Journal of Higher Education Management

Volume 40, Number 2 (2025)

PUBLISHED BY THE

AAUA

AMERICAN ASSOCIATION OF UNIVERSITY ADMINISTRATORS

JOURNAL OF HIGHER EDUCATION MANAGEMENT

Volume 40, Number 2 (2025) ▪ ISSN 2640-7515

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Governance of the Journal of Higher Education Management is vested with the Publications Committee of the Board of Directors of the American Association of University Administrators.

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Journal of Higher Education Management, 40(2), 4-22 (ISSN 2640-7515).

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Abstract

The rapid integration of generative artificial intelligence (GAI) into higher education has created an urgent need for institutions to develop policies that address teaching, learning, research, and innovation. This study examines the GAI policies of the top 25 U.S. universities with the highest-ranked computer science programs, focusing on broad policies encompassing teaching, learning, research, and innovation. Additionally, the study analyzes these policies using a framework that includes five key concepts: data ethics, data protection, fairness and equity, responsibility/accountability, and transparency/auditing. Teaching and learning emerged as the most prominent policy areas, often framed with prescriptive guidance to reduce uncertainty. Data protection and privacy were addressed in all policies, highlighting concerns about sensitive institutional and personal information. The findings suggest that while leading institutions are beginning to address ethical, legal, and operational challenges posed by GAI, significant gaps remain in structured support for responsible and transparent implementation, particularly in research and governance contexts.

Keywords: AI policies, environmental uncertainty, generative artificial intelligence (GAI), higher education policies, policy analysis

Introduction

The rapid integration of generative artificial intelligence (GAI) into many dimensions of everyday life has created a pressing need for institutions of higher education (IHEs) to update and develop policies for teaching, learning, research, and innovation. GAI has brought about multiple uncertainties that directly impact the basic functions of IHEs, including challenges related to understandings of academic originality, intellectual property, and data ethics (Chan, 2023; Luo,

2024). Organizational policies can bring clarity to this disrupted landscape and provide practical guidance for using GAI (McDonald et al., 2025).

Scholars have suggested that IHEs should move beyond reactive approaches toward GAI and instead develop organizational policies that encourage the appropriate and ethical use of GAI tools for education and research (Chan, 2023; Luo, 2024). While the initial reaction of many IHEs was to prohibit student use of GAI, colleges and universities have moved toward a cautious embrace of the potential for GAI to enrich teaching and research outcomes (Wang et al., 2024). This cautious embrace, however, does not seem to have contributed to widespread policy development in higher education. A recent survey of chief academic officers found that only 20% of U.S. colleges and universities had established policies to govern the use of AI, and only one in seven institutions had reviewed their curriculum to ensure that it prepares students for using AI in their careers (Quinn, 2024). The limited development of GAI policies is concerning because in the absence of clear guidance, faculty, researchers, and students may use GAI tools in ways that inadvertently expose sensitive data, perpetuate algorithmic bias, compromise academic integrity, or result in legal and ethical violations.

The development of institutional policies for GAI is significantly more complex than simply updating plagiarism and academic integrity guidelines. Chan (2023), for example, developed an AI policy framework for IHEs that includes three dimensions: governance, pedagogy, and operations. Broad-based policy frameworks that extend beyond plagiarism prevention could include data safety provisions, guidance about bias in AI algorithms, and AI literacy training for instructors and students (Luo, 2024). Further complicating GAI policy development is the need for multiple offices, research centers, and academic units to be involved in the creation of the policy.

Research on GAI policy development in higher education has attempted to identify trends and exemplary practices that can help colleges and universities navigate the complexities associated with this powerful technology. For example, the 24 universities in the Russell Group in the UK have co-designed GAI policy guidelines that seek to foster AI literacy, while addressing concerns about plagiarism and data privacy (Russell Group, 2023). Research also shows that top-ranked universities in the U.S. have been early adopters of GAI policies. These policies have tended to focus on providing guidance for instructors, such as offering sample syllabi, lesson plans, and assessment designs (McDonald et al., 2025; Wang et al., 2024). Research and innovation, however, were rarely mentioned in these policies (McDonald et al., 2025), suggesting significant gaps in policy development at IHEs.

For several reasons, more research is needed to understand GAI policy development in higher education. First, GAI policy development is an evolving domain, and research needs to keep pace with policy changes at colleges and universities. Moorhouse et al. (2023) note that many GAI policies in higher education “were developed in haste” (p. 1) to deal quickly with urgent uncertainties. These early policies are likely to evolve and change over time. Moreover, larger numbers of IHEs are beginning to develop GAI policies. The survey of chief academic officers mentioned previously also found that 63% of U.S. colleges and universities are in the process of developing an AI policy (Quinn, 2024). Second, much of the previous research on GAI policy development has focused on teaching and assessment, reflecting an early emphasis on plagiarism prevention. And while most higher education policies continue to retain that emphasis, some

institutions are developing broad-based policy frameworks that include research and innovation activities (McDonald et al., 2025).

The purpose of this study is to analyze the GAI policies at the 25 universities in the United States with the highest ranked programs in computer science. These IHEs were selected for their influential role in setting educational and research standards, serving as benchmarks for other universities. An assumption of this study is that universities with highly-ranked computer science departments will be more extensively engaged with GAI applications and therefore more likely to develop broad-based GAI policies—where "broad-based" refers to policy frameworks that include teaching, learning, research, and innovation. This study makes a unique contribution by examining not only teaching and learning, but also university policy development for research and innovation. This study focuses on university-wide policy documents, rather than policies or guidelines developed at the level of academic departments.

In addition to analyzing the policies based on key university functions (teaching, learning, research, innovation), this study also considers five technology and data use concepts: 1) data ethics, 2) data protection, 3) fairness and equity, 4) responsibility/accountability, and 5) transparency/auditing. We drew these five concepts from Vesnic-Alujevic et al.'s (2020) research on European government AI policy frameworks. These five concepts also appear to have relevance for university policy development, given their focus on data use and technology management issues. Specifically, data ethics addresses the broader moral implications of AI use, while data protection refers to safeguarding sensitive information when using AI tools and complying with privacy laws. Fairness/equity relates to reducing barriers that limit access to AI tools, as well as vigilance toward addressing algorithmic biases. Responsibility/accountability pertains to identifying organizational members who are responsible for developing and implementing AI policies and assessing outcomes of AI practices. Finally, transparency/auditing refers to efforts to make AI systems understandable and subject to administrative oversight. Overall, this study's nine-part framework (four university functions and five data/technology concepts) offers a more comprehensive analysis of university policies than previous studies.

Literature Review

The literature on GAI in higher education reveals a complex and paradoxical picture of both risks and benefits. While the discourse on GAI in higher education has been dominated by concerns about academic misconduct and malicious use (Luo, 2024), Crompton and Burke (2023) conducted a systematic literature review and identified several pedagogical benefits of using GAI, including customized tutoring and feedback. As an example, Su et al. (2023) argue that ChatGPT can serve as a virtual peer, engaging students in conversations and feedback about their writing. However, Moorhouse et al. (2023) note that the asserted benefits of GAI may not materialize if instructors lack GAI literacy. In the absence of expert instruction, students might become too reliant on GAI, which could contribute to a decline in their critical thinking skills (Moorhouse et al., 2023). Similarly, the potential benefits of GAI might not accrue to all students, given concerns about equitable access to GAI tools, which not all students can afford (Sullivan et al., 2023).

Research on GAI policy development in higher education has revealed how colleges and universities have attempted to reduce uncertainty for instructors. For example, McDonald et al. (2025)

examined the GAI policies of U.S. universities with very high research activity (formerly called R1 institutions). Their findings suggest that top-level research universities have been early adopters of GAI policies. Only 14 institutions with this designation (10.8%) had no GAI policy, while 116 institutions had some form of university-wide policy on GAI. McDonald et al. found that many of these universities had moved beyond initial responses that emphasized dangers and sought to prohibit the use of GAI; instead, policy documents revealed a cautious embrace of the potential pedagogical benefits of GAI. For example, not only did many institutions (56%) provide sample syllabi language, but half (50%) provided GAI curriculum and learning activities, and 30% provided guidance on how to use GAI for lesson planning. Moreover, 44% had policies that discouraged the use of GAI detection tools for plagiarism prevention, citing them as inaccurate or unhelpful. This cautious embrace was tempered by policies that provided guidance for designing assignments that discourage student use of GAI (54% of the institutions).

Other research has focused on university GAI policies to guide teaching and learning. Wang et al. (2024), for example, studied policies on the use of ChatGPT at the top 100 ranked U.S. universities. Many of these policies focused on potential misuse of GAI. The issues most prominent in these policies included plagiarism (38% of institutions) and improper attribution and citation practices (44%). Fewer of the policies mentioned research-related issues, such as intellectual property (20%) and data privacy (32%).

Research and innovation have not been focal points during the early stages of GAI policy development in higher education. McDonald et al.'s (2025) study of 130 research universities found that "less than ten institutions" (p. 8) mentioned research in their GAI policies, usually in the context of data privacy. For example, one university in this study cautioned faculty against entering "confidential or protected data or information, including non-public research data, into publicly available or vendor-enabled AI tools" (p. 8).

The literature also shows that course assignments and assessment have been prominent foci in GAI policy development. Moorhouse et al. (2023) sought to determine the extent to which the world's top 50 ranked IHEs have developed or modified their assessment guidelines to address the use of GAI. Among these 50 universities, 30 had GAI policies on their websites; however, only 23 of these policies provided guidelines for assessment. Major themes in these policies included academic integrity, advice on assessment design for instructors, and communication practices with students (e.g., syllabus statements). Moorhouse et al. concluded that universities should continue to update their policies as GAI technologies evolve. The authors reviewed only those policies aimed at instructors; the study did not attempt to examine policies related to research or innovation.

Assessment of student work was also a focal point in Luo's (2024) study of GAI policies at the top 20 universities in the QS World University rankings. Among these 20 institutions, 19 had GAI policies for assessment. Most of these policies (N=15) were focused on academic misconduct. A somewhat smaller number (N=8) focused on the challenges and opportunities of assessment design in relation to GAI. Only three policies mentioned equity or equitable access to GAI tools. Luo (2024) noted that GAI technology "is developing at an unprecedented speed and higher education policies are also in a constant process of changes and updates" (p. 12), thus suggesting a need for further research.

Conceptual Framework

This study of university GAI policy development is framed in terms of the literature on organizational responses to uncertainty. Scholars have long recognized that the management of uncertainty is a primary task of organizational leadership (Thompson, 1967). Organizational uncertainty has been defined as the disparity between the information available and the information needed to complete a task or make a decision (Galbraith, 1973). A related definition focuses on the inability of organizational members to anticipate the likelihood of future events (Duncan, 1972). Prolonged uncertainty is likely to diminish organizational performance and lead to higher levels of stress and frustration for organizational members (Grote, 2018).

Managers often develop strategies and policies to mitigate uncertainty (Parnell et al., 2000). Organizational strategies and policies can reduce uncertainty by providing an interpretation of the sources of uncertainty and by offering clear guidance for adjusting practices in response to evolving conditions (Grote, 2018). In other words, strategies and policies first provide frameworks for making sense of uncertainty, and then, organizational members can incorporate those frameworks into the mental models that guide their practice.

When managers interpret the conditions that generate uncertainty, they may attribute uncertainty to a combination of external and internal factors (Grote, 2018). The external factors might relate to changes in markets and technologies. The internal factors could involve limitations in training or lack of knowledge sharing in the organization. By infusing these interpretations of uncertainty into organizational policies, managers can shape the mental models that organizational members use in their daily work routines. In this way, organizational policies become objects of sensemaking, enabling organizational members to take action, even under conditions of uncertainty (Weick, 1995).

Clearly, GAI has heightened uncertainty for many organizations, perhaps especially for IHEs. Specifically, GAI has created practical and operational uncertainties for colleges and universities. Practical uncertainties—which impact instructors, researchers, and students—relate to the maintenance of academic integrity, the assessment of student learning, and the ethical use of data in research (McDonald et al., 2025). Operational uncertainties pertain to data management, intellectual property, and the potential for bias in algorithms (Chan, 2023).

For IHEs, GAI has impacted the three major types of environmental uncertainty experienced by organizations: state, effect, and response (Milliken, 1987). First, state uncertainty occurs when organizational members perceive that a specific dimension of the environment is unpredictable (Milliken, 1987). In this case, the implications of using various educational and research technologies have become unpredictable in the context of GAI. Second, effect uncertainty is defined as an inability to predict the impact of environmental changes on the organization (Milliken, 1987; see also Duncan, 1972). Here, administrators and faculty members may experience an inability to predict how GAI will impact their college or university. Finally, response uncertainty refers to a lack of knowledge about how to respond or an inability to predict the likely outcomes of a particular response option (Milliken, 1987). In higher education, faculty and administrators may lack knowledge about how to respond to GAI, as well as be unable to predict the likely outcomes

associated with various potential responses. These three forms of uncertainty heighten the need for organizational policy development.

This study suggests that IHEs develop GAI policies in domains where key actors perceive the highest levels of uncertainty in relation to critical organizational functions. While these critical uncertainties could spur the development of organizational policies, such policies might be created in haste, simply to respond to an urgent need as quickly as possible (Moorhouse et al., 2023). The rapid development of organizational policies could result in generic or superficial documents that do not clearly inform or guide practice. Such policies, in fact, could generate more uncertainty, rather than reduce it (Griffin & Grote, 2020; Teeter & Sandberg, 2017). The policies themselves could become additional sources of uncertainty. Therefore, this study seeks to understand the extent to which IHEs have developed comprehensive and detailed GAI policies that are capable of guiding practice in the major domains of university activity: teaching, learning, research, and innovation.

Methodology

This study aims to examine the extent to which institutions of higher education have developed policies in response to the rise of AI and GAI tools, and to identify the key elements of these policies. Specifically, it seeks to address the following research questions:

1. What are the key components of the AI policies implemented by U.S. universities that are top ranked in computer science?
2. How do these policies address issues such as data privacy, bias, and transparency?

To answer these research questions, we employed an in-depth policy analysis related to AI across the 25 top-ranked universities in the computer sciences in the United States. These institutions were selected for their influential role in the higher education landscape. As Luo (2024) notes, policies from top-ranked universities often serve as models for other IHEs. Furthermore, our sampling strategy of selecting universities with highly ranked computer science programs allowed us to analyze information-rich cases.

To ensure that we selected cases in a systematic and efficient way, we decided to use the Times Higher Education (THE) World University Rankings 2024, Computer Sciences. Moorhouse et al. (2023) also used this rankings database for their research on policies at the world's 50 top-ranked IHEs.

Identify AI Policies

Our methodology involved identifying relevant policies from the 25 selected universities' websites and conducting a qualitative thematic analysis to extract prevalent themes and practices. The researchers visited the official websites of the top 25 universities and performed manual searches to find the AI policy documents available on each university's website. The initial keywords used for the search included "AI policy", "Generative AI policy", "ChatGPT policy", "AI guidelines", "Generative AI guidelines'', "ChatGPT guidelines", "AI guide", "Generative AI guide", and "ChatGPT guide". After conducting the initial keyword search, we also took additional steps to ensure that no relevant information was missed. We explored sections or pages on each university's official

website that were likely to include AI guidelines, such as the websites of libraries and teaching and learning centers, as well as provosts' and deans' messages.

All 25 universities (100%) had guidelines related to AI on their official websites. The websites were retrieved for analysis. The search and extraction process took place from February to May 2024. Only publicly accessible documents or websites were included due to access limitations. (See Appendix for the list of universities and corresponding websites included in the review. Please be aware that the websites are active, and their content may have changed since they were accessed for this study.)

Contextual and Content Analysis of the Policies

To gain a more comprehensive understanding of the policies, we performed both contextual and content analyses. Table 1 provides data about the entity issuing the guidelines/policies. The main issuer was Centers for Teaching, Learning, and Innovation (7 of 25), then Information and Technology Services (4 of 25), and in third place, the Provost's Office (3 of 25). The data suggest a pluralism of decision-making at each university.

Table 1

Issuer of policies and guidelines about AI

Issuer	Quantity
Ad hoc committee on AI regulation	1
Academic Senate Office, Academic Integrity Office & Testing Center	2
Academic Technology Solutions	1
Administrative AI Task Force	1
Center for Excellence in Teaching, Learning, and Innovation, Learning Design	7
Computing Services Office	1
Digital Risk Office	1
Information and Technology Services	4
Office of Community Standards	1
Office of Ethics	1
Office of the Provost	3
Dean's Office	1
Not Stated	1
Total	25

The issuance of AI guidelines and policies spanned primarily across 2023 and early 2024, although the level of detail regarding publication dates varied considerably. Eleven documents did not specify an exact month of issuance, while others were concentrated in specific months such as January, May, and November 2023, and January, March, and May 2024. This temporal distribution reflects both the increasing attention to AI governance during this period and the evolving pace at which IHEs formalized their positions.

Thematic Analysis

To identify the themes covered by the policies and guidelines, the authors divided the 25 universities among themselves, with each author reviewing five or six policies. The goal was to identify themes related to four primary university functions (teaching, learning, research, and innovation), as well as five data use categories (data ethics, data privacy, fairness and equity, responsibility/accountability, and transparency/auditing). The five data use categories were drawn from a previous review of AI governmental policies (Vesnic-Alujevic et al., 2020), which identified additional themes beyond teaching and learning that are relevant to the higher education sector.

After completing their individual thematic analyses, another researcher reviewed all 25 policies for consistency. The researchers found major consistency (95%), with only minor disagreements. As a final step, we utilized ChatGPT-4 to analyze the documents. We converted the websites into PDFs and requested the AI to detect the nine mentioned themes within these documents. The consistency was about 98%.

Study Findings

University Functions

Teaching (21 of 25) and learning (19 of 25) were prominent themes in the AI policies of these universities. The themes of teaching and learning both aimed to incorporate AI tools in ways that maintain academic integrity and enhance the educational experience. The teaching theme focused specifically on how instructors can incorporate AI into their curriculum, whereas the learning theme was concerned with how students should use AI tools to aid their studies while adhering to academic integrity policies. The prominence of these themes suggests that GAI initially precipitated high levels of uncertainty around teaching and learning practices. Reflecting an effort to reduce this uncertainty, these policies frequently used prescriptive language (e.g., “should,” “must”) to directly guide behavior, as well as contingent if/then statements to signal circumstances when people should take action.

In contrast to the prevalence of teaching and learning, the research (11 of 25) theme was featured in fewer than half of these policies. This theme delved into the regulatory and liability aspects necessary for the responsible advancement of AI technologies. The emergence of the research theme indicates that GAI created uncertainties in the regulatory environment for university research, particularly in terms of human subjects protections and data privacy. But rather than use the prescriptive language found in the teaching and learning themes, the research policy language referred to the need for researchers to coordinate with external organizations, including research grant agencies and other funding sources. By highlighting these issues, the policies provided an interpretation of the uncertainties facing university research, but they generally did not offer specific actions or guidelines for addressing those uncertainties. Instead, the policy language put the onus on the researcher to identify and address uncertainties, noting that it was the researcher’s responsibility to coordinate these issues with their grant agencies.

Finally, innovation (12 of 25) emerged as a prominent theme in just under half of the analyzed policies. The innovation theme emphasized the need for continued development and the potential benefits of AI. The policy language, however, did not deal with the uncertainties of managing innovation. Instead, the policies referred to GAI as a potentially transformative innovation and placed GAI within long-standing university traditions for embracing new technologies. By placing GAI into the context of previous technological advancements, the policies appeared to normalize GAI as another innovation that universities would embrace. While this policy language could normalize and reduce fears about GAI, these documents lacked any concrete guidance about implementing or managing innovation in the context of GAI.

Data Use Themes

Data ethics emerged as a distinct theme in a relatively large number of the policies (23 of 25). While academic integrity was important within the teaching and learning themes, and human subjects protection was featured in the research theme, the policies also often included an overarching ethical orientation toward AI. This focus on ethical considerations may suggest that university policymakers perceived that GAI created new ethical and confidentiality uncertainties to address. Overall, these ethical guidelines were designed to maintain the integrity of academic work, while addressing the specific challenges posed by the integration of AI technologies in educational settings. While these policies acknowledged that GAI had introduced several ethical challenges to address, the policy language reinforced existing university ethical standards and practices. The policy language suggested that the use of GAI would need to adhere to these existing ethical standards, but the documents did not suggest that the standards themselves would need to be reconsidered in the context of GAI. In other words, while GAI was "new," the policies assumed that existing ethical standards could be applied to the use of GAI. In this way, the policies could reduce uncertainty around GAI through the application of existing standards that were likely familiar to many organizational members.

Data protection and privacy was a policy theme at all 25 IHEs. Similar to the teaching and learning themes, the policy language here was prescriptive and provided direct guidance tailored to specific situations. For example, students and faculty were advised to be cautious about sharing Personally Identifiable Information (PII), confidential data, or any proprietary content with these AI systems, as such information could be incorporated into public models or potentially exposed to unauthorized parties. This more precise policy language could reflect how university policymakers detected new uncertainties regarding how GAI could compromise data privacy, based on the ways in which GAI tools such as ChatGPT collect and share data from users. Overall, these policies were designed to protect the privacy and security of university data, prevent unauthorized access, and maintain the confidentiality of personal and institutional information.

Fairness/equity emerged as a prominent policy theme (19 of 25) regarding data use. The policy language appeared similar to the normalizing statements associated with the innovation theme. The policies placed GAI data equity into the larger context of university goals for access and inclusion. While these statements appeared to normalize GAI as another equity concern for universities, the statements did not provide specific guidance for making GAI use more equitable. Thus, university policymakers appear to have identified GAI as an equity issue, but they might not

have perceived any new uncertainties to address or clarify in relation to how GAI tools impact equity.

Finally, the responsibility/accountability theme appeared in all 25 policies, while the transparency/auditing theme was featured in 22 of 25. The responsibility/accountability theme outlined the roles and obligations of users and developers in maintaining ethical standards, while the transparency/auditing theme highlighted the necessity of auditing practices to uphold transparency in AI operations. Responsibility/accountability focused on ensuring that both students and instructors understand their roles in maintaining academic integrity, accurately citing AI-generated content, and verifying the accuracy of the information produced by these tools. Instructors were encouraged to set explicit policies regarding the use of GAI in their courses, making it clear to students how these tools can be used and what constitutes a violation of academic standards. Furthermore, the theme of transparency/auditing advocated for clear disclosures of AI use, regular audits of AI systems, and open communication about the potential risks and limitations of these technologies. Responsibility/accountability and transparency/auditing emphasized the importance of clear accountability measures and monitoring practices to maintain trust in AI systems.

