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BREAKING BARRIERS: THE EFFICACY OF METACOGNITION ON THE ACADEMIC PERFORMANCE OF AFRICAN AMERICAN STUDENTS IN A DIVERSE AND INCLUSIVE UNIVERSITY ENVIRONMENT

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Abstract

This qualitative study investigates the efficacy of metacognition in enhancing the academic performance of African American students in a diverse and inclusive university environment, utilizing Bandura's Social Cognitive Theory as a foundational perspective. The research highlights the potential to overcome barriers to academic performance by exploring how metacognitive strategies facilitate self-regulation. The study involved in-depth interviews with 20 purposefully selected African American students enrolled in a diverse and inclusive university. The open-ended interviews focused on understanding the students' perceptions and experiences regarding their metacognitive processes and impact on academic performance. Thematic analysis was conducted to identify recurring themes and patterns in the data. The findings reveal that metacognitive strategies significantly contributed to students' persistence, adaptability, self-awareness, and time management, ultimately enhancing their academic performance. This study emphasizes the importance of culturally responsive teaching practices and supportive environments in promoting metacognitive awareness among African American students.

Keywords

Metacognition, Self-regulated learning, Self-Efficacy, Meta-Learning, Diverse and Inclusive University, African American Students, Social Cognitive Theory

Introduction

A diverse and inclusive university plays a pivotal role in providing educational opportunities for African American students, fostering environments that support cultural identity and promote academic success. Such an institution serves as a vital platform for addressing historical and educational disparities while nurturing students' sense of belonging and community. However, despite the supportive frameworks offered by this university environment, African American students continue to face various challenges that can impede their academic performance. These challenges often include systemic inequalities, socioeconomic barriers, and cultural dissonance, hindering their educational aspirations.

This study investigated the effectiveness of metacognition in enhancing the academic performance of African American students in a diverse and inclusive university, using Bandura's Social Cognitive Theory as a guiding framework. Bandura's theory posits that self-efficacy beliefs, observational learning, and social interactions significantly impact individual learning experiences and outcomes (Bandura, 1986). By examining the role of metacognitive strategies in empowering students and facilitating self-regulation, this study aimed to uncover the potential for overcoming barriers to academic success for African American students.

The global higher education landscape has become increasingly interconnected, making it essential to understand the unique experiences and challenges faced by African American students in diverse contexts. Developing metacognitive skills—students' awareness and regulation of their learning processes—has become vital for educators and policymakers (Okojie, 2025). Metacognition consists of two primary components: metacognitive knowledge, which involves understanding one's cognitive processes, and metacognitive regulation, which is the ability to oversee and adjust learning strategies (Zimmerman, 2020). Research indicates that metacognitive skills

are critical for academic success, allowing students to reflect on their learning, adapt strategies, and effectively monitor their progress (Zhang et al., 2021).

African American students may face challenges such as cultural adaptation, differing educational expectations, and varying levels of support, which can significantly affect their academic performance. The autonomy offered in higher education encourages these students to take greater responsibility for their learning, nurturing metacognitive regulation as they plan, monitor, and evaluate their strategies in unfamiliar academic contexts (Schunk & Zimmerman, 2018). While exposure to diverse pedagogical methods can enhance adaptability and resilience (Mok, 2020), transitioning to a new educational environment may also generate uncertainty and anxiety, hindering effective metacognitive practices (Mazzarol, 2021).

Numerous studies have explored the relationship between metacognition and academic performance across various contexts, demonstrating a positive impact of metacognitive practices on student outcomes. Bandura's Social Cognitive Theory provides a relevant framework for analyzing how these factors influence the academic performance of African American students in a Diverse and Inclusive University (Bandura, 2001). Despite the recognized importance of metacognition, there remains a gap in research specifically examining its impact on the academic performance of African American students in these settings (Brown & Lee, 2020). This study contributes to the existing literature by investigating the effectiveness of diverse educational experiences, metacognitive awareness, and academic outcomes among African American students.

Theoretical Framework /Literature Review

This study is grounded in Bandura's Social Cognitive Theory, which highlights the significance of observational learning, self-reflection, and self-efficacy in learning (Bandura, 1986, 1997). The theory asserts that individuals develop behaviors through interactions with their environment and observational contexts. Essential elements of this theory include observational learning, reciprocal determinism, and the role of self-efficacy in influencing motivation and persistence in academic environments.

Recent research reinforces Bandura's findings, highlighting the significance of modeling positive behaviors in educational settings to enhance student engagement and performance (Okojie,2025). By understanding the connection between metacognition and self-efficacy, educators can more effectively support African American students in their quest for academic success.

