and sorted into categories. The emergent categories were identified as emergent themes.

Results

Utilizing data from an institutional search on the CCIHE website, R2 institutions were found to represent approximately 3.38% of all institutions of higher education. Of this small cohort, R2 HBCUs represent only 8.27% of all R2 institutions nationwide. R2 HBCUs included: Prairie View A&M University, Southern University and A&M College, University of Maryland Eastern Shore, Tennessee State University, North Carolina A&T University, Morgan State University, Florida A&M University, Clark Atlanta University, Jackson State University, Howard University, Texas Southern University.

Thematic analysis of institutionally self- identified values contained in the respective strategic plans of the 11 high research activity HBCUs led to the identification of 7 core values across these institutions: Respect/Integrity, Community, Innovation, Social Responsibility, Excellence, Diversity & Inclusion, and Accountability. Institutions were found to have a variable number of established values, the maximum number of values for any institution was 8, while the minimum number was 5 (mean= 5.8; stdev= 1.4). Some institutions simply listed their values, while others provided short descriptions of how the institutions exemplified the value. Only 2 institutions made reference to their identity as an HBCU: University of Maryland Eastern Shore and Jackson State University. Both institutions viewed their HBCU status from an asset-based lens, for example, University of Maryland Eastern Shore noted the value of HBCU culture and its importance in building a supportive community structure.

Only 5 of the 11 institutions referred to research in the description of their identified values. Morgan State University, Jackson State University, and Howard University referenced research within a list of other activities that promote institutional goals, while Clark Atlanta University and Texas Southern University indicated their

research -centric approach, indicated by terminology such as “research- focused” and “research- driven”, respectively.

Institutions that made direct reference to their present R2 classification within their strategic plans included: Clark Atlanta University, Tennessee State University, and Jackson State University. Whereas institutions that noted their aspirational goal or intention to strategically transition to R1 status included: Tennessee State University, Morgan State University, North Carolina A & T University, Florida A&M University. Other institutions did note their intention to increase research activities and implement support structures to expand research capacity at their respective institutions.

The current study identified several common values that characterize high research activity HBCUs. Although these values are not unique to R2 HBCUs, they provide insight into how these core values can be potentially leveraged by these institutions to expand their research capacity and ensure sustainability of their efforts. The most frequent theme was community followed by excellence, accountability, respect/integrity, diversity/inclusion, social responsibility, and innovation (See Figure 1; (x-axis: frequency of theme; y-axis: theme)).

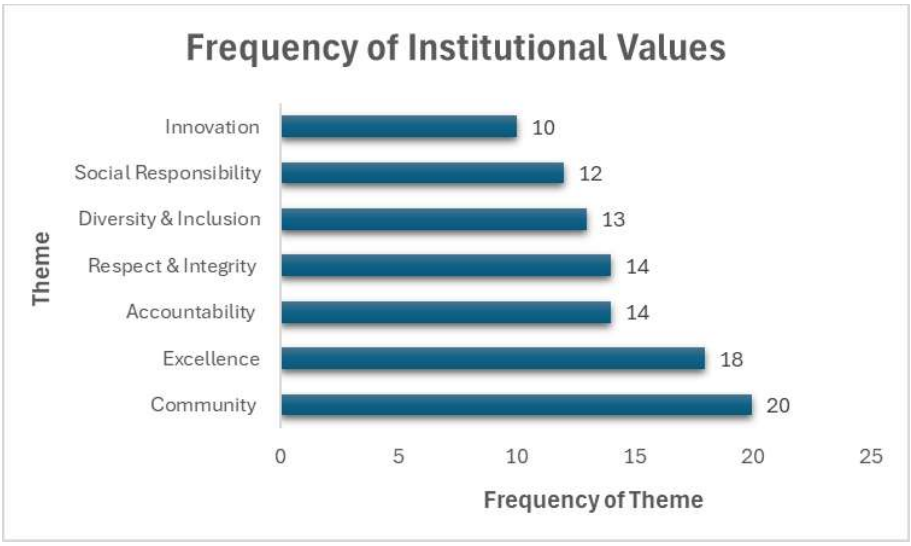

Figure 1. Histogram Of Emergent Themes from Self- Identified Institutional Values of R2 Hbcus.