The focus on these two themes suggests that at the time of policy development, university leaders were proactive and identified or dealt with uncertainties related to ongoing organizational systems and structures. These policies suggest that transparency is key to building trust in AI systems, requiring users to be upfront about the use of AI in their work and ensuring that AI-generated content is properly attributed. Auditing mechanisms were recommended to monitor AI's impact and effectiveness, helping institutions maintain accountability and address any ethical concerns that may arise from the use of these tools. Together, these themes reinforce the need for careful oversight and responsible use of AI in academic settings, ensuring that the benefits of AI are harnessed without compromising ethical standards and routines.

To summarize, the five data use concepts that we drew from Vesnic-Alujevic et al.'s (2020) research on European government AI policy frameworks were also relevant to the university policy context. Study findings suggest that as universities developed policies to respond to the rise of GAI, several data use concepts consistently emerged as foundational to these guidelines. These data use concepts help frame how IHEs are attempting to balance innovation with ethical and practical considerations.

Data Ethics: In the context of university GAI policies, it involved ensuring that faculty, staff, and students apply ethical reasoning when integrating GAI tools into teaching, learning, and research. This theme included issues such as consent, accuracy, and the potential consequences of AI-generated outputs.

Data Protection and Privacy: Universities were especially concerned about how GAI tools collect and process user information. Policies often prohibited entering confidential or personally identifiable information into external AI platforms unless proper agreements were in place to secure the data.

Fairness and Equity: University policies often highlighted the need for equitable access to AI resources and vigilance in addressing algorithmic biases that could negatively impact certain groups.

Responsibility and Accountability: University guidelines often assigned responsibility to faculty, staff, and students to act within established ethical and legal boundaries when using GAI. In some cases, they warned of potential personal consequences for failing to adhere to institutional standards or external agreements.

Transparency and Auditing: Policies in this area promoted practices such as documenting AI use, disclosing potential risks, and implementing auditing mechanisms to monitor the effects of GAI in educational and research settings.

These concepts, as reflected in university GAI policies, are critical for understanding how higher education institutions are navigating the uncertainties posed by this rapidly evolving technology. Table 2 provides examples of how these themes were articulated in the policies of top-ranked universities in computer science.

Table 2

Representation of Policies Related to AI

Themes	Examples	Number of IHEs
Teaching	"If instructors choose to use ChatGPT for their teaching, they assume responsibility for reviewing and vetting concerns with accessibility, privacy, and security. Fold in ChatGPT as an example of a tool that violates academic integrity when used inappropriately. Discuss the value of the writing process with students and help students see the value in writing as a skill/outcome/competency in your class context."	21
Learning	"Students should acknowledge the use of generative AI (other than incidental use) and default to disclosing such assistance when in doubt."	19
Research	"Understand the current copyright and data privacy guidance and verify the policies of your grant agency or organization."	11
Innovation	"As a university community dedicated to exchanging ideas, disseminating knowledge, and fostering a climate for breakthrough discoveries, we will embrace technological tools and harness their power for innovation."	12
Data Ethics	"When applying these principles and evaluating options, always consider the ethical implications of possible outcomes and act with the highest ethical standards."	23

Themes	Examples	Number of IHEs
Data Protection and Privacy	"At present, any use of ChatGPT or similar AI Tools cannot use any personal, confidential, proprietary, or otherwise sensitive information unless a university contract is in place that specifically protects such university data from being used by training models or otherwise isolates university data into a separate instance that is not accessible by parties external to the university." "Be aware that ChatGPT is 'free' because it collects information from its users (e.g., when and how users interact with the tool, users' IP address, browser type, time zone, type of device, operating system, and country) and may share information with third-party vendors and affiliates. For those reasons, we suggest you avoid submitting any sensitive or personal information."	25
Fairness and Equity	"Shared prosperity (deploying AI in ways that create broadly accessible opportunities and gains from AI); and democratic and civic values (deploying AI in ways that are in keeping with societal norms)"	19
Responsibility/Accountability	"Individuals who accept click-through agreements without delegated signature authority may face personal consequences, including responsibility for compliance with terms and conditions."	25
Transparency/Auditing	"Auditing regimes should be developed as part and parcel of the approach described above. To be effective, auditing needs to be based on principles that specify such aspects as the objectives of the auditing." "Prospective audits allow a system to be tested before it is put into use, which can be useful in high-risk settings."	22

Universities with the Most Comprehensive Policies

Previous research has emphasized the need for universities to develop broad-based GAI policy frameworks (Chan, 2023; Luo, 2024). Two universities in this study had developed policies that addressed all four university functions and all five data use categories. The most comprehensive

policies, each having filled all nine categories, were developed at the University of Michigan and Columbia University.

University of Michigan

Teaching: The institution emphasizes the need for instructors to adapt their teaching methods to the presence of generative AI, recognizing its ubiquity in the educational environment. *Learning*: Course policies are tailored to account for the use of GAI tools, ensuring that students understand the implications and proper usage within their academic work. *Research:* The institution encourages the responsible use of GAI in research, stressing adherence to ethical guidelines and transparency in AI-generated content. *Innovation:* Rapid developments in GAI are acknowledged, with an emphasis on staying updated with new tools and their potential applications in various fields.

Data Ethics: Students must be transparent about their use of GAI, ensuring that AI-generated content is ethically sound and properly credited. *Data Protection and Privacy:* Students are held responsible for the content generated by AI, with a strong focus on safeguarding personal and confidential information. *Fairness and Equity*: Course policies are designed to ensure fairness, recognizing the diverse access to technology among students. *Responsibility/Accountability:* Accountability in the use of GAI is mandated, with students required to acknowledge their use of these tools. *Transparency/Auditing:* The institution advocates for the enhancement of learning through GAI while maintaining rigorous auditing practices to ensure academic integrity.

Columbia University

Teaching: Faculty are recommended to set clear guidelines for the use of GAI in their courses, ensuring that students understand the scope and limitations of these tools. *Learning*: Students are encouraged to discuss the use of GAI with their instructors, promoting an open dialogue about its benefits and potential pitfalls. *Research:* Researchers are expected to follow the policies of journals, funding agencies, and professional societies through which they report their research. *Innovation:* The institution recognizes the transformative potential of GAI, particularly in generating innovative ideas and solutions across disciplines.

Data Ethics: The importance of checking AI outputs for biases is highlighted, ensuring that generative AI tools are used responsibly. *Data Protection and Privacy:* Students are advised against inputting confidential information into GAI tools, safeguarding sensitive data. *Fairness and Equity*: Attention is given to the equitable use of GAI, with a focus on ensuring that outputs are free from bias and accessible to all students. *Responsibility/Accountability:* Accuracy and accountability are emphasized, with students required to verify the correctness of AI-generated content. *Transparency/Auditing:* Disclosure of GAI usage is mandatory, ensuring transparency in academic and research activities.

These policies/guidelines reflect a comprehensive approach to integrating generative AI tools across various facets of academic and research activities, with a strong focus on ethical use, data privacy, fairness, and transparency.

Discussion

Consistent with findings in previous research (Moorhouse et al., 2023; Wang et al., 2024), teaching and learning featured prominently in the university GAI policies considered in this study. Addressing our first **research question about the key components of the AI policies implemented by top-ranked universities in computer science**, our findings show that teaching and learning issues were addressed through precise and sometimes prescriptive guidelines, where the intent to reduce uncertainty was clear. Similarly prescriptive language was used in policy content regarding data privacy, which was a prominent theme in all 25 university policies. This emphasis suggests that university policymakers detected high levels of uncertainty in relation to teaching, learning, and data privacy, as GAI gained prominence in the higher education sector.

Compared to teaching and learning, research was a less prominent, though potentially growing, theme in university GAI policies. While McDonald et al. (2025) found that research was mentioned in less than 10 policies among 130 (7.7%) research universities in the United States, our study found that research was a prominent theme in the GAI policies at 44% (N=11) of the universities with top 25 computer science programs. Research appears to be an increasing emphasis in university GAI policies. This finding indicates that these universities with highly ranked computer science departments might be on the forefront of policy development in this sector. However, the policy language around research often lacked specific guidance for decision-making and appeared to place the onus on individual researchers to navigate uncertainties regarding GAI and research practices. These findings also address the second **research question regarding how these policies relate to issues such as data privacy, bias, and transparency,** as they suggest gaps in providing structured support for ethical and responsible research practices with GAI.

Regarding innovation, the policy language largely sought to normalize GAI within a tradition of technological advancements at universities. Similarly, the policy language around fairness/equity appeared to normalize GAI as another equity concern in higher education. These efforts to normalize GAI, as another technological advancement or another domain in which to promote equity, might have the effect of reducing uncertainty or diminishing resistance toward GAI. For example, if faculty, staff, and students come to view GAI as simply another technology to master, then they could draw upon their previous experiences with other new technologies to reduce the uncertainty they might have with respect to GAI. Similarly, seeing GAI as an equity issue could enable staff and faculty to build upon their previous efforts to ensure that other educational resources are available and utilized for the benefit of all students. These understandings, based on prior experiences, could reduce uncertainty and increase capacity to act.

Furthermore, our analysis revealed that university GAI policies addressed data ethics in two important ways. First, the policies acknowledged that GAI created new ethical challenges for universities. Second, the policies suggested that the university's current set of ethical principles and practices could be used to navigate those challenges. The policies encouraged faculty, staff, and students to review existing university ethical standards and apply those standards to their use of GAI. In this way, the policies suggested that a known set of ethical principles could be applied to address uncertainties with an unknown (or less understood) technology. While referring to familiar ethical principles might reduce uncertainty around the implementation of GAI, this new technology may eventually disrupt and transform the ethical principles themselves. As Luo (2024) argues, GAI

has the potential to dramatically reconfigure core academic concepts such as originality. University leaders may need to consider whether GAI is beginning to destabilize consensus understandings of various ethical principles and whether it might be necessary for university policies to restate or reframe these notions of ethics. These insights speak directly to our second **research question**, particularly regarding how policies engage with ethical considerations tied to data privacy, bias, and transparency.

Finally, the prominence of responsibility/accountability and transparency/auditing within these GAI policies demonstrates that university leaders were concerned not only with addressing uncertainties in routine educational and research practices, but also with making changes in the systems and structures in which those routine practices occur. These policies recognized that organizational changes would be necessary to accommodate the use of GAI across the university. Similarly, Chan (2023) suggested that broad-based university GAI policies would need to address not only pedagogy, but also governance and operations—domains where accountability and transparency can be established.

In summary, the themes identified across the policies directly address our research questions by highlighting the key components of AI and GAI policies (teaching and learning, research, innovation, data ethics, data protection, fairness/equity, responsibility/accountability, and transparency/auditing) and by showing how these policies engage with critical issues such as data privacy, bias, and transparency. These shared priorities reflect a collective aim: to protect and uphold the integrity of academic institutions while proactively navigating the challenges and opportunities posed by this transformative technology.

Conclusion and Policy Implications

The examination of AI and Generative AI (GAI) policies across U.S. universities with top-ranked computer science programs reveals a robust and evolving framework aimed at integrating these technologies into the academic and research landscape. The study highlights a broad consensus on the need for responsible and ethical use of AI tools, with particular emphasis on maintaining academic integrity, protecting data privacy, and ensuring fairness and equity. Key findings from the analysis include:

Ubiquitous Policy Presence: All 25 universities surveyed have established some form of AI-related policy, indicating a widespread recognition of the importance of governing the use of these technologies.

Diverse Terminology and Approaches: There was significant variation in the terminology and specific content of the policies, reflecting the different priorities and perspectives of each institution.

Focus on Integrity, Privacy, Ethics, and Fairness: A strong emphasis was placed on academic integrity, ethical considerations, data protection, and fairness. Policies frequently addressed the risks of bias in AI systems and the importance of equitable access to technology.

Accountability and Transparency: Universities were also concerned with ensuring accountability and transparency in the use of AI tools. These emphases included measures such as requiring the disclosure of AI use in academic work and implementing auditing practices to monitor compliance.

The findings from this study suggest several key implications for the development and refinement of AI policies in higher education:

Standardization and Best Practices: There is a need for more standardized guidelines and best practices across institutions to ensure a consistent approach to AI governance. This level of standardization can help mitigate uncertainties and provide a unified framework for both faculty and students.

Continuous Policy Evolution: As AI technologies and their applications rapidly evolve, policies must be regularly updated to reflect new ethical challenges, technological capabilities, and legal requirements. IHEs should establish mechanisms for the periodic review and revision of these policies.

Enhanced Education and Training: Universities should invest in educating both faculty and students about the ethical, legal, and practical aspects of AI use. Resources and training programs can be developed to help users understand and navigate the complexities of AI technologies.

Collaboration and Sharing: IHEs can benefit from greater collaboration and sharing of insights related to AI policy development. Collaboration can include forming consortia or working groups to develop shared resources and frameworks.

Focus on Equity and Access: Policies should prioritize ensuring that all students, regardless of socioeconomic background, have access to AI tools and resources. This focus on equity can include addressing digital divides and providing support for students who may lack access to necessary technology.

Monitoring and Compliance: Effective implementation of AI policies requires robust monitoring and compliance mechanisms. Compliance practices can include clear guidelines for the responsible use of AI, mechanisms for reporting misuse, and procedures for addressing violations.

In conclusion, the development of comprehensive and ethically sound AI policies is crucial for guiding the responsible use of these technologies in higher education. As AI continues to permeate various aspects of academic life, institutions must remain vigilant in addressing the ethical, legal, and social implications associated with its use.

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Appendix

List of universities and corresponding websites

Corresponding Number	IHEs	Websites
1.	MIT	https://aipolicy.mit.edu/
2.	Stanford	https://communitystandards.stanford.edu/generative-ai-policy-guidance
3.	University of California, Berkley	https://ethics.berkeley.edu/privacy/appropriate-use-chatgpt-and-similar-ai-tools
4.	Carnegie Mellon University	https://www.cmu.edu/computing/services/ai/index.html
5.	University of Illinois	https://www.vpaa.uillinois.edu/digital_risk_management/generative_ai/principles/
6.	University of Washington, Seattle	https://itconnect.uw.edu/guides-by-topic/security-authentication/artificial-intelligence-guidelines/
7.	Cornell University	https://it.cornell.edu/ai/aiinadministration
8.	Georgia Institute of Technology	https://sites.gatech.edu/bfhandbook/requirements-for-developing-generative-ai-tool-policies-in-wcp-courses/#:~:text=generative%20AI%20tools.-,Using%20generative%20AI%20tools%20in%20the%20work%20of%20the%20course,the%20Office%20of%20Student%20Integrity.
9.	Princeton University	https://mcgraw.princeton.edu/guidance-aichatgpt
10.	University of Texas at Austin	https://security.utexas.edu/ai-tools and https://ctl.utexas.edu/5-things-know-about-chatgpt
11.	University of Michigan, Ann Arbor	https://genai.umich.edu/guidance/faculty/course-policies
12.	University of California, San Diego	https://ucsd.libguides.com/AI/academicintegrity
13.	California Institute of Technology	https://www.imss.caltech.edu/services/ai#:~:text=In%20order%20to%20protect%20Caltech,information%20into%20open%20GenAI%20tools
14.	Columbia University	https://provost.columbia.edu/content/office-senior-vice-provost/ai-policy#:~:text=Absent%20a%20clear%20statement%20from,of%20Standards%20and%20Discipline).

Corresponding Number	IHEs	Websites
15.	University of California, Los Angeles	https://teaching.ucla.edu/resources/ai_guidance/
16.	Harvard University	https://huit.harvard.edu/ai/guidelines#:~:text=and%20academic%20integrity.-,Protect%20confidential%20data,the%20University's%20Information%20Security%20Policy.
17.	University of Maryland, College Park	https://tltc.umd.edu/artificial-intelligence-ai#:~:text=Any%20use%20of%20AI%2Dgenerated,your%20development%20as%20a%20student.
18.	University of Pennsylvania	https://ctl.upenn.edu/resources/tech/generativeai/#:~:text=You%20are%20not%20allow%20to,for%20Community%20Standards%20and%20Accountability.
19.	Duke University	https://learninginnovation.duke.edu/ai-and-teaching-at-duke-2/artificial-intelligence-policies-in-syllabi-guidelines-and-considerations/
20.	Purdue University	https://www.purdue.edu/provost/teachinglearning/ai.html
21.	Yale University	https://provost.yale.edu/news/guidelines-use-generative-ai-tools
22.	Johns Hopkins University	https://engineering.jhu.edu/cldt/chatgpt/student-use-of-generative-ai/#:~:text=The%20use%20of%20generative%20AI%20tools%20is%20strictly%20prohibited%20in,their%20understanding%20of%20the%20material.
23.	University of Chicago	https://academictech.uchicago.edu/generative-ai/
24.	University of Massachusetts - Boston	https://www.umb.edu/learning-design/artificial-intelligence-ai-guidance/
25.	New York University	https://www.nyu.edu/life/information-technology/artificial-intelligence-at-nyu.html

Journal of Higher Education Management, 40(2), 23-44 (ISSN 2640-7515).

Financial Sustainability in Private Colleges and Universities: Measuring Return on Net Assets and Assessing Business Strategy

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Abstract

Higher education institutions are facing a challenging operating environment. Policymakers and Boards rely on financial ratios to measure institutions financial viability. A limited body of research correlates strategy with financial and operating performance. This research addresses measures of financial sustainability in private non-profit academic institutions. An explanatory sequential mixed methods design assessed data from private institutions from 2004–2022. The research details methods utilized by leadership of institutions in decisions related to long-term financial sustainability and viability. Given the financial pressures facing institutions, a clearer understanding of decision-making methods may facilitate strategies for financial sustainability and education policy.

Keywords: Post secondary systems; finance, governance, and accountability

Introduction

The December 2019 publication of the Western Interstate Commission for Higher Education ("WICHE") projections for protracted declines in the number of U.S. high school graduates expected to attend all postsecondary institutions was widely covered in the higher education press as a bombshell for university financial planning (Knocking at the College Door, 2020). Slowing birth rates due to the Great Recession of 2008–2009 have resulted in fewer graduating high school seniors, with a decline in the number of potential post-secondary students beginning in 2026. Slowing population growth is particularly acute in the Northeast and Midwestern United States, and-against the backdrop of slowing global population growth- portents a more limited base of prospective students for post-secondary academic institutions (National Student Clearinghouse Research Center, 2021).

The WICHE publication of projected post-secondary student populations reflects a long-term challenge to the business model of many academic institutions, which are widely acknowledged as dependent on tuition revenue (Bowen, 1981). The foreshadowing of future enrollment challenges is not a new trend in the higher education sector; academic institutions have seen declines in enrollments, with a cumulative decline of 6.6% from 2019 to 2021 (National Student Clearinghouse Research Center, 2021). In fact, the higher education sector has faced a slowing rate of population growth since the 1980's, though only recent years have resulted in declining enrollment levels (Massey, 2013). With future enrollment pressures, demographic declines and slowing birth rates intersecting in 2026, concerns regarding the financial sustainability of the post-secondary higher

education sector are present in the minds of many institutions administers and trustees, as well as policymakers (Osterland, 2021).

The potential for population declines to pressure tuition revenues are hardly the only financial concern facing academic institutions. Protracted reductions in tuition grant funding for low-income families have reduced government subsidies for post-secondary education in many states (Vedder, 2019), which is impactful to private institutions. These reductions—due to the impact of the Great Recession on state budgets—followed a long period of budgetary growth as the result of increased federal and private research dollars, including from the National Institutes of Health (Cole, 2010). This growth resulted in increased institutional fixed costs; the subsequent reduction in state, federal and private funding has resulted in persistent, ongoing budget pressures (Kelchen, 2018). Private non-profit institutions, which lack direct state funding, are particularly at risk of budget pressures.

These financial pressures were exacerbated by the COVID-19 pandemic, which resulted in severe disruptions to academic institutions and enrollment patterns (Moody's Investors Service, 2021), the long-term implications of which are unknown and outside of the scope of this research study. What is clear is that a broad questioning of the purpose of higher education is underway, with lack of public trust in the value of post-secondary education undergoing intense scrutiny (Belkin, 2024). Recent polling shows that about half of Americans do not want their children to go to a four-year college, a profound shift in opinion (Barshay, 2021). Recent and potential federal policy changes further complicate the operating environment for private institutions (Moody's Investors Service, 2025).

Higher education is central to the public good and economic mobility. Academic institution's governing boards, senior administrators, and faculty (as well as government regulators, policy makers, and financial stakeholders including ratings agencies and investors) are grappling with an increasingly challenging operating environment. Specific management practices and strategies that have resulted in financially strong academic institutions may have applicability for individuals in control positions over colleges and universities. Given the limitations of existing methodologies and research, identifying actionable strategies that can shift institutions financial trajectory towards long term viability provides value to this broad audience.

Justification for the Research

This paper provides a review of key financial methodologies, including a focus on Return on Net Assets as a measure of financial sustainability and strength. Further, the paper summarizes key findings from interviews with administrators of academic institutions which have achieved a high level of return on net assets which address both the "what" and "how" of implementing business strategy in an academic context. The findings can propel strategic decision making towards long term sustainability for governing boards and senior administrators striving to achieve financial stability.

Research Questions

This study assesses measures of financial sustainability in private non-profit academic institutions and addresses several research questions, including but not limited to:

1. What private, non-profit higher education institutions achieved the strongest financial performance over an eighteen-year period (from Fall 2003 to Fall 2021, or fiscal year 2004 to fiscal year 2022) as measured by the financial ratio *Return on Net Assets* as defined and reported by Moody's Investors Service.
2. For institutions which demonstrated the strongest financial returns over this period, to what degree was that strength associated with specific key business measures, including:
    a. Growth in *Operating Revenue* as reported to Moody's Investors Service
    b. Growth in Enrollment, as measured by *Full Time Enrollment (FTE)* growth, as reported to Moody's Investors Service
    c. Change in Revenue Diversity, as measured by *Tuition and Auxiliaries as a % of Total Revenue* as reported to Moody's Investors Service
    d. Improvements in Profitability, as measured by *Operating Margin* as reported to Moody's Investors Service.
    e. Investment Growth, as measured by *Total Cash & Investments* as reported to Moody's Investors Service.
3. Of the institutions identified as demonstrating the strongest financial returns over the eighteen-year period, were there any intentional financial / business strategies employed?

The first and second research questions were addressed quantitatively; the third research question was addressed qualitatively through interviews with the administration of institutions which demonstrated a high level of financial performance. The leadership of five institutions across different institutional types (e.g. institutions representative of Carnegie Classification categories including Doctoral Universities, Masters Colleges and Universities, and Baccalaureate Colleges) were utilized.