Metacognition involves awareness and regulation of one's cognitive processes. It comprises two main components: metacognitive knowledge and metacognitive regulation. Both elements are essential for improving students' academic performance in a Diverse and Inclusive University (Okojie, 2025). Metacognitive knowledge in understanding one's learning strategies, strengths, and weaknesses is crucial. African American students who develop metacognitive knowledge can better handle academic challenges and leverage their strengths. Research indicates that students with high levels of metacognitive awareness are more likely to adopt effective learning strategies, which leads to improved academic performance (Flavell, 1979). This aligns with Okojie's (2025) finding that metacognitive awareness significantly influences educational outcomes among International students.

Metacognitive Regulation is planning, monitoring, and evaluating one's learning processes. In a diverse and inclusive university, students who engage in metacognitive regulation can adapt their strategies to meet the demands of varied coursework. Studies indicate that metacognitive regulation positively correlates with academic achievement, empowering students to take control of their learning (Schraw & Dennison, 1994). Additionally, the supportive community in this university can further enhance metacognitive regulation by providing resources and mentorship. This aligns with Okojie's (2025) findings that students who actively engage in metacognitive processes do improve their academic performance.

Self-efficacy, or the belief in one's ability to succeed, is crucial in shaping academic performance (Zhang & Zheng, 2022). Rooted in Bandura's theory, self-efficacy influences motivation, goal-setting, and perseverance, all essential for achieving academic success. Johnson and Smith (2021) emphasized that self-efficacy fosters goal-setting and persistence. They advocate for further research in diverse educational contexts to better understand how self-efficacy and metacognitive strategies function across different cultural settings.

Research indicates that students with higher self-efficacy are more likely to engage in learning activities and set ambitious goals, leading to improved academic performance (Schunk & Zimmerman, 2020). Interventions designed to support African American students can enhance self-efficacy through personalized mentoring and academic assistance, aiding their adaptation to new cultural and educational environments (Han et al., 2019). Conversely, acculturative stress may reduce self-efficacy (Yu & Park, 2017).

Meta-learning, or learning how to learn, involves developing knowledge and skills related to individual learning processes. Engaging in meta-learning empowers students to take charge of their education by setting goals and tracking their progress (Dinsmore et al., 2020). Research indicates that students who adopt meta-learning strategies achieve better academic outcomes (Artino, 2012). Additionally, cultural factors influence meta-learning techniques, underscoring the necessity of understanding these differences for effective educational interventions (Wang & Wu, 2021).

While most studies support the positive connection between meta-learning and academic success, some findings highlight limitations, emphasizing the need for ongoing investigation into the contextual factors that influence the effectiveness of meta-learning (Dunlosky et al., 2013). Meta-learning allows students to handle various learning challenges skillfully, enhancing their academic performance.

Self-regulated learning (SRL) significantly impacts students' academic performance. SRL includes goal-setting, planning, and progress monitoring, all essential for achieving academic success (Pintrich, 2000). Research consistently indicates that students who engage in self-regulatory processes attain higher academic performance (Schunk & Zimmerman, 2020). However, excessive focus on self-regulation can inadvertently lead to anxiety and stress, underscoring the importance of maintaining a balanced approach (McGuinness & McGuinness, 2018).

Cultural influences are critical in shaping self-regulated learning strategies among students. Support systems, such as peer mentorship and academic resources, are essential for facilitating self-regulated learning (SRL) (Zimmerman, 2000). While substantial research underscores the positive effects of self-regulated learning on educational outcomes, some studies highlight the need for a nuanced understanding of its limitations and individualized strategies.

Social interaction is essential for the academic success of African American students. Collaborative learning promotes motivation, support, and a sense of belonging, positively impacting academic outcomes (Li & Kim, 2018). However, group dynamics can sometimes hinder collaboration, resulting in conflicts that negatively affect academic performance (Jehn & Mannix, 2020). Cultural factors also influence how African American students engage in social interactions, making it crucial to understand these dynamics to develop effective learning environments.

Methodology

This study employed Bandura's Social Cognitive Theory to investigate the impact of metacognition on the academic performance of African American students within a diverse and inclusive institutional context. It examined the influence of various social, cultural, language, and environmental factors on these students' academic experiences. A qualitative research approach was utilized to explore the metacognitive factors that may affect academic performance, emphasizing the rationale behind the methodology, its underlying assumptions, potential biases, site selection, sample selection, data collection, analysis procedures, and measures of study trustworthiness.