Discussion

The following discussion provides insight into how value- based decision making at the institutional level can support research capacity and sustainability at MSIs and broaden participation of faculty and students from underrepresented backgrounds in STEM-related research.

Community

Community, the most frequent theme, was centered around HBCU identity, being "people- centric" or "student-centered". The idea of community involved not only creating community but serving the community. UMES described the university community as a family and noted unifying principles among the community such as work, support and celebration, while JSU "committed to creating a community" characterized by "nurturing", welcoming, and affirming "of persons from diverse backgrounds and experiences" and supporting these stakeholders in "the realization of their potential". Community was created through collaboration. TSU stated, "teamwork is our strength" and "working together, we achieve more" and linked the value of being research-driven to collaboration and excellence. SU A&M College noted "we are stronger and more effective when we work together as a team". CAU linked "collaboration and unity" among university stakeholders, such as students, faculty and staff as having the potential to add "to the University's body of knowledge". Similarly, UMES exemplified collaboration through "pursuing opportunities to work together across all parts of the campus". JSU also created community around the learning environment which integrates teaching, research, and service. Likewise, the TSU community adopts "a culture that enriches the learning experience, enhances critical thinking, and promotes a desire for life- long personal development.

Community provides an inclusive and supportive environment for scientists of color and other diverse backgrounds to be part of a thriving scientific community and promote a sense of belonging among groups that may currently be underrepresented in specific STEM disciplines. Community also facilitates networking, opportunities for mentorship, and networking among scholars in the same field and scholars in different disciplines that participate in team science to build interdisciplinary teams. This collaborative approach encourages sharing of resources and expertise across MSIs to support institutions that may lack research capacity in specific research areas. This community is further expanded to include other non-minority serving institutions, industry, and government partners that can collaborate to tackle challenging research questions that have a critical broader impact on communities of color, such as health disparities and environmental justice.

Excellence

Excellence, both institutional and academic, was a key characteristic among high research capacity HBCUs. Institutions sought to continually pursue excellence in numerous areas which included but were not limited to research, scholarship, teaching, academics, and workforce development. SU A&M College noted how integral excellence is to their overall success as an institution by describing it as the "hallmark of our endeavours", while HU and MSU explained that it undergirds their campus approaches and is integrated into "all aspects of the University's operation", respectively. Phrases that affirmed this sentiment included, "resolved in our commitment to...excellence", "making excellence a habit"; "committed to excellence"; "commit to high quality in all we do to achieve our noble cause" and "pursues excellence", TSU, HU, CAU, and MSU, respectively. This ethos is summed up by TSU as "united in everything we do, unbeatable at what we do, and unrelenting in

our approach to progress". It also "pursues excellence" by "making excellence a habit" and "ensuring excellence is at the forefront of our minds every day".

Demonstrated excellence in STEM research can lead to high quality and high-impact contributions to STEM fields. High standards of performance for faculty, students, and research centers can lead to enhancement in the number of successful grant proposals and peer- reviewed articles, as well as projects that move from research and development into tangible products that generate additional revenue for the institution. Such high caliber research can attract additional research faculty that have national recognition and expertise in their fields, which will continue to generate more funding for the institution. This level of excellence can further support training for graduate students at both the master's and doctoral level, increase the number of awarded doctoral degrees, as well as contribute to the development of new graduate programs in emerging fields of research. These outcomes can enhance student recruitment and retention for advanced degrees in STEM disciplines and contribute highly skilled researchers and professionals to meet the needs of the national STEM workforce.