Literature Review

Factors Impacting Institutions' Financial Performance

There is a long history of concern regarding financial challenges facing the higher education system—private institutions in particular—and theories for the root cause of instability of the sector reflected in the conflicting priorities of institutional mission and margin. Howard Bowen's revenue theory of cost stipulates that there is "no limit to what higher education institutions are willing to spend and that they will raise the necessary funds to pursue these goals and remain competitive (Bowen, 1981). Under this theory, there is no constraint to curb institutional expenditures, and institutions will effectively spend whatever resources are available. Further, many private academic institutions function as "donative commercial non-profits" with a revenue seeking strategy driven by sourcing funds from successful alumni (Winston, 1997); under this construct, institutions compete in a market to attract students of the highest academic quality and provide subsidies (tuition discounts) to obtain these future dollars, sacrificing current tuition

revenue for hypothetical future donor dollars (Winston, 1997). This strategy leads to financial instability and conflicts in governance. Beginning in the 1970s, private higher education administrators have been concerned with conditions of decline and industry pressure (Hopkins, 1981). The financial struggles of undercapitalized and smaller private higher education institutions are not new and include merger as an alternative to financial exigency and closure (Cowan, 1993). The threat of institutional closure and financial pressure is not expected to subside in the current environment due to demographic pressures in enrollment, business pressures as the sector emerges from COVID-19, ongoing fluctuations in financial markets and the macroeconomy, and federal policy changes.

Fluctuations in and dependence on endowment payouts poses a risk to the operating model of academic institutions (Spence, 2002); endowment payout is not the total amount of investment income, but the percentage spent during any given year. Academic institutions typically target between 4.0% to 4.5% subject to a multi-year spending rule (Ehrenberg, 2000), however, fluctuations in endowment earnings can place pressure on operating budgets. In a study examining the strategies used by 20 private colleges and universities to respond to the 2007–2009 Great Recession—a period during which endowment values declined due to turbulence in equity and capital markets—private institutions responded with budget cuts, reductions in academic programs, and layoffs (Dorantes & Low, 2016). Market volatility poses an ongoing challenge to stable operations, despite the broad adoption of endowment spending policies and payout formulas intended to limit the impact of declining investment spend (Anguiano, 2013).

Use of Ratios in Measuring Financial Performance

The development of financial indicators, including ratios, in the 1970's was part of a broader effort to slow decline in higher education institutions in the face of warnings regarding the challenges the higher education sector faced from thought leaders including Gordon Gee and Clay Christenson (Kelchen, 2018). Financial ratio analysis allows for the measurement of past performance, and for comparative assessment of institutions across institution type and size. Initially introduced into higher education management and financial dialogue in 1976, key financial ratios are utilized to evaluate effectiveness and efficiency, and to provide accountability in higher education (Chabotar, 1989). The categorization of institutions by size and scope of operations (the Carnegie Classification categories of Doctoral Universities, Masters Colleges and Universities, Baccalaureate Colleges, and Baccalaureate Associate's Colleges) provides relevant groups for the comparison of institutional operating performance (Carnegie Foundation for the Advancement of Teaching, 2001). Both categorization and financial ratios allow for comparative analysis of operations, including of institution cost structures (Brinkman, 1986). Research utilizing financial ratios also provides key measures of financial distress in institutions which have failed, when reviewed retroactively (Schipper, 1977) and correlates to research on conditions of decline in academic institutions (Cameron, 1983). Ratios are also commonly utilized in analysis of creditworthiness in capital markets financings—often in conjunction with the issuance of a ratings agency assessment—in accordance with pre-established methodologies (Moody's Investors Service 2021). For institutions with significant endowments and financial wealth, ratios may also be utilized to assess investment risk, as well as the volatility of investment income (Cole, 2010; Kutz, 2009; Townsley, 2002).

Several researchers have worked to develop different measures of financial standing. David S. Hopkins and William Massy (1981) were among the first scholar / practitioners to provide a comprehensive overview of the theories influencing long range planning models for private academic institutions with the publication of their seminal text *Planning Models for Colleges and Universities,* but while they advanced methods to prepare long term projections, they did not incorporate benchmarking or ratios to guide strategic decision making. Kent Chabotar was influential in the development of applicable financial metrics from for-profit corporate finance to non-profit higher education with the creation of the current ratio, the quick ratio, and the available funds ratio. A core measure of financial viability evolved from Chabotar's ratios—the Composite Financial Index ("CFI") which was developed over seven editions of the published Strategic Financial Analysis for Higher Education authored by a collaboration of KPMG, Prager Sealy and Attain. (Prager, Sealy & Co, 2017). This measure of financial viability is limited in that it does not provide a forward-looking view of financial sustainability, and does not incorporate non-financial measures (e.g., strategy or strategic position) into the measures of financial viability. Other researchers, including Charles Clotfelter (1996) and Richard Vedder (2019), have focused on the determinants of rising costs, including the acceleration of overhead spending, but have not incorporated these cost measures into forward projections, or included recommendations on how costs can be contained.

There are drawbacks to financial ratio analysis, including that financial ratios are current or historical looking, rather than forward looking. The use of financial ratios in assessing financial sustainability has limitations, with three areas of challenge: first, non-standard recording practices that limit the ability to make comparisons, second, resource inflation that distorts ratios over time, and third, the use of qualitative terms as ratios change over time (DiSalvio, 1989). Additionally, accounting treatment of certain items lacks uniformity, for example, the treatment of contingent liabilities, or commitments for major plant additions. Further, valuing assets at market value is difficult, especially with fixed assets (e.g., land or buildings) which are valued based on the original or purchase price versus the current market value. In research from the Journal of Education Finance, the challenges support the conclusion that "the information currently available in the field of higher education does not systemically address these limitations" (DiSalvio, 1989).

Management Strategies to Improve Financial Position

Institutions pursue several management strategies to improve their financial position, and there is a wide range of research regarding both the types of strategies utilized and the efficacy of their deployment. These strategies include pursuing revenue diversity, achieving growth in alternative revenues, and expense management (among others).

A portfolio management theory approach to revenue diversification is a common approach, as institutions will pursue a more balanced reliance between income from teaching, research, third-stream activity, grant funding, and investment income. Research has demonstrated that this approach leaves institutions less vulnerable as all sources of income are not likely to be challenged at once (Besana and Esposito, 2015), with income diversity being highly correlated with financial viability (Irvine and Ryan, 2019). In a 2012 study of not-for-profit universities financial results, statistical research demonstrated that solvency is connected to revenue diversity, and that non-profits which rely solely on donor's dollars experience financial challenges when the economy worsens. (Besana and Esposito, 2015). The concept of revenue diversity is clearly established across

multiple areas of financial research, ranging from corporate strategy to commercial fishing (Kasperski & Holland, 2013); concluding that there is "a dome-shaped relationship between the variability of … income and income diversification, which implies that a small amount of diversification does not reduce income risk but that higher levels of diversification can substantially reduce the variability of income." The pursuit of revenue diversity is not without risk; one study suggests that universities which pursue organizational segmentation in pursuit of research revenues see diminishing professional status of faculty in low resource academic units (Rosinger, et al., 2016), while organizations which are dependent on the research economy do so at the expense of postdoc's, many of which lack the benefits of core employees (Cantwell & Barrett, 2015). Further, the pursuit of increased tuition revenue often results in declining selectivity (Taylor & Morphew, 2014), while the pursuit of performance funding by private universities negatively impacts graduation and retention numbers (Dougherty, 2014).

Separate from management strategies to diversify revenue, institutions have pursued cultural shifts (termed "corporatization"), such that the organizational culture of an institution (management, values and practices) more closely resembles that of a for-profit corporation (McClure, 2019). This is reflected in management practices, strategic plans and operational policies developed by private and public institutions and is reflected in the growth of administrative expenditures and increase in number of administrators working at higher education institutions (Vedder, 2019). Institutions have pursued management strategies to counteract "conditions of decline" (Cameron, 1983), including joint ventures, programs, partnerships, mergers, and privatization, as well as communication strategies to build a comprehensive campus response to challenges. Research suggests that trustees may be instrumental in steering such strategies, and expanded trusteeship provide opportunities for resource acquisition and collaboration across organizations (Barringer et al, 2020).

Managing academic institutions finances in conditions of decline, rather than growth, has proved challenging due the organizational structure and approach of administration (Cameron, 1983). Kim Cameron's research, which is of material significance to the research questions, noted three areas of difficulty in administrative approach: that organizations have broadly experienced conditions of growth, that growth is assumed to be a measure of effectiveness, and that most organizational theory is based on assumptions of growth. Declining institutions were characterized as utilizing standard operating structures and relying on conservative practices in responding to the external environment; the external environment was perceived as being low on resources, and institutions had low organization effectiveness beyond working to achieve efficiencies. Conservative administrative strategies for managing decline were found to contribute to the challenges of an institution. Cameron's conclusion—that *"when faced with conditions of decline, administrators define these conditions exclusively as resource allocation problems or problems of efficiency, and they respond conservatively rather than innovatively"*—is reflected in several common management strategies including controlling costs, using long-range planning models, adopting budgeting models, pursuing economies of scale, and adopting enrollment growth strategies. Beyond delineating the challenges of responding to conditions of decline, Cameron noted strategies for reversal of those conditions; domain defense (e.g., through lobbying), domain offense (e.g., through competition for students), and domain creation (e.g., through expansion of new growth opportunities); these strategies were based on observations of the challenges faced by the tobacco industry, which faced significant external pressure from market and political forces, but adapted to the new environment to avoid demise.

Data and Analytic Approach

A Mixed Methods research design was utilized given the strength of both quantitative and qualitative research and minimizing the limitations of both approaches (Creswell & Creswell, 2017). Mixed methods research design originated in the late 1980's to early 1990's with work across the fields of education, management, sociology, and health science fields. The use of mixed methods research has continued to evolve and develop, with changes in the evolution of mixed methods procedures (Teddlie & Tashakkori, 2009). As a research design, mixed methods involve the collection of both closed-ended, quantitative data and open-ended, qualitative data with the two forms of data integrated. As the data is merged, an explanatory analysis can embed the data within a larger framework.

The population for the quantitative component of the mixed methods study is defined as all private, non-profit institutions with consistent available financial data across four data sets detailed above for the period from 2004 to 2022. Institutions must have consistently reported data with no gaps to be included. From the data set of those which saw high financial performance during this period—defined as the highest average return on net assets—a group of five institutions agreed to participate in a qualitative case study approach where interviews with key decision makers (e.g. the Vice President for Finance, the President) were conducted. This sample provided context from which broader trends can be generalized. Institutions representative of differing Carnegie Classification categories were utilized (e.g. Doctoral Universities, Masters Colleges and Universities, and Baccalaureate Colleges); this was important to assess if there were common strategies for financial improvement across institutions regardless of size, or if the strategies utilized by a large institution are different than those utilized by a small institution. A further effort was made to identify and utilize a geographically diverse composition of institutions.

In the study, the researcher analyzed the financial trends of private, non-profit academic institutions in the United States over a eighteen-year period (from Fall 2003 to Fall 2021, or fiscal year 2004 to fiscal year 2022), focusing on an academic institution's return on net assets, FRCS, and IPEDS-defined Full Time Equivalent ("FTE") Headcount, among other measures Because both the Department of Education and Moody's Investors Service publish annual measure of financial viability, the researcher employed a descriptive research method with observational statistics from a longitudinal study of these variables for a group of continuously reporting private, non-profit academic institutions over this eighteen-year period.

Data Sources

The quantitative components of the mixed methods study draw upon existing measures of financial standing from external parties. There are multiple quantitative data sets which are applicable to higher education institutions; including Department of Education Financial Responsibility Scores, data and credit ratings provided by Ratings Agencies, and IPEDS data.

The Integrated Postsecondary Education Data System ("IPEDS") is a system of annually conducted interrelated surveys administered by the United States Department of Education's National Center for Educational Statistics. These surveys gather information from post-secondary institutions which

participate in federal student financial aid programs; the Higher Education Act of 1965 requires that institutions participating in these programs report financial and enrollment data.

Further, the United State Department of Education conducts an annual analysis of the audited financial statements of academic institutions to produce a Financial Responsibility Composite Score ("FRCS"), which combines different elements to yield a single measure of a school's overall financial health.

Finally, the United States Securities and Exchange Commission ("SEC") examines Nationally Recognized Statistical Rating Organizations (NRSROs), commonly known as credit rating agencies, to promote compliance with applicable federal securities law. There are currently nine approved NRSROs, of which four are active in rating institutions in the higher education sector, those being Kroll, Standard & Poor's, FitchRatings and Moody's Investors Service. Unlike IPEDS and FRCS data sets, institutions are not required to maintain a credit rating, though many institutions seek a credit rating in conjunction with borrowing in the debt capital or bank credit markets.

Of the four ratings agencies, Moody's Investors Service provides the broadest universe of rated academic institutions (as of April 2022, rating 252 non-profit private colleges and universities). Moody's *Higher Education Methodology* was updated in August 2021 and provides a scorecard with qualitative and quantitative factors used to assess the credit rating of an academic institution (Moody's, 2021). The primary data utilized in the quantitative portion of the research study were statistics from Moody's Investors Service from the rating agency's review of audited financial statements prepared in accordance with Generally Accepted Accounting Principles (GAAP). This data is available through the Moody's Financial Ratio Analysis (MFRA) portal, and was downloaded in October 2023, using screens to provide all collected data for all private, non-profit higher education institutions rated by Moody's during the period of 2004–2022.

Moody's Investors Service provides three data sets specific to higher education institutions. Financial Data is longitudinal and includes 69 information sets, which are categorized into eight groups: Assets, Changes in Restricted Net Assets, Liabilities, Net Assets, Operating Expenses, Cash Flow Data, Non-Operating Financial Data, and Operating Revenues. In all cases, this information is sourced from the audited financial statements of the academic institution.

Selections

Several selections were made in developing a consistent data set, these being:

- The *Periodicity of Data*, in that the data selected was from Fall 2004–Fall 2021 (fiscal year 2004–fiscal year 2022) as the basis for the longitudinal study. The period is intended to capture a range in which there were broad enrollment declines across the higher education sector; it also reflects (partially) the impact of the global pandemic. Utilizing data from a different period may result in a different ranking of the financial performance of institutions, or a shift in the availably of data.
- The choice to analyze *not-for-profit private institutions only*, which is intended to exclude for-profit institutions (which optimize returns to shareholders) and public institutions (which have an implicit financial backstop due to state support). The decision to assess

nonprofit institutions is also reflective of an exploration of the tension between mission focused objectives and financial constraints. For profit institutions have, by definition, a profit seeking objective, with a financial strategy driven by market imperatives as well as a different accounting treatment of financial results. For profit institutions also function within a different regulatory regime which establishes requirements for revenue diversity. Public institutions, which are also excluded from the study, have unique financial circumstances different from not-for-profit organizations; these include the availability of state support, as well as an implicit state backstop for financial liabilities. Public universities are also subject to a different set of accounting standards, which complicates a comparative apples to apples assessment of financial ratios

- The choice to review data from *Moody's-rated institutions only* rather than those rated by other ratings agencies. This choice reflects that Moody's provides the broadest range of ratings to the greatest number of institutions (252).

These selections were undertaken with the objective of researching a broad number of institutions which have a wide range of freedom in crafting financial strategy.

These selections also reflect the positionality of the author, an investment banker in the education sector with broad familiarity with many of the institutions contained in the data surveyed, as well as a detailed knowledge of the interworking of ratings agencies and regulatory bodies. Where possible that positionality in the education sector and interactions with institutions included in the study might influence the research, a conflict-of-interest review was undertaken.

Limitations

There are two potential limitations of the data set worth noting, the first of which is periodicity of audited financial statements. Most private, non-profit financial institutions report annual financial information on a June 30 basis. A limited number of institutions—for example, New York University—report audited financial information on an August 31 fiscal year end, while others report on a March 31 fiscal year end. When considering the specific impact of market movements associated with the financial crisis and the COVID-19 pandemic—in particular 2021 endowment returns – the change in market value was calculated from a low point (June 2020)—a market low due to the onset of the pandemic) and reflects large market gains due to lower interest rates and economic recovery. For institutions with different financial reporting periodicity, the magnitude of this market impact would be differently reflected in financial results. Finally, institutions which were excluded for lack of reported financial information may have significantly impacted the results reviewed in the qualitative survey, if included in the qualitative outreach and participating as part of the qualitative research.

Qualitative Research Study Process

When viewing measures of financial sustainability, purely quantitative measures are illustrative, but devoid of the context a qualitative study would provide, whereas a solely qualitative study would lack consistent comparative ratios provided by quantitative financial metrics (Creswell & Creswell, 2017). By first using quantitative measures to identify institutions which have experienced financial growth and have become more financially sustainable, a smaller subset of all private academic

institutions can be identified. Understanding the strategic approach and management strategies of these institutions will provide context to solutions which may be more broadly adopted by the higher education sector, given the current environment of financial pressure.

The focus of the qualitative component of the mixed methods study was to identify, for institutions where quantitative measures of financial standing have seen high performance, if there had been an articulated financial strategy (e.g. a campus master plan, strategic plan, or other institutional policy). To address this specific research question, a wide range of considerations were assessed through discussion with key administrators; as interviews interrogated the strategy utilized and explored a range of topics. This included reviewing the institution's strategic and financial plan and exploring how that plan evolved and developed over the eighteen-year period. Understanding the budgeting and financial planning process at the institution was important, as was identifying to what extent financial ratios used in regular board and management reporting and the composition of the decision makers who were involved in the planning process.

The study utilized an interview protocol for the purpose of posing both direct specific and open-ended questions to executive administration of select academic institutions. Each interview protocol utilized direct, specific questions related to the strategy the institution has undertook as well as generic open-ended questions regarding the decision-making process utilized by executive administration. Interviewees were selected based on the intersection of their experience with the period of improvement in financial condition and were generally the Vice President of Finance, Treasurer, or President.

The researcher administered the survey through advance distribution of a questionnaire, with a virtual session of approximately one hour to gather responses. The only individuals recorded were the researcher and the individuals participating in the study. The research utilized in generating the direct, specific questions related to each institution's strategy were generated with data from publicly available sources and did not use confidential information. The institutions and interview participants were kept confidential. The study was completed over the Fall of 2023 and Winter of 2024. Study participants were provided consent forms in early Fall 2023, with interview protocols and questions provided following the receipt of the consent forms. The length of the participants' involvement in the study was limited to the time spent reviewing the interview protocol and questions and engaging in a recorded interview with the researcher.

Findings

The research study focused on one key financial ratio—Return on Net Assets—as a proxy for the financial viability of an institution and specifically reviewed the average of this key ratio over the period of 2004 to 2022. The Return on Net Assets ratio provides a measure of financial performance by measuring total economic return. The ratio compares the year over year change in net assets to total net assets. This ratio has certain advantages in allowing a comparative measure of financial performance. First, the use of a ratio allows for comparison of institutions with disparate sizes in total net assets. Second, year-over-year change in net assets incorporates both income statement activities (e.g., change in net tuition revenue, expense reductions, launch of new academic programs) with balance sheet activities (e.g. addition to and depreciation of physical assets, market swings in investment value) in a way which holistically interprets fluctuations in financial trajectory.

This broad measure of financial performance has appeal when viewed longitudinally, as the impact of a specific event in a particular fiscal year (e.g. advance deficit spending for launch of a new academic program initiative) is assessed comprehensively over time.

The researcher reviewed the data for the 252 private, non-profit higher education institutions to specifically identify completeness of the calculation and reporting of the financial ratio Return on Net Assets. In the data set reviewed, 42 institutions were found to have an incomplete data set over the survey period from 2004 to 2022, meaning that at least one year's computation of this financial ratio were missing from the Moody's data set. Only institutions with consistent data were included in the qualitative component of the mixed methods study. The researcher computed the average Return on Net Assets for each academic institution individually, then ranked institutions in descending order (institutions with the greatest average reflecting the highest level of sustained financial performance). Institutions which had incomplete data were excluded from the list of top 20 institutions contacted in the qualitative survey. The initial ranking of institutions included seven which were ultimately excluded based on incomplete data, these being Liberty University, Massachusetts College of Pharmacy & Health Sciences, Savannah College of Art & Design, Western University of Health Sciences, Belmont University, the University of New England and University of the Incarnate Ward. The ranked list of top 20 institutions, reflecting these exclusions, is provided in Table 1 below. The diversity of institutions is significant, representing a diverse cross-section of geography, size, wealth and prestige. The academic institutions participating represent a cross section of private, non-profit educational institutions aligned with the initial objectives of the research study, which was to identify a diverse array of institutions across Carnegie Classification type, geographic location, and religious affiliation.

Table 1: Institutions Ranked by Highest Average Return on Net Assets, 2004 - 2022

Institution	Rank	State	Average Return on Net Assets, 2004 - 2022 (%) [3]
Sacred Heart University	1	Connecticut	16.5
Medical College of Wisconsin	2	Wisconsin	12.6
Embry-Riddle Aeronautical University	3	Florida	12.0
Villanova University [1]	4	Pennsylvania	12.0
New York Institute of Technology	5	New York	11.8
New York Law School	6	New York	10.9
Chapman University	7	California	10.8
Berklee College of Music	8	Massachusetts	10.7
University of Notre Dame du Lac [1]	9	Indiana	10.6
Marist College	10	New York	9.8
University of Pennsylvania [1]	11	Pennsylvania	9.8
Northeastern University [1]	12	Massachusetts	9.8
Quinnipiac University [2]	13	Connecticut	9.7
New York University [2]	14	New York	9.4
Massachusetts Institute of Technology	15	Massachusetts	9.4
Le Moyne College [2]	16	New York	9.4
Claremont McKenna College	17	California	9.2
Duke University [2]	18	North Carolina	9.2
Stanford University [1]	19	California	9.1
Abilene Christian University	20	Texas	8.9

(1) Researcher defined material conflict of interest, excluded
(2) Researcher defined non-material conflict of interest, included
(3) Researcher analysis of Moody's Investors Service Data

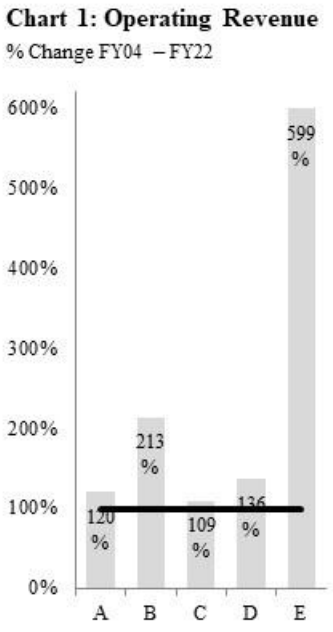
Qualitative Research, Interview Outreach, Conflicts of Interest Considerations

Of the 20 institutions identified, the researcher identified four institutions with which a direct conflict of interest existed due to the nature of the researcher's professional activity in higher education investment banking. Of the 15 institutions identified, but not excluded from the outreach process, the research identified four institutions with which the researcher / the researcher's firm had a direct business relationship during the research period but was not an active conflict.