Rationale for Methodology

The research utilized a qualitative methodology to investigate the effectiveness of metacognition in improving academic performance among African American students. Identified gaps in the current literature influenced this choice and highlighted the need for more qualitative studies (Creswell, 2014). The qualitative approach enables a comprehensive exploration of students' lived experiences and personal interpretations, capturing the complexities of metacognition and its academic relevance. Given African American students' unique challenges, qualitative methods were crucial for understanding the contextual factors affecting metacognitive processes.

Assumptions

Key assumptions guiding the research process proposed that metacognition significantly impacts the academic performance of African American students. This assumption is supported by existing literature highlighting metacognition's role in enhancing learning outcomes (Flavell, 1979; Schraw & Moshman, 1995). Additionally, the study proposed that Bandura's Social Cognitive Theory will providesa suitable framework for understanding how metacognitive processes influence academic outcomes, emphasizing self-regulation, self-efficacy, and observational learning (Bandura, 1986).

Biases

As a researcher of African descent, the acknowledgement of potential cultural biases that could influence data interpretation was noted. Efforts were made to set aside personal opinions and maintain objectivity throughout the research to minimize these biases. Additionally, sampling bias was addressed through explicit inclusion and exclusion criteria, ensuring a diverse participant selection while recognizing limitations in generalizability. Confirmation bias was also considered, with the researcher aiming to maintain an open mindset and actively seek contradictory evidence during the research process.

Site and Sample Selection

The research was conducted at BETA University, a four-year institution recognized for its diverse student body and extensive diversity and inclusion programs. This university was selected for its academic excellence and supportive environment, making it an ideal setting to explore the experiences of African American students. The university accommodates approximately 6,000 students from various backgrounds across multiple undergraduate and graduate programs.

A purposeful sampling strategy was utilized to select twenty participants who met specific criteria: African American students enrolled in undergraduate or graduate programs with a GPA of 2.5 or higher. Participants were identified through collaboration with college department chairs and the office of student services, with an African American student serving as a gatekeeper to facilitate recruitment. The sample included students from diverse educational and cultural backgrounds to ensure a comprehensive examination of how differing experiences influence metacognitive processes and academic performance.

Data Collection Procedures

Data were collected through semi-structured, in-depth interviews that allowed participants to elaborate on their experiences and perspectives regarding metacognition and academic performance. Informed consent was obtained before each interview, following Institutional Review Board (IRB) protocols. Each interview lasted between 60 and 90 minutes and occurred in secure locations. The researcher used a combination of open-ended questions and clarifying prompts to encourage detailed responses and employed handwritten notes and audio recordings to ensure accurate documentation of participants' narratives.

Data Analysis Procedures

After collecting data, the audio recordings were transcribed into a written format for analysis. As Creswell (2014) outlined, the coding procedure categorized the data and systematically identified significant themes and patterns. The study utilized NVivo software to facilitate thematic data analysis through stages of preparation, familiarization, coding, and theme development (Okojie, 2025). The findings were interpreted within the context of Bandura's Social Cognitive Theory, examining how the data supported or challenged theoretical propositions regarding metacognition and academic performance.

Description of Participants

The study involved twenty participants from BETA University: eight undergraduate and twelve graduate students. They represented various academic disciplines and stages in their educational journeys. All participants, except four first-year students, held undergraduate degrees from the same institution. The sample included individual African American students from different states across the nation. To protect the participants' identities, pseudonyms were assigned following informed consent regulations. The participants included nine females and eleven males aged 21 to 56 years. Regarding living arrangements, seven participants lived on campus, while the remaining thirteen resided off campus near the university.

Name	Age	Gender	Race	Institution	Major	GPA.
ERRA	43	Female	African American	BETA	Urban Higher Education (Ph.D.)	4
LEB	41	Male	African American	BETA	Mathematics (Masters)	4
TICE	23	Male	African American	BETA	Business Admin. (Undergraduate)	2.62
FAXX	21	Male	African American	BETA	Physic (Undergraduate)	3.6
BIZ	39	Male	African American	BETA	Computer Engineering (Masters)	3.2
ELIN	41	Female	African America	BETA	Urban Higher Education (Ph.D.)	3.8
JIDE	45	Male	African American	BETA	Business Administration (Ph.D.)	4
PIRO	28	Male	African American	BETA	Finance (Masters)	3.9
DELOS	38	Male	African American	BETA	CriminalJustice (Undergraduate)	4
ZENITH	30	Male	African American	BETA	Clinical Psychology (Undergraduate)	3.2
IDIA	42	Female	African American	BETA	Chemistry (Masters)	4
JACK	38	Male	African American	BETA	Environmental Science (Ph.D.)	3.8
ZITA	27	Female	African American	BETA	Biology-Pre-Nursing (Undergraduate)	2.7
HALIMA	30	Female	African American	BETA	Chemistry (Undergraduate)	3
JOJO	42	Male	African American	BETA	Computer Engineering (Ph.D.)	4
LIJA	21	Female	African American	BETA	Biology (Masters)	4
TIARO	21	Female	African American	BETA	Biology (Undergraduate) (Ph.D.)	3.2
DIKA	56	Female	African American	BETA	Urban Higer Education	3.9
SENTA	22	Female	African	BETA	Civil Engineering (Undergraduate)	3
GREGO	36	Male	African American	BETA	Public Hearth (Masters)	4
STAN	33	Male	African American	BETA	Computational & Data Enabled Science & Engineering (Ph.D.)	4