Accountability

Accountability encompasses taking responsibility for actions or decisions. TSU noted a resolution to be successful in goal attainment and demonstrate accountability in its actions, while HU reaffirmed its commitment to transparency in governance and accountability. Some institutions linked accountability to effective leadership, stewardship, or high standards of performance. SU A&M College also linked accountability to "evidence- based planning and assessment".

Accountability for research outcomes and utilization of resources, which include research personnel, infrastructure and funding, are critical components of sustaining and expanding research capacity. Institutions must exercise effective stewardship, transparency, and fiscal responsibility in the administration of both federal and private funding to support research initiatives. Continual assessment of the progress of research initiatives is essential to maintaining the engagement of stakeholders that contribute to the success of institutional research efforts. Consistent reporting and completion of expected outcomes and deliverables as noted in grant proposals to funding agencies are a key consideration in receiving future funding from these agencies.

Respect & Integrity

To ensure success in reaching their aspirational goals, SU A&M College affirms a commitment "to professionalism, civility, and cooperation" as well as "to honor and preserve the individual dignity of everyone". This demonstrated respect extends to everyone "across the university system" and "across all levels of the university system". Similarly, MSU "treats each person equitably with respect and dignity in all situations". It also notes the anticipated code of conduct of members of its university community, for example, "honest communication, ethical behavior, and accountability for words and deeds". Other institutions also noted

expectations for their own moral conduct, NC A&T U demonstrates "moral character and unwavering ethical behavior", and SU A&M College conducts itself "in an honest, ethical and credible manner with an unwavering commitment to fairness and doing what is in the best interest of our students, faculty and staff". HU states that it "will reflect tenets of dignity and civility in all areas of engagement and support". Civil discourse enables respectful and productive conversations across differences. SU A&M College promotes "a culture of openness where individuals are encouraged to offer suggestions for improvement" aligned with the value of "courteous, ethical, and proactive two-way communication". Institutions acknowledge the benefits of "differing viewpoints", "diversity of thought", "all forms of differences, ideas and perspectives" and practice being "open-minded and tolerant of civil discourse", SU A&M College, TSU, CAU, F A&M U, respectively.

Respect for persons is a critical aspect of human subjects' research, and a crucial component to engaging communities of color in research participation considering the stigma that continues to persist due to historic exploitation of communities of color in scientific research, notably the Tuskegee Syphilis Experiment. Integrity and the broader application of research ethics supports the responsible conduct of research at institutions and compliance with federal guidelines. Research misconduct and non-compliance are detrimental, because either may block access to future funding opportunities and calls into question the reliability of research conducted at the institution. Civil discourse is important during critical and often uncomfortable conversations when science conflicts with societal values or worldviews. Engaging in civil discourse allows for the effective exchange of conflicting ideas, perspectives, and opinions among research groups. This approach can carry the conversation forward, enrich the literature of the respective field, and generate innovative ideas and lines of inquiry that evolve into strong grant applications that support further expansion of the institution's research capacity.

Diversity and Inclusion

Institutions embraced diversity of both people and ideas as a key asset leveraged to solve challenges and facilitate innovation. The importance of diversity or inclusion was highlighted with phrases such as "foundation of our university system", "essential to quality education", and leveraging differences as strengths. Terms such as "welcome", "embrace", "support", "commit" and "promote" communicated a notable appreciation of these values at the institutional level. HU noted an intentional alignment of its mission with the "nation's founding principles of equality, diversity and opportunity". MSU, NC A&T U, and CAU associated diversity or inclusion with a "global interdependent society", working together "for the advancement of the university and the world" and "collaboration".

Inclusion of diverse perspectives, experiences, and knowledge facilitates a strong culture of collaboration. Inclusion of individuals who are members of historically marginalized groups in STEM broadens participation of diverse students and faculty into the research community. These diverse teams can contribute to a multidisciplinary approach to solving complex challenges in emerging fields of research. Intra- and inter-institutional collaborations with diverse partners, in both industry and government can contribute to building sustainable research ecosystems that allow for effective sharing of resources and expertise.