Qualitative Research, Interview Outreach, Identification of Leadership

Among the 15 institutions with which no conflict existed, the researcher identified the administrative leadership of each institution during the study period (2004–2022) and reviewed the duration of engagement with the institution for each of the individuals identified. The researcher focused on identifying senior administrators (defined as the President, Provost / Chief Academic Officer, or Vice President for Finance / Chief Financial Officer), with a preference for individuals that had spent a minimum of 10 years within the senior leadership role.

Senior administrators participating in the research study were provided an informed consent document which pledged to protect institutional identity through redaction; participating institutions are only identified by Carnegie Classification and bond rating. Participating institutions are Institution A, a Doctoral Research (2) institution with Moody's rating of "A3'; Institution B, a Doctoral Research (2) institution with Moody's' rating of A2"; Institution C, a Master's Colleges and Universities Larger Programs institution with Moody's rating of "Baa2"; Institution D, a Master's Colleges and Universities Larger Programs institution with Moody's rating of "A2"; and Institution E, a Doctoral Research (1) institution with Moody's rating of "Aa2."



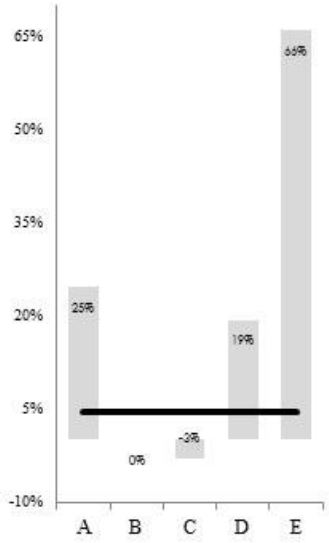
In reviewing the quantitative trends of key financial metrics and ratios, as well as qualitative components of the research study, key findings emerged with respect to institution's individual and aggregate strategy to maintain financial sustainability and achieve Return on Net Asset growth. All institutions in the research study demonstrated a material level of revenue growth during the survey period, which was partially attributable to enrollment growth, as detailed in Chart 1, which illustrates the percentage change in operating revenue for the five institutions interviewed. This level of operating revenue growth exceeded the median for all private, non-profit institutions during the same period (99.0%). This implies that a high level of Return on Net Asset growth is associated with growth in operating revenue. In reviewing the underlying trends resulting in operating revenue growth for each of the five participating institutions, a range of strategic initiatives which have the common characteristic of revenue growth occur. Institutions A and B opened branch campuses in adjacent, urban areas—focused on evening, weekend and short courses as well as corporate programs—a diversification away from "main campus" academic efforts. Institution B

demonstrated significant fundraising capacity, as well as a major expansion (and monetization) of its online enterprise. Institutions C and E pursued acquisitions to fuel revenue growth (and Institution E pursued the expansion of the University's Academic Medical Center as well as international operations). This is discussed more fully below.

The relationship of enrollment growth to a high level of Return on Net Assets is another factor considered in the research questions. The results for each of the five participating institutions are provided in Chart 2, which shows the change in enrollment for each of the surveyed institutions. When compared to the Moody's median level of enrollment growth for all private institutions (4.5%), the research indicates the significance of enrollment growth to revenue growth is a contributing factor to financial performance. Each institution had unique attributes with respect to enrollment strategy. Institution E, for example, had pursued a strategy of international expansion with multiple international campuses opened during the study period, which vastly expanded total enrollment. Institution B grew enrollment significantly through the development of its (online education) division, which it subsequently divested to in a sale to a flagship public university. For this reason, the institution's enrollment over the study period remains relatively unchanged, even though there were rapid growth and expansion of total enrollment up and until the divestiture. Demographic pressures were impactful on Institution C which saw modest enrollment declines during the study period.

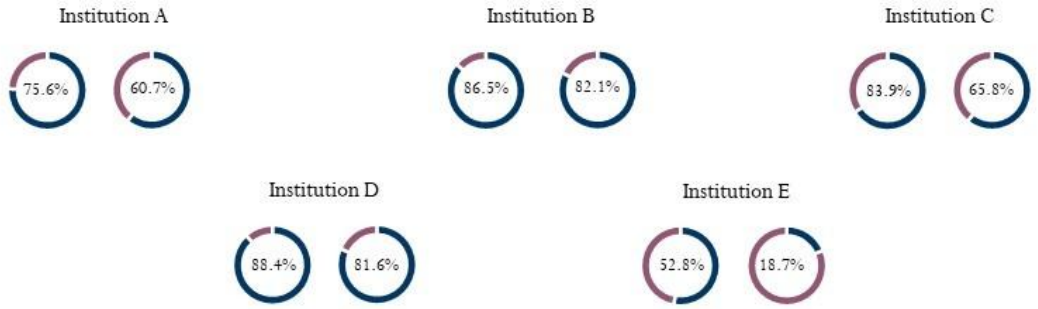
Chart 2: Enrollment

% Change FY04 – FY22



Revenue diversity, as reflected in Chart 3, is a material contributor to financial sustainability and growth in Return on Net Assets. The chart illustrates the percentage of revenue which each institution derived from revenues other than Tuition & Auxiliaries, and how dependency on Tuition & Auxiliary revenue decreased in Fiscal Year 2004 vs. Fiscal Year 2022. This demonstrates "a more balanced reliance between income from teaching, research, third-stream activity, public funding and investment" which prior research has illustrated results in increased financial viability (Irvine and Ryan, 2019).

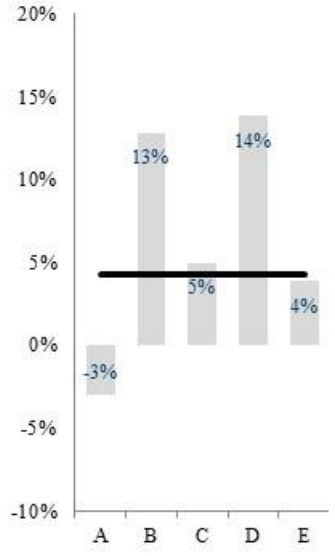
Chart 3: Diversification of Revenue FY'04 vs. FY'22 | Tuition & Auxiliary Revenue vs. Other



The intentionality of revenue diversification, as detailed by Institution E of adopting a "broad basket" approach to academic program offerings and non-academic revenue streams, demonstrates a form of portfolio management theory, as all sources of income are not likely to be challenged at once (Besana and Esposito, 2015).

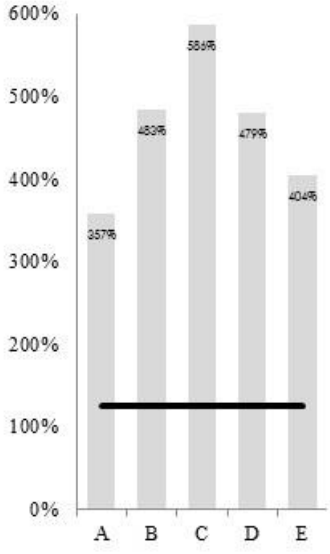
In pursuing financial sustainability, the embrace of revenue diversity is further aided by a strong focus on generating net margin, as detailed in Chart 4, which illustrates the percentage change in operating margin from Fiscal Year 2004 to 2002, relative to the median change in operating margin (4.3%). As discussed by Institution D, measuring the margin contribution of individual academic programs is a core management practice, and discontinuance of programs which do not demonstrate profitability was a common theme for Institution D and Institution C as well. All institutions demonstrated in discussion that they were acutely aware of the importance of margin contribution, as financial leaders had prior experience with "distressed" institutions in prior career stages. These findings affirm research by James Martin and James Samels in that most private institutions operate very close to breakeven, and that (when excluding investment returns) small institutions had operating deficits for three of five years in a survey of financial performance from 2000 to 2004 (Martin and Samels, 2013). Management strategies utilized in achieving consistent operating margin include strategic budgeting, engaging in regular academic program review with clear polices for discontinuance of academic programs which do not provide margin contribution, and extensive market research prior to the launch of new academic programs, correlated with fundraising to allow for coverage of "startup costs" associated with portfolio expansion. Understanding the relationship between margin contribution of academic programs and institutional operating margin is an important management strategy.

Chart 4: Operating Margin
% Change FY04 – FY22



A detailed review of the Cash & Investment trends of the institutions participating in the research study reflects a confluence of revenue diversification (discussed above) and the investment of margin. Each of the institutions participating in the research study had a similar strategy of growing enrollment to increase profit, and reinvesting net gain in investment balances which (over time) grew investment income, increasing revenue diversity. The development of investment income as a revenue source and resulting revenue diversification is a further example of a corporate portfolio management approach to developing new revenue generating alternatives (Lundy & Haven, 2003). Given that each of the five institutions participating in the study demonstrated growth in cash and investments over the study period which outperformed the broader private, non-profit higher education sector, there is a clear association between achieving a high level of Return on Net Assets and growth of cash and investments, as shown in Chart 5. This was reinforced in discussion with each of the institutions.

Chart 5: Cash & Investments
% Change FY04 – FY22



A detailed review of the investment portfolio allocations utilized during the study period reflected an aggressive approach towards growth and asset management, with high levels of concentration in private and alternative investments which drove returns during the study period.

Institutionalizing these approaches requires both *management practices* as well as *management strategies*, which are discussed in answers to research questions 3(a)–3(d) below. In speaking with each institution, clear management *practices*—such as rigorous measurement of margin contribution, preparation of long-term financial projections and scenario analysis, and financial reporting which include measurement of key financial ratios—emerged as common themes. Each institution also demonstrated differentiated financial *strategies* which were bespoke to their specific situation, e.g. Institution A's endowment concentration in energy investments reflected a market knowledge of this sector, bequests provided by donors, and the knowledge base of specific board members. The presence of such distinct financial strategies at each institution was a common theme across institutions and are summarized in Table 2.

Table 2: Assessment of Ratio Utilization and Management Strategy

Participating Institutions

Institution	Ratio Driven Reporting	Forward Projections	Peer Comparison	Management Strategy (Financial)	Management Strategy (Market)
Institution A	✓	✓	✓	Robust use of scenario planning, projection analysis and financial analysis across all institutions, which was discussed as a 'best practice' and essential in the forward planning of financial strategy.	Dallas Expansion
Institution B	✓	✓	Not Viewed as Relevant		Housing Market Arbitrage
Institution C	✓	✓	✓		Regular M&A Assessment
Institution D	✓	✓	✓		Comparative Pricing Analysis
Institution E	✓	✓	✓		Global Arbitrage Strategy

Conclusion

Common Themes

In discussion with each of the institutions, several common themes emerged. First, several of the current leaders reflected on prior career experience with institutions that were in financial distress as a formative experience in their leadership style and approach. This prior experience with financial distress forced these professionals at an early stage of their career to confront the necessity of financial sustainability and the potential for failure were good business practices abandoned. This informed their approach to management and keeping a clear focus on institutional budget (in the words of one participant "behind every successful institution, there is a hard ass").

Secondly, the individuals who were currently in leadership positions had a long experience with their institution and spoke to the long tenure of the administrative cabinet of their institutions as a component of the success of the institution. There were differentiating views regarding the role of charismatic or visionary presidents in the overall success of the institution; the leaders interviewed were evenly split regarding the impact of such an individual on the overall strategy of the institution.

All interviewed emphasized the need for communication with faculty and other constituent groups, with a strong view that coalition building was necessity in achieving change in a shared governance structure. Different from the detailed and sophisticated projections presented to their respective Boards, these individuals emphasized *simplicity*, *consistency* and *transparency* as key elements in communicating both the financial position of the institution and the institution's strategy. Those interviewed believed that communicating with broader audiences using the cash position of the institution as a key metric was a useful strategy to explain the overall financial strategy of the institution in a way that was simple to understand and easy to communicate.

Limitations of the Study and Areas for Further Study

The study has a certain number of limitations, and the preliminary conclusions present the opportunity for further research. With respect to the availability of data, Moody's Investor Service noted that while providing the broadest consistent measure of computation of key financial ratios, rates a limited number of institutions, typically those with a financial position significant enough to support incurring bank or long term (bond) indebtedness in the debt capital markets. A different set of qualitative study participants may have been identified if all private non-profit institutions had been reviewed. While further limitations are noted in the methods and finding sections, notably specific limitations with respect to institutions consistently being rated by Moody's during the period identified, and given the limitations of reported data, a major area for future study are the specific statistical correlations between the Return on Net Assets ratio and other key measures of financial sustainability.

A significant area for additional research is the potential to construct forward looking measures and ratios of financial performance, which open the possibility for assessing the flexibility of an institution's financial profile under adverse circumstances (including the demographic pressure that is projected). The potential to interview a broader universe of individuals associated with the institutions identified and develop a broader case study theory is also an intriguing area for future study.

It is interesting to note that among the top 20 private institutions when ranked by average return on net assets there are several sizeable institutions (both by enrollment and by endowment) absent from the ranking. These include Johns Hopkins (ranked 26), Brown (35), Princeton (38), Yale (39) and Harvard (94). There are several reasons for their respective rankings, including the absence of significant healthcare operations, a high concentration in private investments, academic prestige and the limitation that places on enrollment growth, and geographic location, among others. A further potential contributing factor is that—when an institution reaches a certain large scale of wealth, enrollment and operations—achieving sustained ongoing growth in resources becomes more difficult. In other words, it is more likely that a 1,000 FTE institution can double its scale in a

five-year period than a 10,000 or 40,000 FTE institution. The limitations that institutional scale above a certain level may place on the potential for growth is an area for further research and study.

This initial research creates significant areas for further inquiry, including reviewing the recent financial performance of institutions with high return on net assets in recent years, particularly given recent Federal administrative action. Understanding strategies for sequencing the recommendations below as well as developing a clear framework for Board reporting on progress towards improved return on net assets are further areas of study outside the scope of this initial research.

Recommendations

The study recommends the following for practitioners running private non-profit institutions seeking to achieve greater financial sustainability and operating performance for their college or university.

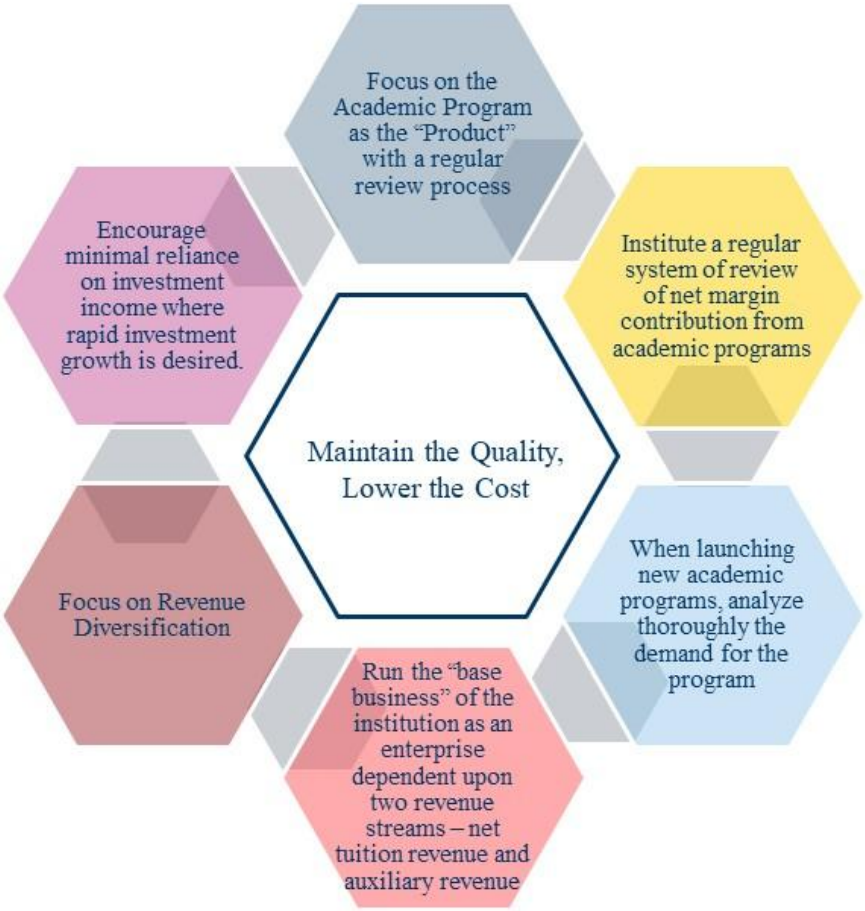
1. *Focus on the academic program portfolio as the product and instill a process to regularly refine academic programs offered in consultation with external entities* (e.g. leading employers in the institution's market). Each institution surveyed had an acute understanding of the academic portfolio as being essential to the institution's success, and that rigorous management of programs offered, the need to discontinue academic programs which were not financially preforming (discussed further below) and fostering a culture of academic innovation to create new programmatic offerings was a requirement for financial sustainability. This was a common theme regardless of the size of the institution (e.g. Institution C with a relatively small scale of academic operations ascribed the same importance to this endeavor as Institution E).
2. Institute a *regular system of review of net margin contribution from academic programs* with clear expectations related to the appropriate level of margin each program would ideally generate, and guidelines for the discontinuance of academic programs which have, over time, failed to contribute net margin to the overall enterprise. This practice was clearly articulated by Institution D as well as Institution B, which undertook activity-based costing (Anguiano, 2013) and resource allocation budgeting (Massy, 2017 and 2020) whereby the administrative and operational expense "overhead" was allocated to academic programs to identify their true margin contribution. Measuring this margin contribution on an annual basis was detailed as a management best practice.
3. *Run the "base business" of the institution as an enterprise dependent upon two revenue streams—net tuition revenue and auxiliary revenue* (which should produce margin to supplement net tuition revenue), and budget to a 2% to 3% operating margin for the "base business." Endowment and investment income should be treated at the lowest level of spend at 4% of the trailing 3-year average of earnings and may be dedicated to defraying ongoing depreciation and deferred maintenance cost. Institution A articulated this approach to budgeting as being particularly impactful in the context of constructing the architecture of a financially sustainable budgeting framework, with the benefit that endowment and investment income was perpetually being reinvested to achieve greater net asset growth over time. Institution B also articulated that dependency on endowment

revenue and investment was antithetical to the core strategy of preserving those resources for future institutional development and as a safeguard against potential enrollment downturns.

4. *When launching new academic programs, analyze thoroughly the demand for the program* using a data driven approach considering competitive position. In so doing, interview faculty and students of competing programs to understand the market in detail. If entering the market, do so under a risk adjusted forward projection of operating performance for a period no less than five years, with profitability achieved within this period. Allocate fundraising dollars to cover the initial upfront expenditures and establish in the forward projection a plan to achieve a positive program return inclusive of repayment of the upfront fundraising dollars utilized. If a program is unable to achieve a positive margin contribution, discontinue the program. These strategies were instrumental in the development of academic programs for both Institution C and Institution D, which function in a highly competitive operating environment, with numerous private competitors as well as low-cost public options.
5. Consider engagement of an in-house Chief Investment Officer, while *encouraging minimal reliance on investment income during periods of time where rapid endowment and investment growth is desired*. Further, align investment strategy with risk parameters and, to the extent possible, with the knowledge base of the investment committee of the Board. Institution A and Institution E both reflected this approach to investment management as did (to a lesser extent) the other institutions which participated in the research study. Given the levels of financial resource growth achieved by the institutions during the study period, and the relative outperformance of the institution's endowments over the study period, a focus on investment allocation was key. Institutions attributed this outperformance, in part, to expertise at the Board level (for Institution A, a knowledge base around energy investment specific to oil was discussed). All institutions described a strategy of reinvestment of endowment gains with a focus on achieving growth in resources.
6. *Focus on revenue diversification*. Each of the institutions participating in the research study reflected a keen effort to diversify revenue streams *away* from net tuition, whether through expanding annual donative fund revenues, investment income, growth in the auxiliary enterprise, or other forms income (e.g. divestiture of assets, or acquisition of competition). Beyond different categories of revenue diversity institutions also focused on diversifying revenues across academic programs, such as with Institution E, for example, it detailed a broad portfolio approach with the desire to participate in every academic program or subject area, under the theory that declines in interest in a particular academic program would be offset by gains in another. This is reflective of portfolio management theory and is applicable regardless of institutions' size.
7. *Lower the cost of the product*. Each institution acknowledged that there was a pervasive cost problem in higher education (Institution D most directly, equating the cost of sending three children to college with buying three homes today, compared to three cars 20 year ago). Each also acknowledged efforts to make the academic product more widely available in manners outside a traditional four-year residential model (e.g. through certificates, part time study, adult degree completion, study abroad). Each institution also discussed the need to focus on time to completion (e.g. four-year graduation rate) as a management metric, to prevent the overleveraging of students and families in achieving their education.

In conclusion, these specific recommendations (captioned in Table 3 below) when coupled with a strong focus on rigorous analysis and a quantitative management culture provide prospective pathways to financial sustainability which may be adopted more broadly. While their attributes were clear in all successful academic institutions which participated in the research study, so was a culture of collaboration, which was achieved through a common understanding of the institutions' financial situation facilitated by long range planning models. Using quantitative measures in long range planning to facilitate strategic decision making is an advisable strategy for all institutions as the sector confronts the operational challenges of the future.

Table 3: The study recommends the following for practitioners running private non-profit institutions seeking to achieve greater financial sustainability and operating performance for their college or university.



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Dual Credit Participation Among African American Students at a Private Texas University

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Abstract

This study aimed to discern disparities in dual credit success among African American students at a private university using data from Fall 2016 to Fall 2022. Dual credit success encompasses academic performance, GPA, course completion, and credit transferability. While dual credit generally improves outcomes, research on African American participation and success is limited. This study focused on African American dual credit participation and its correlation with GPA and credit hours. African American females earned higher GPAs and more credit hours than African American males; the differences were not significant. While no significant differences in credits earned were found among demographic groups, African American students had significantly lower GPAs, revealing achievement gaps in dual credit outcomes. Interventions in the current education environment should focus on improving dual credit outcomes for all students with an interest in improving readiness for economically disadvantaged students. Higher education leaders and K-12 education leaders can partner to improve readiness for dual credit and expand dual credit success outcomes to include certificate programs related to workforce needs.