Table 1: Participants Demographic Information.

The demographic overview presented above highlights the participants' diverse backgrounds and academic experiences, underscoring the study's focus on the efficacy of metacognition on the academic performance of

African-American students through the lens of Bandura's Social Cognitive framework.

Comparing U.S. and Indian engineering degrees also provides insight. Although the grading schemes are quite different, comparing the ratio of core to total credits in Table 3 shows clearly that the engineering degree in India focuses exclusively on core engineering fields.

Findings

This study investigated the impact of metacognition on the academic performance of African American students at a diverse and inclusive university. The research was organized around the following questions:

- RQ1: How does self-efficacy impact the academic performance of African American students in a Diverse and Inclusive University?
- RQ2: How does meta-learning impact the academic performance of African American students in a Diverse and Inclusive University?
- RQ3: How does self-regulated learning impact the academic performance of African American students in a Diverse and Inclusive University?
- RQ4: How does social interaction impact the academic performance of African American students in a Diverse and Inclusive University?

Research Question 1: Impact of Self-Efficacy on Academic Performance

The findings indicated that self-efficacy plays a crucial role in influencing the academic performance of African American students. High levels of self-efficacy impacted motivation, goal-setting, and persistence in overcoming challenges. Participants who expressed strong self-efficacy beliefs were more likely to engage in effective learning strategies, seek resources and support, and actively participate in their academic endeavors. A supportive and inclusive university environment that acknowledges African American students' unique cultural backgrounds and needs further enhances their self-efficacy and academic performance. Promoting self-efficacy through tailored support systems, mentorship, and inclusive learning experiences was essential for optimizing academic performance among participants.

Theme 1: Persistence

The study findings emphasized that persistence was a critical factor influencing the academic performance of African American students in diverse environments. Participants described persistence as a sustained effort to overcome obstacles, which proved essential for managing academic challenges. Participants' narratives illustrated how persistence contributed to their educational achievements. For instance, participant SENTA demonstrated persistence by actively seeking assistance from peers and instructors when faced with difficulties in demanding subjects. Other participants shared how they manage the complexities of adapting to a new educational environment by persisting through financial barriers, highlighting their determination to overcome challenges. The collective experiences of participants underscored that self-efficacy beliefs fostered persistence and confidence in their academic capabilities. ELIN embodies this theme as she continuously strives to be an example for her family, demonstrating that regardless of life's challenges, one can achieve their educational goals. She states:

> I want to show them you can still reach your goals regardless of life situations. I want to illustrate how life can change through education and pursuing different degrees. My family motivates me to be a role model and an example for my children, grandchildren, nieces, nephews, and younger cousins.

This commitment highlights her determination to overcome obstacles and serve as a role model for her family. Similarly, DIKA emphasized her determination:

> My family motivates me to be a role model and an example for my children, grandchildren, nieces, nephews, and younger cousins. I want to show them that you can still reach your goals regardless of life situations.

This sense of responsibility propelled her forward and strengthened her during challenging times. In the same vein, TICE reflected on the motivation derived from his peers' aspirations, noting, "I know many people say when they do get out of college, they do not go back most of the time. So, my mindset is to stick to college and finish the whole

way out, no matter what challenges arise." This unwavering commitment to persistence underscores the significant impact of self-efficacy on academic performance.

Theme 2: Adaptability

Adaptability emerged as another vital theme influencing the academic performance of African American Students. Participants defined adaptability as adjusting strategies and behaviors in response to new situations. Participants' experiences highlighted the importance of adaptability in managing academic challenges, with several demonstrating resilience while transitioning to a different educational system. Effective adaptability enabled the participants to handle changes in learning environments, teaching styles, and cultural expectations, ultimately enhancing their academic achievements. This theme revealed that adaptable students can modify their strategies and approaches to meet the demands of new and unfamiliar academic situations.