Social Responsibility

Social Responsibility is an ethical concept that involves engagement of individuals and organizations for the benefit of the community or society. JSU noted that its HBCU identity "inspires and exemplifies positive societal change" and highlighted its belief in "the sanctity of the public trust". JSU set expectations for its own socially responsible conduct, such as, responding "to the needs of society to the best of its ability" and believing in and accepting its "duty to enhance each generation's capacity to improve the human condition". It further communicated its expectation that its graduates should do the same. SU A&M College engages in "doing what is in the best interest of our students, faculty, and staff". While HU strives for the development of "moral leaders who drive change and engage in scholarship that provides solutions to contemporary global problems, particularly ones impacting the African Diaspora".

Institutions can practice thoughtful planning that anticipates and minimizes the potential social and health impacts of engagement in research activities with vulnerable populations or the environmental impacts of developing physical infrastructure to support research activities. Strategically planned research agendas can also be constructed to meet the needs of the community, and address challenges faced by underserved populations. Such lines of research that have practical application to the immediate needs of the community can better engage community stakeholders, and secure funding from donors and funding agencies that value research initiatives that have a broader impact and promote the public good.

Innovation

Although innovation emerged as the least frequent theme in the analysis, it was still strongly highlighted by the institutions. TSU and CAU utilized terms such as "research- driven" "research- focused", respectively. SU A&M College emphasized being on a "fully engaged quest for improvement and innovation" and its intent to push "the boundaries of knowledge and possibility as we celebrate fundamental discoveries and practical applications alike".

Likewise, TSU and CAU describe their approaches as "innovative and entrepreneurial in deriving and advancing new ideas" and seeking to "ignite new possibilities in research and advance knowledge of humankind", respectively. TSU engages in "thinking beyond the obvious" and seeks to "demonstrate a higher level of creative thinking and use it to transform the world around us every day". Furthermore, MSU provides support for faculty, staff and students as they engage in scholarship around "the discovery and application of knowledge in teaching and learning and in developing innovative products and processes".

Innovation can promote an expansion of research capacity by engagement and adoption of new technologies, or the adaptation, refinement, or application of existing technology in a novel way. Integration of big data and artificial intelligence into existing workflows or the generation of entirely new applications for this emergent

technology can spur the creation of entirely new emergent lines of research and emergent research fields. MSIs can then become nationally recognized leaders in research, development, and application of this high-impact work and continue to make notable contributions to research in a myriad of STEM fields. National recognition and expertise on such a broad scale can promote access to additional funding to support the development of research infrastructure and personnel to continue to engage in high-capacity research.

Continued implementation of these 7 institutional values will have a positive impact on sustaining and expanding research capacity at these "high research activity" institutions. These values can be used to influence decision- making that will transition them into the "very high research activity" designation of the Carnegie Classification. This approach can set MSIs apart as regional and national leaders in research capacity building.

Limitations of the present study include the author's limited access to only publicly available and online versions of the strategic plans of the respective institutions. For example, some of the strategic plans covered different time intervals, and may have been close to the end of the life of the plan. Some institutions may presently be transitioning to new plans that incorporate additional or modified values that may further impact research capacity building. Some institutional strategic plans provided detailed descriptions of their values and how they applied them; however, others only listed their values. This consequentially may have reduced the richness of the data source.

Future studies regarding research capacity at minority serving institutions may investigate whether "high research activity" HBCUs share common strengths and opportunities that contribute to their research productivity and potential, or alternatively whether they share weaknesses and threats that may serve as barriers to building further research capacity, as well as an investigation of potential innovative solutions to combat these perceived challenges.

Conclusion

Although "high research activity" HBCUs represent only 10% of HBCUs nationwide, they can serve as effective models for research capacity building among minority serving institutions. The 7 core values of "high research activity" HBCUs may serve as critical drivers for the success of institutional goals to expand research capacity and infrastructure, as well as facilitate more equitable access to funding and sustainability of research capacity at minority- serving institutions.

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