Key Words: dual credit, dual credit outcomes, dual enrollment, concurrent enrollment, achievement gap, African American students, higher education, postsecondary education

Introduction

Black and Hispanic students are enrolled at a low rate in dual credit programming compared to White students. Recent research by the Community College Research Center of 950 dual credit programs indicates that 7% of Black and 8% of Hispanic students enrolled in dual credit, while around 12% of White students (Lamiell, 2020). This disparity is further highlighted by a longitudinal study involving over 23,000 high school first-year students nationwide, which showed that participation rates for dual credit were lower among Black (27%) and Latinx (30%) students compared to White (38%) and Asian (38%) peers (Williams and Perry, 2020). A contributing factor to this participation gap may be the perception held by many Black and Hispanic students regarding their abilities to succeed at higher education levels. According to Zinth & Barnett (2018), these individuals often perceive themselves as capable of excelling academically during secondary schooling and pursuing postsecondary opportunities.

Significance of Study

This study provides insights into the significant difference in postsecondary readiness among African American students, offering empirical evidence that dual credit participation correlates with increased college graduation rates among African American students. Such findings could inform policymakers' efforts to enhance accessibility to dual credit programs for all high school students, particularly in states with high urban populations, fostering increased collaboration between secondary and postsecondary institutions.

Furthermore, this study offers information on the relationship between variables such as dual credit participation, grade point average (GPA), and dual credit hours earned among African American students. Educators and administrators can utilize this information to identify African American students who demonstrate potential for success in dual credit programs, potentially leading to increased dual credit participation and ultimately higher college graduation rates.

Given projections indicating that by 2050, 50% of the total U.S. population will comprise various minority groups (Maxwell, 2014), it is imperative for higher education administrators to possess a comprehensive understanding of best practices for engaging, enrolling, and retaining student populations while enhancing persistence and retention rates (Latimer, 2020).

Conceptual Framework

This study utilized the Tinto Model of Student Departure concepts to investigate their impact on students' dual credit success. The Tinto Model comprises four main theoretical constructs: pre-entry attributes, initial goals/commitments, integration (both academic and social), and subsequent goals/commitments (Tinto, 1994). This research focused on examining students' experiences with dual credit programs and how they influenced their dual credit academic success, specifically in academic and social integration. Subsequent goals/commitments were not explored in this study. The assumption of this study posits that participation in dual credit programs will affect students' academic and social integration experiences, which in turn would occur before their enrollment in a higher education institution. Participating in dual credit programs can foster academic and social integration for high school students planning to attend college. These programs allow students to solidify their commitment to pursuing higher education. By engaging in college-level coursework while still in high school, students can gain valuable exposure to the skills needed for success in a college environment.

Literature Review

Historical Perspective of Dual Credit

The most rapidly expanding trend in higher education in the 21st century is the practice of dual enrollment or credit among community colleges (Lawrence, 2017). This approach allows high school students to participate in postsecondary classes while still attending high school. Typically, these dual credit courses are made available through partnerships or agreements between the local community college and the high school (Jagesic et al., 2022).

Between 2012 and 2022, dual credit programs have experienced significant growth, partly due to increased funding initiated by former President Obama in 2013. The aim was to enhance access to higher education, and President Obama envisioned the United States becoming a global leader once again by producing a higher number of individuals with baccalaureate degrees or postsecondary certificates (U.S. Department of Education, 2015).

Dual-credit programming does not have an established origin date, it's varied depending on state or institution. Researchers have cited higher education institutions in Illinois offering dual credit programming as early as the 1970s (Barnett et al., 2004; Makela, 2005). The state of California adopted dual credit legislation in 1976. The State of Virginia placed an emphasis on dual credit articulation agreements between public schools and higher education institutions (Catron, 2009). As dual credit programs have grown in the United States, there is much inequality in manners of instruction and descriptions of terms (Pretlow & Wathington, 2014).

In Florida, the aim of dual credit programs was to offer secondary students enhanced course options and a faster pathway to earning a baccalaureate degree. (Windham, 1997). Students who participated in dual-credit programs experienced various advantages, including increased academic rigor, access to a choice of courses, exposure to college opportunities and requirements, and a curriculum pertinent and meaningful to their educational goals. In addition to these benefits, dual credit also offered cost-saving opportunities for students (Andrews & Barnett, 2002; Hoffman & Robins, 2005; McCarthy, 1999). Some states implemented dual-credit programs to strengthen the relationship between high schools and colleges and improve proficiency with secondary education. Furthermore, these initiatives sought to enhance college preparation for all students while promoting higher postsecondary education attainment rates while reducing instances where remedial coursework became necessary. In Andrews' (2001) study, dual credit advantages were characterized as expediting progress, lowering tuition expenses, alleviating boredom, and aiding in student recruitment.

As part of Texas' efforts to encourage college readiness, legislation was passed in 2006 that required each local education agency to design a program offering at least twelve dual credit hours per semester of four dual credit classes while in high school (H.B. No. 1, 2006). As a consequence of the legislation, Texas Education Code §28.009 underwent amendments in 2007, specifying that college credit can be obtained through advanced placement courses (A.P.), international baccalaureate courses (I.B.), and career technical and education courses (CTE).

The initial growth of dual credit programming commenced with establishing dual-credit courses in various school districts offering courses at high school. There was a rise in dual-credit courses from 2007–2008 school year to the 2009–2010 school year, with an estimated increase of 31%. There are around 2.5 million students enrolled in dual credit classes across the nation during the 2022-2023 academic year (Fink, 2024). Texas saw a substantial surge in dual credit participation between Fall 1999 and Fall 2007 (Texas Higher Education Coordinating Board, 2018). The number of students increased by around 64,910, a surprising growth rate of about 545%.

Texas Higher Education Coordinating Board (2018) reported an increase in enrollment despite inequality in dual credit course offerings. Rural schools generally provide fewer dual credit courses

and have lower enrollment compared to urban schools. Females are inclined to enroll in dual credit courses more frequently than males. Catron (2009) indicated that White students enrolled in dual credit programs at a greater rate than minority students.

The expansion of dual credit programming has resulted in increased availability at various locations. A national survey conducted in 2005 by Waits et al., found that 74% of dual-credit enrollments took place on high school campuses, 23% occurred on college campuses, and 4% were through distance education. The National Center for Education Statistics in 2005 found that 71% of high schools offered dual-credit courses, while 67% offered advanced placement courses. Barnett et al. (2004) noted that an Illinois state survey revealed a considerable increase in dual credit enrollment during the 2001-2002 school year, with 25,551 students participating. This marked a 100% increase from the previous year and a significant increase compared to the 1991-1992 school year.

Jordan et al. (2006) highlighted the advantages of locating dual credit programs on higher institution campuses. This provided students with more course options, advanced technology and access to resources that are not traditionally available at high schools. Additionally, encouraging relationships between secondary and postsecondary students and providing access to higher education attainment are among the benefits of students taking dual credit on college campuses.

President Obama's administration increased postsecondary opportunities as part of its federal policy. This educational policy included initiatives to renovate high schools and introduce the notion of open access community college for all. In October 2015, the Department of Education announced the Dual Credit Pell Experiment, which allowed secondary students (ninth-twelfth) enrolled in college classes to access Federal Pell Grants for the first time. The program provided roughly twenty million in grant funds for around ten thousand eligible secondary students (ninth to twelfth grade) nationwide to participated in dual credit programs (U.S. Department of Education, 2015). This development is particularly hopeful for minority students and those of low socioeconomic status (SES) who may face financial barriers. Research indicates that less than 10% of children born into households with the lowest household incomes earn a baccalaureate degree by age 25, in contrast to 50% in the top highest household income. However, obtaining a baccalaureate degree or certificate has become progressively essential for upward mobility into the middle class (Bailey & Dynarski, 2011).

Texas Dual Credit Participation

Texas has witnessed substantial growth for secondary students (ninth-twelfth) to obtain college credit, showcasing a strong commitment from the state policymakers and educators to offer avenues for advanced education. These opportunities incorporate various programs like advanced placement (AP), international baccalaureate (IB), and career technical education (CTE) courses. Depending on its implementation, dual credit's affect both K-12 and higher education institutions. The widespread adoption of dual credit programs in Texas has enabled more students to access postsecondary curriculum and attain certificates and degrees. Research indicates that the benefits of this trend are not equally distributed among all K-12 students. Specifically, Black students in Texas face the most significant inequalities in accessing dual credit programs and encounter notable challenges in completing dual credit coursework that leads to college credentials (Taylor et al., 2015; Friedman et al., 2011).

In Texas, the enrollment percentage for dual credit programs has progressively increased. Table 1 details the 1999–2011 school years' dual-credit participation. Table 2 details the 2012–2020 school years' dual-credit participation.

Table 1

Dual-Credit Enrollment−Fall 1999–Fall 2011

Year (Fall)	Students enrolled in dual-credit courses
1999	11,921
2000	17,784
2001	22,812
2002	28,454
2003	31,757
2004	38,082
2005	42,167
2006	57,554
2007	64,910
2008	79,074
2009	91,303
2010	90,364
2011	94,550

Table 2

Dual-Credit Enrollment−Fall 2012–Fall 2020

Year (Fall)	Students enrolled in dual-credit courses
2012	99,452
2013	107,598
2014	112,361
2015	133,342
2016	152,569
2017	151,669
2018	185,852
2019	202,417
2020	183,726

The information presented in Tables 1 and 2 illustrate the progress of dual credit participation in Texas since 1999, as reported by the Texas Higher Education Coordinating Board (2020b). The availability of postsecondary attainment is one of the primary goals for the United States and Texas dual credit programs. These programs offer courses at numerous places including K-12 classrooms, higher education institution classrooms, or remote locations. According to Gallagher (2018), a higher education commissioner, the most effective way to deliver dual credit programs is by placing secondary students directly on higher education campuses and in higher education classrooms, taught by higher education professors. This approach provides students with valuable preparation for college-level coursework in advance.

In 1967, the Texas Legislature mandated the establishment and operation of Regional Education Service Centers by the State Board of Education, with the aim of providing services to school districts statewide (Texas Education Agency, n.d.). A total of twenty Regional Service Centers were established, including Education Service Center Region 11. Education Service Center Region 11 serves 76 public school districts, 17 public charter schools, 90 charter campuses, and 150 private schools, catering to a combined student population of 592,249 and employing 77,517 educational personnel. Geographically, Region 11 spans an area of 7,843 square miles, which is roughly equivalent to the size of the state of Massachusetts (Education Service Center Region 11, 2023). Region 11 encompasses all the high schools of the dual credit participants mentioned in this study.

Building a Talent Strong Texas

Building a Talent Strong Texas expands on the Texas Higher Education Coordinating Board 2015 60 x 30 Initiative (Texas Higher Education Coordinating Board, 2020a). Building a Talent Strong Texas includes three goals:

> For Attainment of Postsecondary Credentials, "60% of Texans ages 25-64 will receive a degree, certificate, or other postsecondary credential of value by 2030" (Texas Higher Education Coordinating Board, 2020a). For Postsecondary Credentials of Value, "550,000 students will complete postsecondary credentials of value each year. 95% of students will graduate with no undergraduate student debt or manageable levels of debt in relation to their potential earnings" (Texas Higher Education Coordinating Board, 2020a). For Research, Development, and Innovation, metrics include an "increase of $1 billion in annual private and federal research and development expenditures by 2030" and "7,500 research doctorates awarded annually by Texas institutions of higher education" (Texas Higher Education Coordinating Board "Overview of the plan," para. 1).

Dual-Credit Hours Research

Tobolowsky and Allen (2016) discovered that students who accelerated their postsecondary degree attainment through dual credit faced limited time for academic and professional opportunities, such as internships and minors. This finding was corroborated by Troutman et al. (2018), who highlighted advisors' concerns about dual credit students enrolling in upper-level college courses needing more time to adjust to campus life. The emphasis on accumulating maximum dual credit hours as a likely educational savings made high school students feel overwhelmed and stressed (Troutman et al., 2018). Additionally, students believed that the number of dual credit hours they took ought to reduce their time to graduation, adding further pressure and eagerness (Troutman et al., 2018).

The concerns related to the acquiring of dual credit hours have resulted in an increased focus on advising services for students engaged in dual credit programs. Academic advisors have articulated several concerns when students enter college with a significant number of dual credit hours (Miller et al., 2018; Troutman et al., 2018). Freshman students who have completed multiple dual credit courses may require more comprehensive support in choosing their courses during their first semester, which can result in scheduling conflicts and difficulties in enrolling as full-time students

(Miller et al., 2018). For instance, students who have already fulfilled their general education requirements through dual credit may need more options for completing their degree, especially in programs like STEM with strict course sequencing requirements (Troutman et al., 2018). High school counselors also stress the importance of college-level advising, as guidance from college advisors carries more weight in students' decisions regarding their course selections (Miller et al., 2018).

Advising requirements for dual credit students and their families have been implemented in twenty-two states to ensure student success and promote a clear understanding of how dual credit courses transfer to other postsecondary institutions (Education Commission of the States, 2016; Zinth, 2018). In Texas, the Dual Credit Task Force made recommendations to the state legislature, including the provision of advising services for dual credit students upon program entry and after completing 15 credit hours (University of Texas System and Texas Association of Community Colleges, 2018). Advising, at the secondary and postsecondary levels, offers students guidance, coaching, and mentoring. This support helps them explore academic resources, discuss their educational goals, and garner a better understanding on their dual credit courses align with transfer policies.

Dual Credit GPA Research

In a recent empirical study, students who positively finished dual credit courses in high school achieved higher GPAs in college equated to students who did not enroll in dual credit courses. The GPA difference was statistically significant, with a 0.23-point advantage for dual credit students (Young et al., 2013). Another study focusing on Texas community college students also showed that those who had taken dual credit courses in high school had higher GPAs than their community college peers who were not enrolled in dual credit (Young et al., 2013).

The connection between race and academic success has been recognized over the years (Ladson-Billings, 2012). In their study, Young et al. (2013) found that both White and Black students who enrolled in dual credit courses had higher GPAs compared to their peers who did not enroll in such courses. This finding highlights the significance of Young et al.'s (2013) study to the present research, as their sample included Texas community college students who had participated or not participated in dual credit courses while in high school.

Research studies including Allen and Dadgar (2012) and Kim (2012), evaluated the connection among dual credit enrollment and postsecondary GPAs. Their studies focused on The City University of New York, which had the nation's most extensive urban dual credit program. Their research on college students who participated in dual credit classes in high school had higher first-semester GPAs than those who had not taken such courses (Allen & Dadgar, 2012; Kim, 2012). Allen and Dadgar (2012) concluded that dual credit enrollment positively impacted college GPAs during the first semester. Also, Fike and Fike (2012) found that Hispanic students at a Hispanic-serving institution (HSI), found that those who accomplished a dual credit course had higher first-semester GPAs compared to students who did not complete a dual credit course.

Access and Opportunity in Higher Education

According to Jones (2015), education in the United States is typically provided from a perspective that may not responsive to students of different backgrounds The author suggested:

> Teachers who are socio-culturally conscious do not rely on their own personal experiences to make sense of students' lives, but rather attempt to understand inequities in society and to be aware of the role these issues may have in their students' lives. (p. 28).

There is a concern regarding Black male students entering college with inadequate reading skills that were not properly developed during their prior education. West (2011) highlighted that many Black male students are not achieving at the education standard they should due to limited literature options in their classes before college (Davis, 2016). Davis further explained that when Black males rarely encounter positive depictions of themselves in literature, their interest in reading and engagement with the curriculum diminish. Cultural representation in literature and curriculum is crucial for developing literacy skills, and the persistent lack thereof hampers literacy growth. On average, Black men in high school have math and reading levels equivalent to White middle-school students (Jones, 2015). This impacts their preparedness for and academic achievement in college (Gruenbaum, 2012) as insufficient literacy skills hinder their ability to comprehend texts and write effectively in college courses (Thiede et al., 2010; Woods, 1998; Yang, 2010). This concern is prevalent among minority students in public education across the United States (Davis, 2016) and is compounded by other barriers Black males face (Fantuzzo et al., 2012). Data shows that approximately 20% fewer Black students complete high school compared to White students (National Center for Education Statistics, 2010; National Education Association, 2011; Varlas, 2005), with Black males graduating at lower rates than Black females (College Tuition Compare, 2023). Low high school graduation rates act as a barrier to college entry, thus limiting social mobility.

Various factors contribute to academic outcomes, such as the educational environment, professors' expectations and perceptions, as well as historical and future attitudes (Brown, 2011). Jones (2015) highlighted the importance of taking a comprehensive approach to tackle the multifaceted challenges affecting the academic success and educational results of African American males. Additionally, the cost of tuition exacerbates the limited access to postsecondary education, disproportionately impacting the Black male population.

Black men continue to have lower academic achievement (Moyo, 2013), and this research aims to explore the ineffective strategies employed by university administrations that often fail to address the root causes of this disparity. Simultaneously, this study seeks to identify solutions to help bridge the opportunity gap. While some four-year higher education institutions such as UC Riverside, have effectively closed the opportunity gap through diligent efforts (Watanabe, 2017), other schools like Cal State East Bay still exhibit inequalities (College Tuition Compare, 2023).

Access and Opportunity Issues in Dual Credit

The relationship between income levels and academic performance has been firmly established through research. Various studies have demonstrated that inequalities in socioeconomic impact status play a role in creating the educational attainment divide between students of color and

White students (An, 2012; Fryer & Levitt, 2004). Dual credit programs commonly impose specific academic prerequisites to ensure their rigor and maintain high standards. For instance, dual credit programs in Florida require students to meet particular GPA criteria, while Virginia's program includes placement testing as an admission requirement for high school students. Although these measures are intended to uphold the quality of dual-enrollment courses, they may inadvertently create barriers for minority and low-SES students who may face challenges meeting these requirements.

In recent years, community colleges have increased access to various individuals (Garibaldi, 2014; Renn & Reason, 2013). The student bodies at these institutions are now composed of . varied populations that include a higher representation of female students and African American or Latino students. However, research conducted by Garibaldi reveals that these particular groups face more significant challenges in terms of retention rates and graduation compared to White high school students. This lack of completion among students of color is further aggravated by gender inequalities at higher education levels and impacts the enrollment of males, African American students, and Hispanic students in post-graduate and professional programs (Garibaldi, 2014). National data from 2012-2013 indicated that only 5.3% of African American high school students enrolled in dual credit, whereas 11.8% of White high school seniors did so (NCES, 2015). The low participation student of colors in dual credit is concerning, especially considering research that shows students of color who participated in dual credit are 26% more likely to enroll in college and 14% more likely to complete their studies compared to their non-dual enrolled peers (Taylor, 2015).

Barriers to Dual Credit Access

The criteria for dual credit programs differ among states and institutions. In certain states, only juniors and seniors are allowed to participate, while many programs also have additional prerequisites like placement exams, letter of recommendations from secondary staff, and a minimum GPA (Flynn, 2021). Despite efforts to enhance access for underrepresented students, a considerable number of students may still be excluded due to these eligibility requirements. One common method used to assess eligibility is placement testing, but it tends to place underrepresented students into lower-level high school classes, which subsequently reduces their chances of accessing dual credit opportunities (Duncheon, 2020). As a result, students placed in slower-paced lower-level classes may face challenges in performing well on placement tests due to their limited content knowledge. According to research conducted by Rivera et al. (2019), access to dual credit programs was influenced by both academic achievement and socioeconomic status, which placed students of color at a disadvantage when they were assigned to lower-level classes. Additionally, not all high school students understand their education and career goals, making school counselors essential in helping them recognize their potential and explore different options (Hooper & Harrington, 2022).

Methodology

The purpose of this quantitative study was to identify any differences between African American students' and other races' dual credit success at a private university using archived data from Fall 2016 until Fall 2022. Specifically, African American students' academic success in dual credit courses was compared to the academic success of other races enrolled at the same university from 2016–

2022. Because African American students' participation in dual credit may surge the chance of postsecondary enrollment and academic success, it was important to examine academic outcomes for these students. Further, examining African American students' dual-enrollment outcomes in comparison to other races within the same system may provide insight into any disparity in achievement between race-based groups.

Research Questions

1. How do the academic success measures of dual-enrollment GPA and dual-enrollment hours differ between male and female African American students enrolled in dual credit courses between 2016–2022?
2. How do African American students' success measures of dual-enrollment GPA and dual credit enrollment compared to the levels of success experienced by students of other races?

Participants

Data from 523 archived student records was used in the study of African American students who enrolled in dual credit from 2016–2022. Information collected included demographic information (e.g., gender), dual credit participation, dual credit GPA, and dual credit hours completed.

Participants included high school students who participated in dual credit courses at one private university in Texas. There were 523 dual credit participants in this study, 63% female and 37% male. All participants in the study completed at least one dual credit course and had a recorded GPA, as shown in Table 4.

Table 4

Participants by Gender

Gender	*N*	%
Male	196	37.5
Female	327	62.5
Total	523	100.0

Table 5 illustrates the race and ethnicity of the dual credit students in the study. Most of the dual credit students identified as African American which represents 193 students. There were 29.8% who identified as White, 20.8% who identified as Hispanic, and 65 students who identified as other.

Table 5

Participants by Race

Race	*N*	%
African American	193	36.9
Hispanic/Latino	109	20.8
White	156	29.8
Other	65	12.4
Total	523	100.0

Data Analysis

An analysis of variance (one-way ANOVA) was used to investigate differences between means. A one-way ANOVA "tests whether or not differences exist among population means categorized by only one factor or independent variable" (Privitera, 2017, p. 141). SPSS software was used to analyze the student archival data. The research questions were designed to examine differences between the dependent variables of dual credit hours and dual credit GPA, and independent variables of race and gender.

The researcher used quantitative data to access the tendencies and patterns in the data. ANOVA analysis determines the difference among variables and measured the impact between the independent variables, dual credit credits earned, GPA earned in dual credit courses, and the dependent variable, race, and gender.

Findings

This quantitative study aimed to investigate differences in dual credit success between African American students and students of other races at a private university using archived data from Fall 2016 to Fall 2022. The study utilized descriptive statistics and analysis of variance (ANOVA) to analyze the data.

Research Question 1

The study aimed to assess the academic success of African American students enrolled in dual credit courses from 2016 to 2022, measured by dual credit GPA and hours. Results indicated that African American males had a lower mean GPA (2.46) compared to African American females (2.72), but the difference was not significant ($p = 0.600$). Similarly, African American males earned fewer dual credit hours on average (9.44) than African American females (10.83), but the difference was also not significant ($p = 0.236$).

Research Question 2

Comparing the success measures of African American students to those of students of other races revealed disparities, particularly in GPAs. African American students had a significantly ($p < .01$) lower average GPA (2.64) compared to White students (3.56), Hispanic students (3.25), and students of other backgrounds (3.50). However, in terms of dual credit attainment, African American students (10.38) were only slightly behind Hispanic students (10.87) in average dual credit hours earned, but earned more average dual credit hours than White students (8.81) and students of other backgrounds (9.18). However, the difference in dual credit hours between racial and ethnic groups was not significant ($p = 0.78$). These findings highlight the complex relationship between race and academic achievement, underscoring the need for continued efforts to address achievement gaps and promote opportunity in education.