Participants like TIARO and FAXX emphasized the adaptability required in their academic journeys. TIARO reflects on her transition from high school to college, noting:

> I realized this during my first year. I remember just not studying and thinking it would not be different from high school. I started writing down my thoughts and what I needed to learn because studying in college differs from high school. The culture is the same; everybody is similar. I always want to be different.

This flexibility in learning strategies demonstrates how African American students often adapt to their academic challenges, showcasing the importance of self-efficacy in fostering resilience.

Theme 3: Self-awareness

Self-awareness emerged as a vital theme influencing individual behavior, motivation, and academic achievement. This theme examined participants' understanding of various learning strategies and their effectiveness. Research findings indicate that many African American students may be unaware of effective metacognitive strategies, such as summarization, elaboration, and self-testing. Exploring ways to enhance metacognitive awareness can improve academic performance and retention. Participants noted how self-awareness helped regulate their thoughts, emotions, and actions, thus impacting their educational outcomes. For instance, some exhibited clear self-awareness of their strengths and weaknesses, contributing to their self-efficacy and enabling them to confront academic challenges confidently. This understanding allowed participants to improve their academic performance by adapting based on their strengths and weaknesses.

This perception was particularly highlighted by TICE, who expressed an understanding of his strengths and weaknesses:

> Most of the time, if I feel there is a mistake or missed something important, I self-reflect and see how I could have done better or differently to achieve a better result. I try to look deeper into why that result happened or why I got this result instead of that one. I am a detailed person, so I look for details when self-reflecting

This awareness allows him to self-reflect and adapt his strategies, reinforcing the importance of recognizing one's capabilities for academic growth. DIKA stated, "If I have doubts or concerns, I am more prone to go to someone who looks like me rather than someone who does not look like me." This self-awareness and reflective process contributed to their academic performance and fostered a deeper understanding of their learning styles and strategies.

Theme 4: Self-Discipline

Self-discipline was acknowledged as a crucial element in achieving long-term academic goals. Participants indicated that self-discipline assists in maintaining focus, overcoming challenges, and engaging in productive academic behaviors. The link between self-awareness and self-discipline was evident, as participants recognized the importance of self-discipline and practiced self-regulatory behaviors to reach their objectives. By setting clear goals for each study session, participants found it easier to stay focused and complete their tasks.

Participants consistently identify self-discipline as a vital factor impacting their academic performance. DIKA's organized method of managing her time is apparent when she shares:

> I primarily regulate by putting things on my calendar when assignments are due and setting reminders. I might have four or five reminders on my phone to remind me to get started on assignments due in a week or two. I like to have my assignments in on time and make time for study. I study at night or on weekends whenever I have free time because balancing family, work, and school can be challenging.

This illustrates how self-discipline directly correlates with her academic success, as she actively managed her responsibilities to uphold her GPA.

Similarly, ELINE noted, "I mostly regulate by putting things on my calendar when assignments are due and setting reminders. I like to have my assignments in on time and make time for study." Her structured approach to time management illustrates how self-discipline is essential for academic success. Participant TICE emphasized the importance of prioritization in his academic journey: "I stay to focus on one thing at a time and not to take things too fast because often I get distracted by trying to do too many things." This commitment to self-discipline and prioritization reflects the critical role of self-efficacy in enhancing academic performance.

RQ2: Impact of Meta-Learning on Academic Performance

The study revealed that meta-learning significantly impacted the academic performance of African American students. Participants demonstrated strong meta-learning skills through practical goal setting, planning, and self-monitoring strategies, facilitating their academic success. Meta-learning empowered participants to adapt to new learning environments and manage cultural differences, enhancing their resilience and time management.

Theme 1: Mindset and Academic Resilience

The concept of a growth mindset—believing that abilities can be developed through effort—has significant implications for metacognition. Research shows that students with a growth mindset persist through academic challenges. Examining the interplay between mindset, metacognitive strategies, and academic resilience provides insights into promoting graduation rates. Participants emphasized resilience as a crucial psychological factor that impacted their capacity to overcome challenges and attain high academic performance. Resilience and self-efficacy empowered participants to recover from setbacks and maintain positive emotions. Participants' narratives illustrate how resilience influenced their problem-solving strategies and adaptation to academic challenges. Resilience was prominently displayed in the narratives, especially in the case of LIJA, who recognized the challenges posed by her background and transformed these obstacles into motivation. She states:

> Just them looking up to me pushes me to pursue my goals. There have been days when I feel tired and want to give up, but I realize that will not get me anywhere. I grew up in a neighborhood where there was not much opportunity. Many people stay stagnant, working regular jobs. My parents both dropped out of high school, so we do not have role models to look up to. I have always wanted to be someone they can look up to and do something different with my life.

This intrinsic motivation fosters resilience, enabling her to persist through challenges. Her commitment to academic goals despite external pressures highlights resilience as a key factor in meta-learning.

FAXX echoed this sentiment, explaining, "It influences my learning process because if I know how to problem-solve, I can get my way through college academically and for my future." This mindset empowered participants to embrace challenges as opportunities for growth, reinforcing their academic performance.

Theme 2: Self-Confidence

Self-confidence emerged as a vital component of resilience, bolstering participants' beliefs in their abilities. Participants noted that self-confidence enhanced their willingness to take risks in their learning experiences, leading to greater engagement in academic activities. This reflection on past successes fostered a growth mindset, enabling participants to handle academic challenges effectively. Like most participants, DIKA sees it this way: "I have to ask those questions regarding the assignment, and it allows me to plan accordingly." Her confidence in seeking clarification from professors reflects a proactive approach to her academic journey. TICE added, "I can achieve my goals because I strongly desire to succeed." This self-confidence motivated and influenced his academic performance through his belief in overcoming obstacles.

Theme 3: Prioritization

Prioritization is essential for managing tasks and enhancing productivity. Participants emphasized the significance of self-efficacy and self-regulatory processes in shaping their ability to prioritize and utilize their time effectively. Strategies included scheduling dedicated time blocks for various tasks, facilitating gradual progress, and efficiently managing responsibilities. Prioritization was a recurring theme in the discussions, especially among participants like TIARO and TICE, who emphasized the importance of focusing on essential tasks to improve their academic outcomes. TICE explains:

> I suggest focusing on one thing at a time and not taking things too fast because I often get distracted by trying to do too many things. I prioritize on a day-by-day basis. Balancing work, family, and school may not always go as planned. I use my calendar to keep things organized and track everything related to work, school, and my children.

Their structured approach to tackling assignments demonstrates the effectiveness of prioritization in enhancing academic performance. Moreover, LIJA emphasized, "I take notes. I write down everything I need to remember. Sometimes, I struggle with my memory, so I must record everything I study." This strategy reflects her prioritization in studying, enabling her to focus on essential information. FAXX also shared his approach: "I go to class, eat, maybe work out, and hang out with friends. I set a time for myself, like 8 o'clock, to be in my dorm room doing my work." This structured prioritization helped him maintain balance amidst competing demands.

Theme 4: Time Management

Effective time management has become a fundamental aspect of task management. Participants employed self-regulation techniques, such as goal-setting and self-monitoring, to enhance their time utilization. They emphasized the importance of flexibility in their time management strategies, acknowledging that adaptability is essential for sustaining productivity in changing circumstances.

Time management was vital for participants juggling multiple responsibilities. SENTA's careful planning of her study time was evident in her statement:

> I prioritize on a day-by-day basis. Balancing work, family, and school may not always go as planned. I use my calendar to keep things organized. I study at night or on weekends whenever I have free time because balancing family, work, and school can be challenging.

This underscores the importance of effectively managing one's time to support academic success. Participants see effective time management as crucial for academic success. DIKA noted, "I live by a planner, a calendar because I have to write things down and be reminded." Her meticulous approach to time management highlights the significance of staying organized and proactive regarding academic responsibilities. TICE reinforced this perspective, explaining, "I go to class first before I do anything. When it comes to assignments, I do them in class now because if I wait until after class, I might forget." This proactive time management strategy enhanced their academic performance and helped them stay on track.

RQ3: Impact of Self-Regulated Learning on Academic Performance

The findings indicated that self-regulated learning, enhanced through social interaction, was essential for the academic performance of African American students. Self-regulated learning involves setting goals, monitoring progress, and adjusting strategies, allowing students to cultivate effective study habits and manage their time efficiently.

Theme 1: Motivation

Motivation is recognized as a key factor in influencing academic achievement. Participants highlighted that self-efficacy beliefs and outcome expectations shape their engagement in learning activities. The interplay between motivation and self-regulated behaviors was evident, with participants stating that self-regulation boosted their intrinsic motivation and enhanced their ability to overcome challenges.