Implications for Professional Practice

A significant limitation of this study was its restriction to a single institution with limited population diversity. For this reason, the results may not be comprehensive to dual credit participation in high school. The accuracy of the university student database and the information reported within it served as the sole basis for all the data related to the samples. In addition, this study did not consider all pre-college activities, courses taken, and commitments to the institution or towards degree completion, the academic rigor in high school, academic disciplines in college, or the amount of dual credit courses each student completed.

In an environment where incorporating race in decision-making in college is discouraged, higher education leaders should incorporate strategies to ensure success for all students (U.S. Department of Education Office of Civil Rights, 2025). First, colleges that offer dual credit courses should incorporate strategies to ensure that all students are prepared to succeed in dual credit courses. Colleges can also work with high school partners to ensure a higher proportion of high school students are prepared for dual credit courses. One collaboration opportunity to increase participation would be to expand dual credit courses beyond transfer coursework (English, math, history, political science, science, etc.) to work-based courses meeting community workforce needs (healthcare, manufacturing; computer science, engineering, construction, welding; heating, ventilation, and air conditioning, etc.). For example, colleges and high schools can move beyond traditional early college high schools to pathways to technology in early college high schools (P-TECH). Rather than only using 60 credit hours and a traditional associate's degree as measures of success, P-TECH success metrics also include three college credit hours, nine college credit hours, 15 college credit hours, industry-based certification completion, and community college certificate program completion (Texas College and Career Readiness School Models, n.d.). The relevance of these programs to real-world jobs may make them more attractive to male and female students.

Second, colleges can incorporate strategies to ensure success and fairness for all students by focusing on factors other than race with respect to dual credit participation and completion. For example, higher education leaders may focus on assessing dual credit participation and success based on socioeconomic status or at-risk status, as doing so would benefit students regardless of race or ethnicity. K-12 leaders already assess student performance based on socioeconomic status. (Texas College and Career Readiness School Models, n.d.).

Policy Implications

The dual credit system in Texas has the potential to bring about positive changes. Every year, community colleges, public universities, and private universities enter into dual-credit agreements that outline the guidance for each party, as well as the expectations for students. By incorporating the National Alliance Concurrent Enrollment Partnerships (2011) standards into these contracts, long-standing concerns regarding quality and rigor are being thoroughly addressed. When higher education leaders and K-12 leaders sign dual credit agreements, they create a platform to convey the significance of dual-enrollment engagement for all students. These influential individuals are pivotal in diminishing inequalities within dual credit programming, particularly by addressing the specific needs of African American students.

There are limited studies on African American students participating in dual credit programming. There is a need for more access to advanced academic programs while in secondary education. In this study, we did not capture qualitative data from dual credit participants, specifically African American students. Qualitative data would provide more insight into their dual credit experience.

Conclusion

In conclusion, this study sheds light on the disparities in dual credit success between African American students and students of other races. While African American students exhibited lower mean GPAs compared to some other groups, no significant gender differences were observed in dual credit success. These findings underscore the importance of ongoing efforts to promote access and opportunity in dual credit partnership between institutions of higher education and school districts.

Future consideration, policies and practices aimed at promoting access and opportunity in education should prioritize providing resources and support to underrepresented students, including African American students, to ensure they have equal opportunities for academic success. This may involve making curriculum relevant to all learners, increasing access to dual credit programs, and addressing systemic barriers to achievement.

Overall, the study's findings highlight the need for continued research and action to address disparities in dual credit success and promote academic achievement for all students, regardless of race, gender, or socioeconomic status. By fostering a welcoming educational environment and providing support to underrepresented students, we can work toward aal environment and providing support to underrepresented students, we can work towards a society where more people experience academic success, career success, and economic prosperity, regardless of race, gender, or parental income.

Future Research

This study contributes to the limited research on the involvement of African American students in dual credit programming. In general, the study's findings highlight the positive impact of dual credit participation for African American students. Although there is finding that students who engage in dual credit during high school achieve higher GPAs in college (Allen & Dadgar, 2012), there is limited data on intentional use of weighted dual-enrollment courses to address prior academic struggles or enhance already-strong academic records. This implies that students who lack academic confidence may utilize challenging college-level courses to improve their GPA and, as a result, boost their self-assurance in their academic abilities. While African American students in the study may have lower GPAs in dual credit courses compared to students of other races, more research on the role of dual credit on African American students' experiences in college and major choice is needed. Also, more research on the partnerships between higher education leaders and school district leaders to facilitate dual credit partnerships that serve students who traditionally may struggle. Other opportunities for future research include assessing qualitative responses of high school students, college students who took dual credit courses in high school, parents, high school teachers, college instructors, high school counselors, college academic advisors, K-12 administrators, and higher education administrators. These responses can help improve understanding of why some students

struggle in dual credit, how to increase dual credit participation, consequences of dual credit participation, and impacts of dual credit participation on academic and social integration in college.

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Journal of Higher Education Management, 40(2), 63-79 (ISSN 2640-7515).

"I Know It To Be. I've Experienced It:" Marginality and the Administration of Food Insecurity

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Abstract

Over the past decade, scholarship on collegiate food insecurity has proliferated. Yet, few studies focus specifically on the administrators who are tasked with addressing this pressing student issue. This qualitative, constructionist study focuses on *how administrators' experiences and identities of marginality influence how they view the management of food as an organizational problem at selective, affluent institutions*. The analysis reveals how participants' personal experiences of unmet basic needs primed their relational and organizational responses to student hunger, particularly in campus environments of plenty.

*Keywords***:** food insecurity; campus administrators; student affairs practice; marginality

Introduction

Recent scholarship on collegiate food insecurity offers solutions at the campus, state, and national levels (Broton & Cady, 2020). Central to these efforts is the role of college administrators, who are often tasked with managing campus food pantries to address hunger in college, in addition to a variety of other social, emotional, and logistical supports. Largely overlooked in these studies, however, is how campus administrators themselves define and relate to food insecurity in their work to address students' food needs (see Crutchfield et al. (2016) and Broton et al., (2020) for important exceptions that will be described herein). Consequently, the field remains largely unaware of the ways that the personal experiences of campus administrators might shape how they conceptualize and create solutions for hunger on campus.

In this paper, we explore the personal resources and sense-making used by administrators who together share histories of unmet basic needs as they strive to support food insecure students on their campuses by employing the concept of *marginality*. Situated at the intersection of personal biography and institutional history (Cuadraz, 1992), the lens of marginality is particularly revealing in the context of selective, affluent universities – institutions of higher learning that have historically catered to those from wealthy backgrounds, in both the curriculum and co-curriculum (Thelin, 2019). This qualitative, constructionist inquiry is thus guided by the following research question: *How do administrators' experiences and identities of marginality influence how they view the management of food as an organizational problem at selective, affluent institutions?* By exploring

the confluence of administration, marginality, and food insecurity in the context of selective, affluent universities, new opportunities for student affairs theory and practice born from personal experiences on the margins are possible.

Literature Review

Food Insecurity in College

In the last decade, scholars, practitioners, policymakers, and the American public alike have newly recognized college student hunger as a pressing student need at a variety of institutional types (Government Accessibility Office, 2019). Broadly, food insecurity is defined by a "lack of reliable access to sufficient quantities of affordable, nutritious food" for an active and healthy lifestyle (Dubick et al., 2016, p. 10). The first nationwide, representative survey released in the fall of 2023 demonstrates that 22.6% of undergraduates experience food insecurity, with another 11.9% experiencing marginal food security (National Center of Education Statistics, 2023).

Food Insecurity in Selective, Affluent Universities

Despite the scholarly focus on food insecurity and the disparities among populations who experience this dire phenomenon, including within community colleges and elite universities, burgeoning but incomplete research has explored food insecurity in the selective, affluent college setting (Alleman et al., 2024; Alleman et al., 2025). These institutions, ranked outside of the top 25 of U.S. News and World Report rankings but within the top 100, are selective in their admissions and affluent in their endowment and in their student body, often enrolling more students from the highest echelon of earners than the bottom 60 percent (Chetty et al., 2017). Selective, affluent universities *do* market to and enroll students from financially constrained backgrounds, however, as a channel to increase educational access, as well as institutional prestige (Stevens, 2007).

Within these environments of plenty, the potential for students struggling to afford food to experience stratified academic and social experiences, isolation, and stigma are heightened, given institutional expectations of financial capital and of deep social engagement that may not be met by this student population (Jack, 2019; Cliburn Allen & Alleman, 2019). Alleman et al. (2025) explored these realities of undergraduate life at three prestige-oriented campuses, illuminating how students sacrificed food to have time and money for organizational involvement, summer internships, and social events on and off campus. Yet, selective, affluent institutions are also equipped with rich resources and manifold services to aid students in need (Jack, 2019), including administrators and offices tasked with addressing students' unmet basic needs.

Thus, selective, affluent universities are a generative site for analysis: these institutions welcome low-income students, enticing and expecting them to partake in the vast opportunity network available on and beyond campus; these engagement and financial expectations can lead to food insecurity among students from modest means; and campus administrators in these universities are then responsible with responding to student needs, including student hunger, while simultaneously tending to the status-striving efforts of their institutions. Thus, ongoing scholarship that more fully considers the context in which food insecurity arises can better reveal how administrators create and pursue solutions for students struggling to afford food.

Administrating Hunger

In light of the detrimental effects of food insecurity (e.g., anxiety, hunger, academic challenges, social exclusion) (Henry, 2017), scholars and practitioners have focused on creating and evaluating responses to meet students' food needs. Common solutions to manage hunger in college include establishing campus food pantries, developing organizational partnerships, and promoting federal efforts like the Supplemental Nutrition Assistance Program (SNAP) (Broton & Cady, 2020).

The growing attention to food insecurity and enduring field commitments to student success and support have also coalesced to create specialized administrative departments (e.g., basic needs offices) and roles (e.g., campus food pantry coordinators) tasked with tending to students' food needs (Broton & Cady, 2020). Although student-run food pantries have existed at least since 1993 (Callahan, 2018), the last decade has seen the rise of institutionally-managed services across the United States (Swipe Out Hunger website, 2021). Campus administrators are central to these collegiate responses to food insecurity, translating institutional values and attention into actionable solutions for students struggling to afford food (Broton & Cady, 2020; Broton et al., 2020; Crutchfield et al., 2016).

Few scholars have explored how frontline administrators themselves define and manage collegiate food insecurity, however. Crutchfield et al. (2016) described two types of administrative philosophies and responses related to basic needs insecurity at California State University system: *motivated personnel* who systematically served students experiencing food and housing insecurity; and *aspirational personnel* who addressed students' unmet basic needs on a case-by-case basis. Similarly, Broton et al. (2020) categorized on-the-ground campus personnel at public institutions in one of three groups based on their situational sense-making of student food insecurity: students as systemically marginalized, unlucky, or the cause of their hardships. These mental models in turn informed campus responses to food insecurity. Administrative perspectives on food insecurity are otherwise missing from the literature, constricting scholarly and practical possibilities to address students' unmet basic needs at a variety of institutional types – including selective, affluent universities.

Marginalization and Administration

As access to higher education has expanded for students from historically marginalized groups, so too has it for campus personnel, who increasingly enter the academy from low-income, first-generation, and racially-minoritized backgrounds (Wallace, 2022). Although foundational literature reveals how faculty draw on their marginalized identities, statuses, and knowledge within colleges and universities (Dews & Law, 1994), less often do scholars interrogate this process for college administrators. Some scholars have focused on how administrators with LGBTQ+ identities or from low-income backgrounds serve students from these same populations (Kortegast & van der Toorn, 2018), often from under-resourced, under-recognized departments on campus (Wallace, 2004). Additionally, recent scholarship has highlighted the racialized experiences of student affairs administrators (Pertuz, 2017; Hinton, 2024), who often rely on the support of other People of Color in the field to persist. This incomplete work leaves unanswered how administrators may draw on their varied biographies of marginalization to serve marginalized students on campus.

Conceptual Framework

To explore how campus administrators view and manage food insecurity in college in relation to both their personal identities and experiences and in the context of selective, affluent universities, we employ the concept of *marginality*, or "not belonging" (Cuadraz, 1992, p. 211; see also Stonequist, 1937). Marginality is created at the intersection of personal biography and institutional history (Cuadraz, 1992), through the implicit and explicit effects of social and economic hierarchies. Conceptually, marginality details the ways power-laden systems, including higher education, overlook, discount, silence, and oppress individuals who have certain biographies and backgrounds, which produce unequal experiences and outcomes (Cuadraz, 1992). Simultaneously, marginalized identities and their related experiences – such as navigating higher education as a student from a low-income background – can also function as a source of institutional concern, value, and prestige within colleges and universities (Stevens, 2007; Alleman et al., 2024; Alleman et al., 2025). As such, marginality can be experienced as an "outsider within" (Collins, 1986) or as "being 'inside' in an 'outside' way" (Cuadraz, 1992, p. 211), where increased campus access and attention does not fully mitigate perceptions and experiences of peripherality and disparity.

In this study, *marginality* thus orients this work on multiple fronts. First, to the personal biographies of campus administrators, many of whom identify as People of Color and / or from low-income backgrounds and *all* of whom experienced food struggles in childhood or adulthood. Second, to the institutional identities and histories of the selective, affluent institutions that employ them, which variously discount and value marginalized social locations (e.g., being from a low-income background) and experiences (e.g., struggles to afford and access food). Third, to the desires and dreams of administrators tasked with tending to students' unmet food needs as "outsiders within" (Collins, 1986, p. 14). Fourth, to the central institutional responses to food insecurity and to the alternative administrative definitions and management of this pressing student issue. And finally, to the voices of those on the margins, whose knowledge and experiences are often overlooked by scholars in the spaces of campus administration and food insecurity.

Methodology

This study employed a qualitative, constructionist paradigm. Qualitative research examines social experiences and meaning-making (Hesse-Biber, 2016). Following a constructionist approach, this meaning-making is embedded in social and cultural contexts and structures (Crotty, 1998). This research concerns not only how administrators conceptualize and manage food insecurity, but also how such meanings and solutions are mediated both by the selective, affluent campus environments of study participants and by their institutionally marginalized histories and backgrounds.

Positionality

As a research team comprised of two faculty members in colleges of education and a university research administration director, we continually acknowledge how our marginality and privilege shapes our conceptualization and analysis of this project. We identify as White, educated scholars without personal histories of food insecurity but with varying experiences of classism and social

marginality in and beyond the academy. Although these marginal experiences and identities (e.g., being low-income, being from a minority religious group) are not interchangeable with the experiences of food insecurity or the identity of food insecure, our marginal social locations both elective and circumstantial inform our orientation to and imagination for marginality. In addition, our professional backgrounds include administrative positions in residence life, student support, basic needs, and anti-poverty areas – professional roles that have sensitized us to the ways in which administrators from marginalized backgrounds utilize those marginal experiences and identities to serve students, including those from the same marginal social locations.

Data Collection and Analysis

Data for this project was drawn from a larger, multi-site study that explored food insecurity in the context of three selective, affluent institutions. The interviewees consisted of 45 administrator participants for a total of 60 interviews, in addition to faculty, students experiencing food insecurity, and cultural informants. Participants included in this paper are 19 campus administrators who themselves had first-hand experiences of food struggles or identified as food insecure (see Table 1 for additional participant demographic details). Although many of these 19 study participants also held other marginal identities and experiences related to social class, race / ethnicity, and sexuality, the focus in this paper centers on food insecurity as the common form of marginality shared across administrators.

The researchers did not intentionally seek out campus administrators who had personally experienced food insecurity. Instead, we invited the following administrator groups to participate in our larger study: administrators whose work included food security efforts (e.g., campus food pantry directors, food service providers); campus leaders who oversaw students and student experiences (e.g., deans of students; vice presidents for student affairs); and administrators who served students from marginalized backgrounds, including Students of Color and first-generation college students. Similar though was that administrators' employing institutions were both selective and affluent (enrolling a majority of students from middle and upper-class families) (see Chetty et al., 2017).

We conducted 45-60 minute semi-structured interviews; participants were interviewed 1-3 times, and all interview data was transcribed verbatim. We interviewed three participants (Charles, Kathryn, and Rachel) more than once if we did not finish the initial interview guide in the first interview, or if they were working on a student food insecurity initiative about which we sought additional information.

We utilized multiple cycles of provisional and pattern coding, along with ongoing memoing and research team discussions, to iteratively organize the entire data corpus and to identify and expand emergent themes (Saldaña, 2015). A provisional coding scheme was developed that integrated core study interests and foundational topics in the extant literature. Next, we further divided these provisional codes into analytical parts using a pattern coding approach (Saldaña, 2015). Examples of pattern codes included *experiences of crisis, marginalization, and lack of resources* and *administrative narratives about food and food insecurity.* This multi-cycle coding process produced emergent themes related to administrators' professional motivation, personal marginalization, and

organizational management of food insecurity, which we discuss in the findings section that follows for the 19 administrators who struggled to afford food in childhood or in college.

Table 1

Participant Demographics

Pseudonym	Race / Ethnicity	Other Marginality or Marginal Experience*	Gender	Role
Alyssa	White	Low-income	Woman	Executive director, financial aid
Andrea	White	Natural disaster displacement	Woman	Director, financial aid
Bret	Hispanic	Rural background; blue collar family	Man	Campus leader
Charles	Black	Working class origins; first generation college student	Man	Vice president, student affairs
Devin	White		Man	Assistant director, campus visits
Ellen	Hispanic	Low-income	Woman	Vice president, enrollment management
Isaiah	White	Low-income; first generation college student	Man	University chaplain
Grace	Black		Woman	Associate dean of students
Jason	Hispanic	Low-income	Man	Executive director, admissions
Jodi	Black		Woman	Food pantry coordinator
Joy	White	Low-income; raised by grandparents	Woman	Dean, school of education
Julie	White	Working class / blue collar origins	Woman	Associate vice president, Title IX
Kathryn	White		Woman	Student emergency services
Maria	Hispanic		Woman	Associate dean of students
Marissa	White	Single parent household	Woman	Assistant dean, school of social work
Maxine	Asian American	Low-income	Woman	Director, diversity and inclusion
Rachel	Black	Low-income; first generation college student	Woman	Assistant vice president
Timothy	White	Pell student	Man	Associate vice president, enrollment management
Zoe	White		Gender fluid	Director, gender and sexuality center

Note. We used participants' own language to describe their marginalized identities and experiences, which they narrated in addition to their personal struggles to afford or access sufficient or sufficiently nutritious food.

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Ethics and Trustworthiness

To promote confidentiality, all project participants received a study consent form that detailed the research team's plans for data protection and distribution. To pursue trustworthiness, the research team engaged in efforts that supported the credibility, transferability, dependability, and confirmability of our project (see Lincoln & Guba, 1985). We wrote extensive research memos, practiced peer debriefing, conducted member checks with study participants, and engaged in collaborative coding to account for our iterative and interpretive sense-making about emergent findings, which together promote the credibility, dependability, and confirmability of this study. We also provided thick descriptions of our study context and methods to foster transparency in design and analysis and the transferability of the project. Consistent with a qualitative, constructionist paradigm, these practices extend the researchers' commitments to accounting for our subjective biases and experiences, as well as honoring the voices and experiences of administrator participants.

Findings

To illuminate the intersection of personal biography and institutional history through the lens of marginality (Cuadraz, 1992), the findings section that follows explores administrators' own experiences of food challenges and food insecurity, their relationships with students struggling to afford food in selective, affluent university settings, and their management of collegiate student hunger. Whereas the few existing studies of administrators' approaches to food insecurity and food insecure students focus singularly on organizational management, we further contribute an exploration of administrator participants' biographical narratives and of the particular context in which their sense-making and solutions take place. Together, the confluence of biography, management, and context reveal how campus administrators with personal experiences of food challenges were primed to recognize and respond to students' unmet food needs, even within environments of plenty.

Administrative Experiences of Marginality and Food Needs

Sensitivity to the identities and experiences of students who struggle with the cost of food originated in administrators' backgrounds – in many cases, childhood. Charles, an African American administrator, grew up in a working-class family and was the first one from his family to attend college, a predominantly White institution where he felt like "a fish out of water." Bret, whose father died when he was in high school, was one of ten children in a Hispanic border community. Describing his parents as "blue collar," he remarked of his family's challenges: "You know, food with ten kids and low-paying jobs for my parents, you just add a little more water to the soup and that's what you do." Joy, who was raised by her grandparents, reflected on lessons learned at an early age

grocery shopping with her grandmother as she watched her carefully calculate what they could afford to purchase for the week:

> And I just had a flashback of watching her do that and feeling that sense of a little bit of shame, embarrassment because I realized that we weren't like everybody else in the store, being able to pick up the meat that we wanted to pick up. We had to go for the beans and the rice instead because it would go further. So, I guess that's one of the reasons why I'm drawn to this, because it's so very, very personal for me.

For study administrators, reflections on their marginality were tied to their racial and socioeconomic identities, as well as their related experiences of food struggles within their home lives.

For other administrators, recognition of their marginality manifested at the point they entered college and no longer had parents in close proximity. Several administrators described themselves as "Pell students," referring to the federal aid program that serves students from low-income families. Characterizing her collegiate food strategies as "unfortunately a lot of McDonalds," Ellen reflected on the challenging decision points thrust upon her: "Well I was a Pell student and I had my own issues with, 'when am I gonna eat; where am I gonna eat; how is that gonna work; am I gonna eat in a healthy way or not?'" Jason reflected on the shock of moving in to his off-campus apartment as a first-year student and realizing that he and his new roommates shared a common dilemma:

> We realized that we didn't have a car, we didn't have anything in our refrigerator, and there was no place to get anything. And (laughs) so having that feeling of "we're not going to be able to eat" was a really strange thing.

Like Ellen and others, the adjustment Jason made was to load up on inexpensive, less-nutritious food options: "I don't know how many of those 99 cent pizzas we bought from the store and put in the oven. …and I remember on Sunday's we'd go to pizza [chain] because it was $3 for a buffet and we would sit there all day long eating."

Other administrators noted they were largely shielded from acute food struggles in college because of meal plans that gave them on-campus dining options. Yet, it was after college and in graduate school that, without financial safety nets, experiences of struggling with the cost of food were most present. Maxine recalled how, as a graduate student in California during the recession, high housing and food costs meant skipping some meals and eating as cheaply as possible: "And, yeah, I remember making bean and cheese quesadillas and I remember making peanut butter and jelly sandwiches… I would skip lunch and just have breakfast when I went to class." Alyssa reflected on a point of crisis she experienced:

> Towards the end of my tenure in grad school I had a period…where I was looking at potentially a month, and all I had in my cupboard was a box of rice, can of tuna, and a can of pineapple. That was scary. That was really scary.