Motivation was a driving force for several participants, especially LIJA and TIARO, who found inspiration from their backgrounds and aspirations for success. LIJA states:

> I must be there for myself. If I do not maintain my academics, it affects my life. My siblings and my family motivate me. I know I can be better. For example, I lost my car recently but did not let that stop me. I figured out how to get around and continued working towards my degree.

TIARO echoed this sentiment: "My siblings motivate me, and I know I can improve." This intrinsic motivation empowers her to persist and strive for excellence in her academic pursuits

Their narratives demonstrate how intrinsic motivation drove their academic pursuits and shaped their learning strategies.

Theme 2: Self-Regulated Learning

Self-regulation emerged as a vital aspect of participants' academic experiences. Participants described self-regulation as managing thoughts, emotions, and behaviors to achieve educational goals. They utilized various strategies for self-regulation, including goal setting, progress monitoring, and adapting feedback-based learning methods.

The participants' approaches to their studies reflect self-regulated learning. For instance, FAXX reflects on how he actively monitors his understanding, saying;

> When I enter my dorm room, I review what the instructor has provided so I do not wait until the last minute. Every day, or at least every other day—I need to improve on that part—I try to do homework so I never get behind

This reflects a proactive approach to learning that boosts academic performance.

Self-regulated learning is crucial for effectively managing academic challenges. DIKA described her approach: "I have to get into that, reflect on what I learned in the past, so my memory is sharp." This self-regulatory practice allowed her to assess her understanding and adjust her strategies accordingly. Participant ZENITH collaborated with this narrative by saying, "My course in Qualitative Design Method in the second semester of my second year helped me in my study strategies: how to take notes, highlight, underline key points, make diagrams, and annotate my study materials in different ways."

Theme 3: Learning Strategies and Adjusting Learning Approaches

Learning strategies were highlighted as essential for acquiring new knowledge and adapting learning approaches. Participants shared specific strategies that improved their academic performance, demonstrating how self-efficacy beliefs influenced their selection of practical learning methods.

Several participants emphasized the importance of effective learning strategies. LIJA states:

> I make notes in class and ask questions to get a better understanding. If I do not understand something, I meet with the teacher afterward for extra help. I retain more information when I take notes in class, so I do not feel the need to study extensively unless it is a challenging subject like physics or chemistry

This suggests a strategic approach to learning that boosts academic performance.

Participants in this study highlighted various learning strategies contributing to their academic success. ERRA stated, "I make notes in class and ask questions to get a better understanding." This approach reflects her commitment to adapting her learning strategies based on her needs.

Adjusting learning approaches involves altering strategies based on feedback and performance. Participants acknowledged the importance of self-reflection and evaluation in improving learning outcomes. Participant DELOS puts this sentiment in perspective when he said;

> I was an average student at my previous school, but since transferring to this university, I have maintained a GPA of 3.8. In my second year, I met a classmate who taught me effective study techniques. He taught me to summarize passages, paraphrase key concepts, visualize the context, and analyze the meaning behind the ideas.

Participant ELINE emphasized adapting her learning strategies according to her experiences. She shares:

> I realized this when I first enrolled in this doctoral program. Previously, I could study just two days before or even the day before an exam and still retain that information. However, being older and having limited time, I cannot procrastinate. I need to prioritize my studies earlier.

This adaptability highlights a crucial element of self-regulated learning: Students must evaluate and improve their strategies to consistently achieve academic success.

RQ4: Impact of Social Interactions on Academic Performance

Participants noted that social interaction and collaboration positively impacted their academic performance. They emphasized the significance of multimedia resources and intergroup engagement in fostering a supportive learning environment that improved their understanding, retention, and active learning.

Theme 1: The Value of Multimedia Resources

Participants regarded the use of multimedia resources as a valuable tool for learning. FAXX states:

> It is both helpful and unhelpful. It helps because I can find assignments and videos on struggling topics. However, it can also be a distraction if I watch something entertaining instead.

This underscores the dual impact of multimedia on academic performance. This duality underscores the importance of utilizing resources effectively while being mindful of potential distractions.

Theme 2: Collaborations through Group Engagement

Collaboration and intergroup engagement were vital in fostering community and boosting academic performance. Participants mentioned that working with peers from varied backgrounds enriched their learning experiences and promoted cultural understanding.

Group engagement emerged as a strong theme, with participants noting how collaboration with peers fostered a sense of community and enhanced their learning. SENTA notes:

> Being around friends in my major helps me learn from them. They can teach me things I might have missed in class or keep me motivated. However, some friends can distract me with parties, so self-discipline is key.

This highlights the significance of social dynamics in the academic environment.