That experience opened Alyssa's eyes to how quickly a sense of desperation can manifest when resources run thin. Together, administrators' narratives of marginality in childhood, college, and beyond showcase how food struggles and food insecurity were salient experiences in their pre-professional lives.

Administrators' Connections to Students Struggling to Afford Food

These personal experiences of material and food needs by administrators sensitized their awareness of students struggling to afford food at their selective, normatively affluent campuses. For example, Marissa discussed how food strategies from her upbringing matched those of students at her institution:

> Personally, it was just I came from a middle-class family but single parent. And I worked all the way through college, so there were just lots of choices to be made about when to eat and what to eat, and trying to eat as late in the morning as possible and as early in the evening as possible so I would only have to pay for two meals a day. Making huge batches of food that I could eat for a week at a time. And I hear the same thing from students.

Like Marissa, Brad recognized students' food challenges as a result of his childhood experiences related to food. He explained,

> …I think part of it just having a personal interest based on where I came from and always wanting to be cognizant of the struggles or challenges. And trying to understand at the different institutions I've been at what people prioritize over food. And at [this institution], it's something very different than other institutions I worked for based on sort of the status, desire, social capital that students are looking for here. They prioritize different things over food than other institutions I've been at.

Brad acknowledged not only the presence of food struggles on his campus, but also highlighted the particular features of college-going at his institution, like status striving, that exacerbated such challenges.

Study administrators emphasized that students' strategic food usage and engagement in campus opportunities can obscure the salience and disruptive effects of hunger in college for both internal and external constituents. Maxine concluded:

> So, it's difficult to get administrators who have not experienced food insecurity to understand that it is a given that it's happening. *I know it to be. I've experienced it.* Because it's such an invisible population. Because they're fasting and they're resourceful, they're going to programs and they're making friends with people who have meal plans.

Exposed to food struggles and equipped with food strategies themselves, administrators were attentive to the ways in which students on their campuses similarly navigated unmet food needs.

All administrator participants in this study also detailed building informal and formal relationships with students struggling to access food. Often, these students directly revealed to administrators

their fiscal and food-related challenges. Bret shared how his knowledge of hunger on campus was informed by both students in need and those in leadership positions:

> So I know it's out there from direct conversations with students who are themselves struggling. Been meeting with student leadership groups as…they talk about these issues because they heard of them from their constituents.

Bret's reflection highlights how organizational and relational linkages with students functioned as a channel of communication, through which students themselves expressed food challenges. Participants including Isaiah, Jodi, Rachel, and Zoe expanded on personal connections with students as a site of revelation and response related to food needs. Zoe added that admitting to food struggles requires vulnerability, so "students are more likely to come and talk to me if we have an existing relationship." She shared:

> The students we call lovingly "the regulars" that are here every day – they're more likely to stick their head in. I mean like I keep a little stash of snacks and stuff there too if I'm meeting with someone and they're like, "Ooh! Feeling a little woozy." Or, "I just didn't have lunch today." I always offer tea and snacks and stuff just to have that around. And if I have like leftovers and stuff, I usually will bring it in too and it gets gone like that.

Zoe's narrative further illuminates the ways in which students disclose their food struggles to administrators. Together, these participant responses also begin to reveal how administrators not only acknowledged students' struggles to afford food but also offered solutions for this need – like purchasing or providing food.

Personal Food Experiences Informed Administrators' Solutions

Study participants' biographical exposure to food difficulties primed their awareness of such realities on their campuses. Joined with their subsequent relationships with students struggling to afford food, these personal food experiences undergirded the nature and urgency of participant administrators' responses to students' food needs. Participants including Zoe, Marissa, and Rachel discussed making food available in their offices or buying food for students in times of struggle. Rachel relayed a story about running into two undergraduate students on campus during a university break, as she was returning from a local pizza place; sensing the students were without food, she gifted them the pizza: "They devoured it…If we don't see the signs, you know, of course they would just be embarrassed to come out and say, 'I'm hungry.'" Rachel added how this experience and her exposure to food insecurity informed her provision of snacks in her office:

> And yes, I've experienced food insecurities. And I'm sensitive to that because I know what that's like…We keep – I know this is odd – but that basket is usually full of treats. And then my directors down this row, this hallway, most of them keep a full basket…I spend my personal money keeping that basket full. And by the end of the week or in two weeks, it will be empty.

Rachel and others thus engaged in serendipitous and decentralized provisions of food aid to support hungry students on campus.

Study administrators also led and supported more formal and institutionalized efforts to address unmet food needs, reflective of their associations with students in need and their personal experiences of food challenges. For example, Ellen – recalling her personal lack of food access in college – shared how she actively removed food barriers for her student staff.

> I mean things that seemed really minor but are a big deal for our students: that we always had a break room for students, that we always had a microwave, that we had access. So if we had student employees and they were on campus and not working that day, they could still use the facilities.

Participants also pointed to on-campus food pantries as a source of food access for students. Grace expanded on how connections to students struggling to afford food informed her work with a new on-campus pantry:

> When I think about my experiences with students who have talked about having food insecurities, it goes back to when I first got here, nine years ago. [Recently] our Director of Student Support was creating a food pantry. And we were able to get some seed money donated to be able to buy the initial items that we needed to be able to stock the food pantry. We have bags that students get. We were able to find a location for it.

Like Grace, Maxine was closely connected to students with unmet food needs. When students started a small pantry on her campus, colleagues asked for advice about its feasibility and institutionalization. She responded: " I don't know, but I'm bringing boxes of granola bars over there right now (laughs)." In sum, study administrators offered both structural and individual solutions to ameliorate students' food struggles – responses informed by personal experience and navigation, as well as direct connections with students themselves.

Discussion

The *marginality* of campus administrators in this study emerged at the intersection of experiences of food struggle (personal biography) and campus exclusivity and affluence (institutional history). From this marginal space, participants recognized the presence of food insecurity and food navigation on their campuses, made connections with students struggling to afford food, and mollified food-related challenges through informal and formal avenues – all within environments of normative wealth that otherwise suggest that students' food needs are met.

Biographical, Experiential Ways of Knowing

Recently, scholars have begun to recognize and explore the ways that higher education administrators' experiences shape their role-related motivations and behaviors (Hinton, 2024; Pertuz, 2017). Although a relatively new emphasis within the study of administrators, calls to acknowledge the relevance of personal experience to professional work have long been a sub-genre of research on faculty work and life. Similarly, the field of student affairs administration has, at least since the adoption of the Student Personnel Point of View (SPPOV) in 1939, emphasized students as

"whole persons" and not as academic beings only (Saddlemire & Rentz, 1986, p. 123). Yet this same recognition has seldom been extended to administrators.

The resources and insights of biography before, during, and after college offered study administrators alternate and rich perspectives related to collegiate food insecurity, as well as informed a set of practices to address students' struggles to afford food. Drawing on the work of Smith (2003) and Cockle et al. (2023), we introduce the concept of *administrative critical distance* (ACD) to describe the organizational perspective of those whose personal experiences of marginality provide them with an awareness about cultural, behavioral, and organizational norms and expectations invisible to those whose experiences generally align with those that predominate at their university. As such, the "critical" focus of ACD is not on the sort of criticality that Critical Race Theory (CRT) emphasizes in its interrogation of power structures and oppression. Instead, ACD is "critical" in the sense that it highlights the importance and value of marginality and experiences on the margins as the source of evaluative cultural and organizational perspective, and as a result, enables imagination of alternative pathways through college and responses to student needs (hooks, 1991).

Professionals in our study gained ACD, particularly related to food access, from personal struggles with the cost of food that sensitized them to the otherwise invisible struggles of students and the systems and practices that contributed to those difficulties. In university environments of corporate dining partnerships, upscale coffee shops, and expensive convenience food, student become adept at hiding their food insecurity (Henry, 2017). Critically distanced administrators knew how to read the subtle signs of struggle, even within a campus context that implicitly promised that students' food needs would be met through the proliferation of food offerings. Moreover, these critically distanced administrators understood student coping mechanisms, such as "borrowing" meal plan swipes from friends and hanging around offices looking for leftovers, because they had experienced those strategies personally.

Based on their experiences and frequent contact with students, critically distanced administrators also did not wait to see overt signs of need. Expecting most struggling students would attempt to "pass" as food stable in environments of expected financial surplus, administrators responded with small but meaningful actions, such as leaving out baskets of grab-and-go snacks (Rachel, Zoe, Marissa), providing food at student organization meetings (Maxine), and making sure students had access to microwaves or other appliances (Ellen). The combined effect of these sensitivities and efforts was to create office spaces where students could self-reveal their struggles to those who had demonstrated the ability to empathize with and anticipate their needs.

For critically-distanced administrators, these perspectives and practices from the margin coalesce as epistemology, or ways of knowing. A focal element of ACD, then, is *standpoint epistemology*, an approach that views one's social location and biography as key features of knowledge (Harding, 1992; Toole, 2021). Administrators' "experiences, circumstances, interests, and motives" situated them to see (perspective), know (epistemology), and act (practices) in particular ways (Toole, 2021, p. 340). As such, critically distanced administrators' biographies not only provided a particular vantage point from which otherwise hidden views of the university emerged, but also served as a wellspring of knowledge about food insecure students and experiences of food insecurity in college. Maxine's dictum about the disruptive presence of unmet food needs – "I know it to be. I've

experienced it" – poignantly captures study administrators' personal experience and knowledge of collegiate hunger, which emerged long before scholarly attention to "food insecurity" in their campus environments.

In sum, ACD reveals the mechanisms of biography in the administration of students struggling to afford food in selective, affluent college environments. Despite their access to positional authority, study participants still existed as "outsiders within," where their personal, marginalizing experiences of financial challenges, food access issues, and hunger – their biography – distanced them from the power center of the university and university experience (Collins, 1986). This biographical, experiential knowledge of and association with "positions of powerlessness or marginalization" ultimately functioned as generative sites of knowing, relating, and serving others, namely students struggling to afford food in selective, affluent university environments (Toole, 2021, p. 342; see also hooks, 1991).

Theory, Practice, and Biography in Student Affairs

Scholars and practitioners in student affairs have long been concerned with the relationship between theory and practice (Saddlemire & Rentz, 1986; Reason & Kimball, 2012). Reason and Kimball (2012) synthesized two major approaches to defining the nature of this intersection: one, the primacy of *informal* theory; and two, the primacy of *formal* theory. Whereas formal theories represent named, tested models of student development and behavior, informal theories reflect conscious "interpretations of formal theories through the lenses of [one's] own experiences" (Reason & Kimball, 2012, p. 361). Bensimon (2007) further distinguished between informal and *implicit* theory, where the latter captures practitioners' unconscious or uninterrogated ways of thinking (Reason & Kimball, 2012). In recognition of the confluence of informal, formal, and implicit theories in the administration of student affairs, Reason and Kimball (2012) offered an innovative theory-to-practice model. This conceptualization highlights the foundational influence of formal theory and institutional context on practitioners' thinking and action, which in turn shapes their subsequent informal theorizing and their administrative practices within the campus environment (Reason & Kimball, 2012).

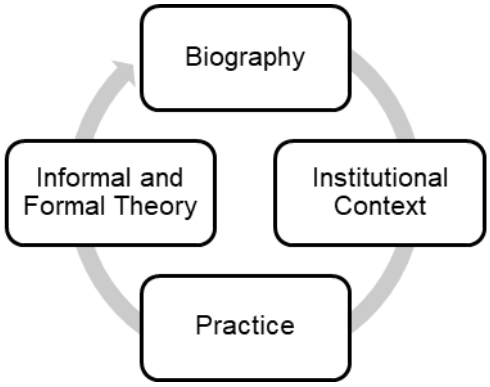
The lens of marginality augments and expands this relationship between theory and practice, however, as our findings reveal the significant role of biography in the administration of hunger. Study participants narrated their knowledge of unmet food needs (i.e., informal theory) and their food services and solutions (i.e., practice) as emerging from their personal experiences of basic needs challenges (i.e., biography) – instead of, or in addition to, formalized theories. We thus contend that theory-to-practice models must more fully account for the foundational and generative function of administrators' histories, which exist *a priori* to formal or informal theorizing.

Our proposed rendering of the relationship between theory and practice thus reconfigures the core elements of Reason and Kimball's (2012) model, placing biography, institutional context, and practice *prior to* informal and formal theory (see Figure 1 below for our remodeled framework). This conceptualization borrows from the work of bell hooks (1991) and other critical pedagogists, who assert the preeminence and salience of personal experience in more formalized ways of knowing. This model portrays how participants including Joy, Brad, and Ellen drew from their own experiences of hunger (biography) to acknowledge the presence of students struggling to afford

food on their selective affluent campuses (context) – even before campus-wide or national surveys of food insecurity were conducted or published. From this working knowledge, administrator participants promptly offered informal and formal solutions to campus hunger (practice), from Rachel providing snacks for students in her office to Grace supporting her institution's food pantry. Study administrators did reveal formal knowledge of food insecurity (formal and informal theory), but emphasized that this student issue was neither new nor unknown in higher education – they themselves previously experienced it.

Figure 1

Revised Conceptualization of the Relationship Between Theory and Practice



As theories are socially and subjectively constructed, as well as unable to "capture all stories" (Jones & Abes, 2016, p. 140), the nature and function of administrative biography in this model can thus more fully capture the situated generation and application of theory by higher education professionals, like the administrator participants in our study.

Conclusion

By analyzing the management of food insecurity by campus administrators, our study reveals the salient role of biography in participants' knowledge of and solutions to food challenges, particularly in selective, affluent universities. The personal experiences of hunger and food struggle reflect study administrators' social, cultural, or economic marginality and marginalized experiences, which ultimately served as a source of ACD and as a foundation to practice and theory in their work. This project thus contributes to scholarly and practical efforts to mollify food struggles in college by affirming the epistemological, pragmatic, and relational resources of and from the margin, which administrators embraced in their professional roles and work.

In selective, affluent universities, the margin is not simply the site where students from modest means struggle to meet their food needs; nor is it simply the place where administrators with personal experiences of food struggles reminisce about these challenges or recognize that they still exist in the academy. Rather, the social and physical margins that exist outside of the institutional center of normative status and wealth reflect a space in and from which alternate ways of knowing, being, and relating are possible (hooks, 1991). At the individual level, the presence of administrators from and on the margins offers visibility for, solidarity with, and support to students struggling to afford food. At the institutional level, their presence functions as a check on the

apparent surplus of selective, affluent colleges and universities: although these campuses are dotted with convenience eateries, dining halls, food trucks, and pop-up shops, critically distanced administrators work from the guiding assumption that access to food is not a given, even in environments of plenty. Further, administrators from and on the margins anticipate and interrogate how financial, status, and engagement expectations in these settings coalesce as pressures on students' time, finances, and ultimately, food. As *outsiders within* (Collins, 1986), campus administrators with biographies of food insecurity ultimately challenge the normativity of affluence on their campuses.

As the student affairs workforce continues to diversify (Wallace, 2022), future theoretical and empirical work could continue to explore the influence of biography and marginalized experiences related to unmet basic needs on the critical distance, epistemologies, and practices of administrators in their efforts to understand and address students' struggles to afford food. The concepts of cultural capital and cultural knowledge may be generative lines of theorizing related to these inquiries, as administrators in our study brought their biographical, experiential ways of knowing to their work in selective, affluent universities.

Implications for Practice

For administrators in our study, their biographies served as a wellspring of knowledge *and* action to understand and address students' struggles to afford and access food. Institutional efforts to ameliorate collegiate food insecurity should thus include and honor these perspectives and practices. For example, institutional advisory councils and committees could appoint and support administrators with histories of food struggles as leaders of campus efforts to address fiscal and food-related barriers. In doing so, the epistemic resources of marginalized administrators can be shared and validated within campus leadership and the wider campus community. We warn against the tokenization and commodification of marginalized administrators, however, as such work should be paid and valued institutionally.

Although biographical experiences of food challenges functioned as a salient feature in study administrators' management of hunger in college, such challenges are not prescriptive. Rather, administrators without these personal food struggles can embrace this particular *standpoint*, or set of experiences, motivations, and interests, by learning from, empathizing with, and honoring the knowledge and experiences of those on and from the margins (Toole, 2021). We challenge campus leaders, faculty, and personnel who have not experienced food insecurity to spend time with those in their campus communities who have and do, not as a spectacle to struggle but rather from a place of genuine concern and solidarity. Then, the capacities of administrative critical distance (ACD) can be expansive, as other campus personnel can work *qua* marginalized administrators by inviting and incorporating a marginalized standpoint into their theorizing and practice.

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Journal of Higher Education Management, 40(2), 80-93 (ISSN 2640-7515).

The History of Sponsored Research in the U.S. From 2010-2023: How Six Top-Ranked Universities Built Lucrative Industry Partnerships

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Abstract

This study examines the evolution of industry-sponsored research in U.S. universities from 2010 to 2023, focusing on strategies used by top institutions to build lucrative industry partnerships. Interviews with senior leaders at six leading universities revealed key practices, including trust-based relationships, centralized corporate engagement teams, and overcoming faculty resistance through mentorship. Findings suggest that aligning research with regional industry needs and streamlining contract negotiations can help secure greater funding. The study highlights valuable lessons for universities seeking to expand industry collaborations and research funding.

Keywords: HERD Survey, industry-sponsored research, university-sponsored research expenditures, research funding, higher education innovation, applied research

Introduction

For more than half a century, growth in research funding by the federal government has been outpaced by business-funded research expenditures (Sargent, 2022). While business-funded research and development (R&D) is growing, the U.S. saw its overall share of global R&D fall to 30.7% in 2020. According to Sargent (2022), this decline was due to the rapid growth of other nations in total R&D spending. Business-funded expenditures are revenues received by colleges and universities from industry (for-profit) corporations in exchange for research. A research partnership between the company and higher education institution can be mutually beneficial. Since 1955, business-funded R&D in higher education has increased year after year.

The funding landscape for research in the United States has drastically changed in recent years (Anderson, 2023; Ganz et al., 2023). According to Anderson (2023), 70% of basic research was funded by the federal government from 1961 to 1970, and businesses funded less than 20%. Federal research funding rose from $31.1 billion in 2000 to $40.6 billion in 2005, but since 2005, federal funding has remained flat. Business-funded research increased from $10.4 billion in 2000 to $36 billion in 2021. In 2010, businesses were responsible for 23% of all basic research in the U.S., and by 2020, that number increased to 34% (Anderson, 2023). From 2010 to 2020, the federal government's share of R&D shrank from 31.1% to 19.5% (Sargent, 2022). In 2021, 40% of basic research was funded by the federal government, and 36% of basic research was funded by businesses.

Industry Partnerships

Boccafuso (2010) emphasized that universities pursue industry partnerships to enhance competitiveness for federal grants. To secure these awards, researchers must clearly articulate the relevance of their proposals and demonstrate how industry partners will be engaged. As Boccafuso (2010) noted, “Contemporary faculty and students seek greater relevance to their scholarly pursuits and want to work deftly in both the academic and corporate environments” (para. 8). This perspective highlights the growing expectation for academic research to bridge both sectors, ensuring that scholarly work remains applicable and impactful within real-world industry contexts. In addition to gaining access to a talent pipeline, the industry benefits from partnerships with universities by tapping into new technologies, knowledge, and established research infrastructure. Universities benefit from industry partnerships by gaining new revenue streams and accessing tools and materials not available in their labs (Boccanfuso, 2010). In some cases, universities receive income from patents and licensing opportunities with industry (Rybnicek & Königsgruber, 2018). These partnerships provide benefits to universities, faculty, students, industry leaders, and the community.

A small percentage of universities secure the majority of business-sector research funding, often through applied research projects that address industry-specific challenges. The 2022 HERD Survey revealed that only 10 institutions earned more than $100 million in business-funded research in 2021 (NCES, 2022). Additionally, 21 universities reported over $50 million, and 100 universities exceeded $5 million in business-funded expenditures (NCES, 2022). Given that there were 5,916 Title IV postsecondary institutions in 2021 (The Institute of Education Sciences, 2022), only about 2% captured the majority of these funds (NCES, 2022). This disparity suggests that most universities lack the infrastructure and strategic partnerships necessary to attract and manage industry-sponsored research, which typically involves solving real-world problems for business partners.

This study addresses the competitiveness and difficulty in winning federal awards and the growing need to build industry partnerships to build new revenue streams. Partnerships with industry create applied learning opportunities for students that often lead to employment offers. According to the National Science Board (2023), from 2012 to 2021, the growth of business-funded research outpaced the R&D growth of government funding. However, the largest share of funding still comes from the federal government.

Dissenting Voices

Critics opposed to university-industry partnerships are concerned with undue influence on academics. According to Young (2005), the commercialization of universities is the result of governmental pressure and places academic integrity at risk. As noted by Rybnicek and Königsgruber (2018), items such as non-disclosure agreements (NDAs), the scope of work, budget, timeline, deliverables, rights to publish, licensing, and intellectual property should be agreed upon early in the relationship. Limited research exists on how to develop partnerships with industry, and as stated by Prigge and Torraco (2006), these partnerships come with risks. Conflicts of interest between university and industry researchers, suppression of information from fellow researchers, and perceived threats to academic freedom are real possibilities that must be managed appropriately in such partnerships (Prigge, 2005). Fabbri et al. (2018) noted that an issue with

public-private partnerships is that research can become tainted by industry agendas. Businesses fund projects that serve their interests, but problems arise when their interests do not align with public interests.

Methodology

This study examined the history of sponsored research, focusing on how six top-ranked universities became national leaders in business-funded research expenditures and uncovering the strategies that led to prosperous university-industry partnerships. Executives from six leading universities were interviewed to discuss their institutions' pathways to success with industry. The National Science Foundation (NSF) Higher Education Research and Development (HERD) Survey was used to identify the universities that were the best in the nation in industry-funded research. This study aimed to inform the academic community on best practices for building corporate partnerships and expanding their research enterprises.

Six institutions were selected for this research – Massachusetts Institute of Technology (MIT), Stanford University (Stanford), the University of Pennsylvania (Penn), Wichita State University (WSU), The Ohio State University (OSU), and the University of Michigan. Of these, half are private institutions and half are public universities. Five of the six institutions were chosen because, over the past decade, they consistently ranked among the best in the nation for industry-sponsored research. One exception, WSU, was selected because, over the past five years, they climbed from 35th to 10th place in business-funded expenditures.

Interview participants were selected because they oversee the university-industry relationships in research at their universities, and their universities were identified as among the best in the nation in obtaining research funding from corporations. Interview questions appear in the Appendix. Participants included a managing director, a director of corporate research alliances, an executive vice president for research innovation and knowledge, an associate vice president of industry engagement and applied learning, a senior director of corporate relations, and a vice provost and dean of research. Each executive oversees industry-sponsored research efforts at their university, making them uniquely qualified to participate in this study.

Findings

The participants shared insights that were consolidated into four research themes: (1) the shift from a transactional mindset, (2) moving beyond silos to centralized corporate engagement teams, (3) overcoming faculty resistance, and (4) adopting an innovation mindset.

From Transactions to Trust: Building Strategic Partnerships

Universities aiming to increase business-funded research must transition from short-term, transactional engagements to strategic, long-term partnerships with industry leaders (Participants 2, 3, 4). The leading institutions in business-funded research expenditures, as reflected in the 2023 HERD Survey, have embraced this shift, prioritizing trust-based collaborations that drive innovation, economic growth, and sustained industry engagement. One participant explained that their institution distinguished itself from other institutions nearly 80 years ago by creating the Industrial

Liaison Program (ILP). “We are in the relationship management business, and our office was set up in 1948 for the express purpose of helping to create beneficial relationships,” Participant 5 stated. The ILP focused on building meaningful, long-term relationships with business partners instead of one-time transactions.

One participant summed up the issues succinctly. They said, “Ten years ago there was a lot of apprehension about these kinds of relationships…It’s not good money, bad money…Generally, I think what we’ve seen is this culture change, where it’s not bad money, right? It’s just money.” They clarified that universities can effectively manage industry-sponsored research by establishing strong agreements, fostering win-win relationships with industry partners, and maintaining clarity and transparency about potential sources of bias.

Meeting Market Demands

Historically, university-industry engagements were transactional, with companies contributing donations, workforce development partnerships, and one-time research contracts (Wilder, 2013). Industry-sponsored research agreements typically followed a rigid structure, focusing on short-term deliverables rather than fostering deeper collaboration. Technology transfer efforts were similarly limited, emphasizing patent licensing and IP sales rather than ongoing innovation partnerships.

One participant described their institution’s strategic shift from a licensing-based engagement model to a more collaborative approach that extended beyond patents to include sponsored research projects, startup partnerships, and joint industry-university initiatives. They explained that, in the past, researchers would develop innovations and later approach industry partners to license intellectual property (IP). The participant elaborated, “Instead of the old days where it was basically like, ‘Do you want this? Do you want to license this IP?’ now it’s ‘Do you want to run a project in our lab? Do you want us to run a project with your folks?’” This transition from transactional engagements to relationship-building strategies fundamentally reshaped the institution’s research enterprise. By adopting a more flexible model that offered multiple avenues for industry collaboration, including joint projects and faculty partnerships, the institution enhanced its attractiveness to corporate partners. This comprehensive engagement approach led to a substantial increase in business-funded research, growing from 3% to 21% of the university’s total research portfolio within a decade. By offering a broad portfolio of industry collaboration opportunities, the university positioned itself as a long-term innovation partner rather than a service provider.

Reciprocal Innovation and Growth

Moving from a transactional mindset to a relationship-based strategy requires institutional commitment, leadership, and patience (Participants 1, 3). One participant stressed that universities must move beyond short-term financial expectations and focus on developing sustainable industry relationships. The participant stated that building high-impact corporate partnerships is a 15–20-year process, requiring resilience, strategic foresight, and a commitment to long-term collaboration. The participant further explained that for universities seeking to strengthen industry engagement, progress will not always be linear. Challenges, setbacks, and periods of stagnation are inevitable, but the key to success lies in persistence and adaptability.

Beyond Silos: The Case for Centralized Corporate Engagement Teams

Establishing a centralized corporate engagement team is a key strategy for strengthening university-industry collaborations. Participants agreed that assigning dedicated relationship managers to industry partners fosters deeper connections, improves responsiveness, and ensures continuity despite personnel changes. A structured engagement team streamlines administrative processes, supports faculty outreach, and cultivates long-term industry partnerships. One participant attributed their institution's success in industry-funded research to a well-organized corporate engagement team focused on faculty support, strategic outreach, and corporate partnerships. They emphasized that successful industry engagement is not just about having talent but about aligning university strengths with the right industry fit.

Centralized Corporate Engagement Teams

Five of the six participants agreed that centralized corporate engagement teams play a critical role in fostering industry partnerships, supporting faculty, and ensuring efficient contract negotiations. The participants further agreed that universities that strategically organize their engagement teams, prioritize relationship-building, and hire experienced industry negotiators will be best positioned to expand their research enterprise, secure sustained corporate funding, and create mutually beneficial collaborations.

Several participants highlighted the benefits of segmenting corporate engagement teams based on responsibilities. One participant explained that their institution structured its corporate research alliances into specialized teams for research support, business development, and alliance management. Each team played a distinct role, from negotiating industry agreements to identifying new partnership opportunities and maintaining corporate relationships. Another participant noted that their institution expanded its engagement structure to accommodate large-scale partnerships, such as dedicating a full team to managing their relationship with Novartis. Their corporate engagement team also includes technology licensing officers who identify commercially viable faculty research and business development representatives focused on specific technology areas like engineering and medicine.

Hiring Industry-Savvy Negotiators

While many universities are developing centralized engagement teams, one participant described a contrasting model where faculty-led outreach drives industry-sponsored research. They emphasized that institutions must employ dedicated personnel who specialize in corporate contract negotiations. Without experienced industry negotiators, universities risk delays, lost partnerships, and the appearance of being unprepared for corporate collaborations.

The participant further stressed that negotiating industry contracts differs significantly from securing federal or nonprofit funding, as it requires experts who can efficiently navigate legal complexities. They explained, "You have to have people that know how to negotiate industry agreements, and that's all they do. Negotiating IP, NDAs, and contract terms is a very different animal from federal or nonprofit funding." They emphasized that hiring the right negotiators can be the difference between success and failure in securing industry agreements.

Universities like Stanford and MIT succeed in finalizing agreements quickly because they employ strategic industry negotiators. These professionals understand how to navigate complex state requirements and expedite agreements without violating legal standards. One participant explained that hiring experienced negotiators can significantly accelerate research growth and corporate engagement.

According to two participants, universities with strong industry partnerships excel because they finalize agreements efficiently. While other universities become bogged down in regulatory debates, the top-performing universities hire negotiators who can comply with state and institutional policies while maintaining flexibility. One participant stated, "We have ways to get to yes on most agreements—as long as you don't ask us to break laws or go against statutes…you really need an industry negotiator who doesn't just redline something and send it back to Boeing or Lockheed…because they'll think, these people aren't ready for prime time." Without these professionals, institutions struggle to finalize contracts, limiting their capacity to expand industry-sponsored research.

From Pushback to Partnership: Mastering Faculty Engagement

Overcoming faculty resistance to industry-sponsored research requires mentorship, training, and institutional support. Three participants emphasized that faculty buy-in is essential for building successful university-industry partnerships. Another participant suggested hiring non-tenure track faculty or subject matter experts to lead industry research projects when tenured faculty are uninterested, ensuring research continuity. Participants stressed that universities must actively address faculty concerns and provide ongoing training to help faculty transition from academic grants to industry agreements.

One participant noted that a lot of work was done to change faculty perceptions about industry-sponsored research projects at their institution. They said, "The whole idea was that corporate money is bad money." To overcome that belief, the participant said that their institution addressed faculty concerns about academic integrity and implemented strict compliance measures to prevent industry from negatively influencing academic freedom in research. The participant explained that faculty gradually accepted that industry-sponsored research can be as valuable as federal funding. They advised that institutions take steps to listen and inform faculty that working with industry gives them access to real-world technologies and problems and is a win-win for both parties.

Likewise, another participant advised that universities seeking to advance industry partnerships in research should shift their approach from being faculty-driven to industry-driven. They recognized that this approach is not how most universities pursue research, and they explained that more dialogue among higher education institutions could result in best practices that could benefit everyone. The participant reported that their institution is reaping the benefits of an innovative idea that was formed more than a decade ago. Their institution has experienced a meteoric rise in the HERD Survey as a result of the Innovation Campus. In 2010, the university was nationally ranked 34th with $22.6 million in business-funded expenditures (Gibbons, 2024). In 2023, the university rose to 6th place and generated $171 million in business-funded expenditures (Gibbons, 2024). One participant concluded that universities seeking to improve research revenues should pursue

innovation through creative, unconventional approaches, which can spark ideas that drive a university's success. Taking calculated risks is essential for achieving transformative growth.

Empowering Faculty Through Mentorship

Mentorship emerged as a key strategy for easing this transition. One participant explained that industry-sponsored research agreements operate at a faster pace than traditional academic funding, requiring faculty to adjust expectations. They reported that their institution pairs experienced industry researchers with new faculty, accelerating the learning curve and reinforcing long-term partnership strategies rather than one-off transactions. The participant elaborated that the best way to work with faculty is with a grassroots approach. By pairing experienced researchers with new faculty, the learning process can be accelerated, and new faculty members can become acclimated to the idea that industry-sponsored research is a worthwhile pursuit. The participant noted that it is important that faculty members see the value of industry collaborations rather than being pressured into them.

Institutional Support and Faculty Perceptions

Administrative support also plays a critical role in faculty engagement. One participant explained that their university provides project managers for large industry agreements to ensure timely deliverables and smooth operations. They noted that faculty resistance to industry collaborations has declined in recent years as more institutions have actively communicated the benefits of working with industry, including access to cutting-edge technologies, faster publication timelines, and expanded research impact. Rather than coercing faculty into industry partnerships, the participant explained that their research enterprise focuses on offering support, mentorship, and resources to foster sustainable collaborations.

Another participant described how faculty at their institution were initially skeptical, viewing industry-sponsored research as a threat to academic integrity. To address these concerns, the participant stated that their university implemented strict compliance measures to maintain research independence and to prevent excessive industry influence. Over time, faculty began to recognize that industry funding could be just as valuable as federal grants. The participant described this shift as a cultural change, emphasizing that industry partnerships provide real-world research opportunities and tangible benefits for faculty and students.

Executive Support for Faculty-Industry Partnerships

Participants agreed that long-term faculty engagement strategies are crucial for fostering industry partnerships. One participant emphasized that faculty must be encouraged to develop lasting relationships with industry rather than engaging in one-off projects. By pairing new faculty with experienced mentors, universities can accelerate the transition to industry-sponsored research and ensure a smooth acclimation process. The participant noted that industry engagement was once viewed as "bad for the academy," but institutions have successfully reframed the narrative by demonstrating the strategic advantages of industry collaborations. Another participant commented that listening to faculty concerns, providing mentorship, and communicating the long-term value of industry partnerships are key to building sustainable university-industry relationships.

Enhancing Industry Partnerships Through Innovation

Top-ranked universities in business-funded expenditures have redefined industry engagement by innovating their research structures, faculty incentives, and applied learning opportunities. These institutions have moved beyond traditional, transactional agreements, instead adopting long-term, relationship-driven strategies that fuel economic development, enhance faculty research, and create new applied research opportunities for students.

Aligning with State Economic Development Goals

Aligning research with state and regional economic priorities has also emerged as a transformative approach. Universities focused on research themes directly impacting the state's economic and workforce development goals have attracted new industry partners. By prioritizing industries that are essential to their region's economic future, these institutions have secured long-term investments from businesses seeking strategic partnerships with academia (Participants 2, 4). One participant said, "We've really been thinking about how we can partner as a university with the state and think about economic development and prosperity…Not just the growth of the state but bringing in new industries like Intel or enriching partners like Honda." The participant elaborated that this new approach will enable his institution's research efforts to contribute directly to workforce development and job retention.

Revolutionizing Faculty Incentives and Research Policies

One leading institution explained how their institution redesigned faculty incentives to encourage corporate research engagement. One participant explained that allowing faculty to receive additional pay for industry-sponsored projects or buy out their teaching time to focus on applied research is an effective method to gain faculty support and buy-in. Other institutions employ dedicated research faculty and subject matter experts who work exclusively on industry-funded projects, ensuring that research teams are led by individuals whose focus aligns with business priorities (Participants 1, 2, 4).

Additionally, another participant explained that their institution modernized its patent policy to promote entrepreneurship and reinvestment in university research. They reported that by limiting ownership structures for faculty to less than 50%, faculty-founded startups can flow research funds back into university labs. The participant explained that this approach has significantly increased industry-sponsored research revenues. By modifying ownership structures while maintaining research integrity, they noted that their institution has unlocked new funding streams without compromising academic independence. The participant added that having a patent policy that allows for flow back from startups has been a key driver in the rapid growth of his institution's research enterprise.

Applied Research: Real-World Benefits for Students

A major innovation in university-industry partnerships is the expansion of applied research opportunities that directly involve students. These initiatives go beyond traditional internships and

co-ops, offering paid, real-world research experiences that provide students with direct exposure to industry challenges and career opportunities (Participants 2, 3, 5). One participant attributed the success of their institution to the creation of an innovation campus where companies can co-locate on campus, work alongside faculty, and engage students in real-time problem-solving. The participant explained that this model has created a pipeline for industry to build relationships with students.

Working at the Speed of Business

To compete in a fast-moving business environment, elite universities have transformed their approach to contract negotiations, ensuring that agreements are executed at the speed of business rather than the pace of academia. Institutions that hire specialized contract negotiators with expertise in intellectual property (IP), non-disclosure agreements (NDAs), and liability terms have reduced delays and removed common barriers to collaboration (Participant 5, 6).

Additionally, universities that remove the bureaucratic obstacles to sponsored research projects and can finalize agreements quickly position themselves as attractive industry partners, while those who engage in prolonged contract negotiations often lose out to more experienced institutions (Participant 6). One participant noted that hiring the right industry negotiators was critical to becoming an elite university in industry-funded research. The participant stated that hiring someone highly experienced in industry contract negotiations can exponentially propel an institution's research growth forward.

These innovations in organizational structure, faculty engagement, student learning, and expedited agreements have enabled top-ranked universities to secure substantial industry funding, increase research impact, and strengthen their role in workforce development. By embracing new models of engagement, modernized faculty incentives, and streamlined business processes, these institutions are setting a new standard for university-industry partnerships. By eliminating silos and consolidating research offices and services, universities have made it easier for businesses to navigate partnerships, access research capabilities, and engage in commercialization efforts (Participants 3, 4).

Discussion

Federal funding for research has fluctuated for decades, increasing the necessity for U.S. universities to establish partnerships with the business sector. Analyses of the annual HERD Survey, produced by the NSF, found that only an elite group of institutions excelled in securing business-funded research expenditures. A closer examination revealed a stark divide, with these top-ranked universities receiving the majority of industry funding while others lagged way behind. This study presents valuable insights into the history of sponsored research at U.S. institutions from 2010 to 2023. By investigating how top-ranked universities successfully secured private-sector funding, this research expands upon existing literature and challenges traditional academic perspectives on industry collaboration.

The results indicated that the majority of U.S. universities have not pursued industry partnerships with the same commitment as those consistently ranked in the top 20. Notably, nine universities

have maintained their positions in this elite group from 2010 to 2023. This study found that these institutions have moved beyond transactional industry agreements and instead embraced long-term, transformational partnerships.

Historically, universities have engaged with industry through short-term licensing agreements or fixed-term contracts. However, elite institutions have shifted away from these traditional models, actively seeking innovative and sustained collaborations with the private sector. This practice aligns with research from Siegel et al. (2002) and Boccanfuso (2010), who argued that academia benefits from long-term industry partnerships through increased competitiveness for federal grants, access to new revenue streams, and enhanced workforce training for students. Instead of prioritizing transactional agreements, these universities focus on understanding industry needs and fostering collaborative research initiatives to solve real-world challenges.

Earlier literature, such as that from Young (2005), attributed academic resistance to industry partnerships to fears of losing academic freedom. However, this study found the opposite to be true. Universities leading in industry-sponsored research also ranked among the highest in total research expenditures. Participants reported that initial faculty resistance had been addressed through strategic engagement, resulting in faculty buy-in. Participants 3 and 4 described a cultural shift at their institutions, where faculty members recognized the mutual benefits of industry partnerships, ultimately strengthening their research enterprises.

Concerns about industry influence on academic research, as raised by Fabbri et al. (2018), were mitigated by top-performing universities through strong compliance measures, contract negotiation expertise, and faculty training programs. This study builds on existing literature by demonstrating how flexible patent and startup policies can enhance industry collaborations without compromising academic integrity. Previous research by Rosenberg and Nelson (1994) suggested that faculty pursuing tenure viewed industry-sponsored research as a distraction because of the traditional emphasis on publishing. This study refuted that viewpoint by demonstrating how top-ranked institutions have transformed academic cultures, revised policies, and developed faculty support systems to incorporate industry partnerships without sacrificing academic research.

The findings of this study affirm that the guidance offered by top-ranked institutions leads to measurable outcomes. Participants represent leading universities that are at the forefront of higher education-industry collaboration, demonstrating that their strategies are both impactful and sustainable in practice. Totals are in the thousands and provide clear evidence that these experts possess a deep understanding of effective industry partnerships. Notably, two institutions experienced significant increases in business-funded expenditures over the past decade. The findings confirmed that the participants worked at institutions ranked within the top 34% nationally for industry-sponsored research from 2010 to 2023.

Implications

Prior literature largely framed industry partnerships as transactional, focusing on one-off research projects or technology licensing agreements (Rybnicek & Königsgruber, 2018). However, this study found that universities adopting relationship-driven approaches to industry-sponsored research experienced unprecedented growth in funding. For example, one participant highlighted the

development of an innovation campus where industry and academia collaborate on applied research, and this development increased business-funded research at their institution from $30 million to $170 million in just ten years. This achievement underscores how institutions can cultivate highly lucrative, mutually beneficial industry relationships by following models set by top-ranked universities.

This study challenges previous notions about industry-sponsored funding and provides a roadmap for universities seeking to expand their research enterprises through strategic industry engagement. By analyzing insights from leading institutions, the researchers established a framework for developing long-term industry relationships. Universities aiming to offset declining federal research funds can apply these findings to strengthen their financial sustainability. Institutions that implement these strategic engagement models will be better positioned to serve their communities, faculty, and students while fostering sustainable partnerships with industry.

The findings have transformative implications for how universities approach industry collaborations, research structures, faculty engagement, and innovation strategies. Top-ranked institutions successfully transitioned from transactional industry agreements to long-term, relationship-driven collaborations, challenging outdated perceptions of corporate funding in academia. The results suggest that universities seeking to expand their research enterprises must prioritize faculty buy-in through mentorship, administrative support, and structured engagement strategies. Additionally, institutions that streamline corporate engagement offices, align research timelines with business needs, and simplify industry agreements will be best positioned to thrive in an era of declining federal research funding. Participants in this study provided valuable insights and practical recommendations for institutions seeking to increase research funding, particularly as federal funding reductions necessitate alternative revenue streams.

By adopting these strategic approaches, universities can not only secure sustainable industry partnerships but also enhance their overall research impact and innovation potential. Institutions that foster faculty involvement, optimize internal processes, and align their research objectives with industry needs will be best equipped to navigate the evolving landscape of academic research funding.

Limitations and Recommendations for Future Studies

This study has some limitations. First, interviews were conducted with senior leaders from only six institutions, limiting the breadth of perspectives. Additionally, because feedback was gathered from only one participant per institution, the viewpoints may not fully represent the diversity of experiences within each university. To address these limitations, future research should expand the sample to include leaders from all universities ranked in the top 20 of the annual HERD Survey because these institutions receive the majority of industry-sponsored research funding in the U.S. Beyond the top 20, funding declines significantly, making it valuable to examine rapidly growing institutions outside this group to identify emerging best practices. Furthermore, interviewing institutions ranked in the middle and lower tiers of the HERD Survey may reveal additional challenges and insights, informing new questions for top-ranked institutions.

Future research should also include a broader range of stakeholders, such as faculty researchers (both experienced and inexperienced), student researchers, and business executives with expertise in funding sponsored research. Their perspectives could provide valuable insights into effective engagement strategies and potential pitfalls, ultimately contributing to a more comprehensive framework for university-industry partnerships. This study examined the relationship between faculty engagement strategies and the success of industry-sponsored research partnerships. The findings suggest that structured mentorship, administrative support, and faculty training programs significantly enhance faculty buy-in. These results emphasize the need for universities to develop long-term strategies for faculty-industry collaboration. By addressing the study's limitations and incorporating a wider range of perspectives in future research, institutions can refine their engagement strategies and strengthen industry partnerships to sustain long-term research funding.

Conclusion

This study explored how universities can cultivate lucrative and sustainable partnerships with industry. It identified strategies employed by top-ranked institutions and highlighted best practices that reflect the evolving landscape of university-industry collaborations. The research emphasized the importance of institutional structure, innovation, and the development of mutually beneficial relationships between universities and industry partners. The significance of this research lies in its contribution to the broader discourse on the future of research in higher education. In an increasingly competitive funding environment, it is essential for university research leaders to foster meaningful, long-term industry relationships that extend beyond transactional engagements, enhance academic excellence, and contribute to regional economic development. The insights from this study can inform institutional strategies, planning, and policy development, providing a framework for strengthening industry partnerships. Additionally, this research highlights the need for continued inquiry into effective university-industry collaborations and offers a foundation for future exploration in this critical area.

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Appendix
Interview Questions

1. Can you describe the infrastructure of your research enterprise?
    i. Can you explain how the office that handles industry-sponsored research is organized?
    ii. Is it centralized or decentralized?
    iii. If centralized: Can faculty engage with industry on their own or do they need to go through the central office?
2. What do you attribute your success to in the HERD ranking for business-funded expenditures?
3. How do you attract new industry partners?
    i. Where do the leads come from? (faculty, cold-calling, seminars, etc.)
    ii. Can you walk me through the process from beginning to end?
4. Which colleges at your university are securing the majority of industry-funded projects?
5. How has your success in industry partnerships impacted stakeholders? (students, faculty, the university, industry, and community)
6. Does your university have specific requirements for faculty or students in terms of expectations for working with industry?
7. Do you have a formal or informal process for assisting new faculty or faculty interested in working with industry without any experience?
    i. If so, please describe.
    ii. Can you provide details on how your mentorship program works?
8. Do you host industry engagement days? (If yes, describe those events)
9. How do you handle faculty members who believe industry-sponsored research is bad for the Academy?
10. What advice would you give to another college or university that is just beginning to focus on these types of partnerships with industry?
11. Is there anything I haven't asked you that you feel is important to note for this study?

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(Revised 11-13-2025)

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