Group engagement and collaboration were essential for fostering community and supporting academic performance. This social support enhanced the participants' learning experiences and promoted their sense of belonging.

Theme 3: The Role of Instructor Feedback

Participants emphasized the critical role of instructor feedback in shaping students' metacognitive development. Research shows that timely and constructive feedback allows students to assess their understanding and adapt their learning strategies effectively. Exploring how faculty at Diverse and Inclusive Universities offer feedback and how students perceive it can inform practices that improve retention and graduation rates.

The cultural context in which participants learn significantly impacts their metacognitive awareness. ERRA articulates:

> It feels connected and like I am a part of something. It is a cultural thing for me, and it is inspiring to know that not only am I being guided by those whom I feel have been in my shoes, but one day, I will also be able to turn around and do the same thing for those who are coming behind me.

This connection enhances their learning experience and fosters a sense of belonging.

Feedback from professors plays a critical role in shaping students' metacognitive development. DIKA expressed, "I get feedback quite often. I think the advantage I have that my other peers do not is that I am local, so I am hands-on with my professors." This direct interaction allows her to clarify doubts and improve her understanding of course materials.

Theme 4: Family and Environmental Impact

The narratives highlight that family support is essential for academic success. LIJA shares:

> They motivate me to strive for the best because I do not want to return to that environment. I hope to get my master's degree and gain more research experience, preparing me for a PhD program.

This underscores the significance of family influence in the educational journey and its effect on motivation. The influence of family and environmental factors on academic performance was a recurring theme for most participants. Acknowledging their background fuels their determination to succeed academically and create a better future.

Research Questions	**Corresponding Themes**	**Contracts & Constraints**
RQ. 1: How does self-efficacy impact the academic performance of African American students in a diverse and inclusive university?	1. Persistence 2. Adaptability 3. Self-awareness 4. Self-discipline	**Awareness Constructs:**
		1. Problem identification (Self-awareness, Social awareness, and situation awareness)
		2. dissatisfaction -external triggers.
		3. Reflective practices.
		Exploration of solutions.
		Decision-making process.
		Adaptation and learning
		Awareness Constraints:
		1. Limited awareness.
		2. Lack of communication.
		3. Resource restraints.

RQ. 2: How does Meta-learning impact the academic performance of African American students in a diverse and inclusive university?	1. Mindset and academic Resilience 2. Self-confidence 3. Prioritization 4. Time-management	**Time Constructs:**
		1. Task value.
		2. Project time/study environment management.
		3. Critical thinking.
		4. Effort regulation (rehearsal, elaboration, organization).
		5. Clear communication.
		Time Constraints:
		1. Deadline.
		2. Time-sensitive tasks.
		3. Time availability.
RQ. 3: How does Self-regulated learning impact the academic performance of African American students in a diverse and inclusive university?	1. Motivation 2. Self-regulation 3. Learning strategies 4. Adjusting learning approach	**Motivation Constructs:**
		1. Intrinsic goal orientation
		2. Extrinsic goal orientation
		3. Control of leaning beliefs
		4. Motivation Constraints
		5. Resource constraints.
		6. Inadequate support.
		7. Cultural barriers.
RQ. 4: How does social interaction impact the academic performance of i African American students in a diverse and inclusive university?	1. Value of Multimedia resources 2. Collaboration and Intergroup engagement 3. The role of instructor feedback 4. Family and environmental impact	**Social engagement Constructs:**
		Engagement with classmates and instructors (Peer learning).
		Help seeking (Faculty and staff support).
		Social-engagement constraints:
		Time.
		Social norms and Expectations (Cultural barriers).
		Organizational culture.

Table 2: Themes and Categories (Illustrate the research questions concerning the corresponding themes and constructs/constraints of the research questions)

DISCUSSION

Discussion and Analysis of Findings

The findings underscore the importance of persistence and adaptability as essential elements for overcoming challenges and achieving academic success. Participants emphasized that self-efficacy beliefs are crucial for developing these traits, which enable them to manage setbacks and difficulties. This aligns with Bandura's (2001) Social Cognitive Theory, which indicates that individuals with high self-efficacy are more likely to persist in adversity. The results support previous research by Chen and Zimmerman (2021), demonstrating that self-regulated learning, including persistence, positively influences academic performance. Furthermore, Lee and Kuo (2022) highlight the significance of metacognitive strategies in enhancing educational outcomes, reinforcing the necessity of self-regulation as a vital component of effective learning.

The findings demonstrate that self-awareness and self-discipline are crucial for academic achievement. Participants indicated that recognizing their strengths and weaknesses improved their self-efficacy, enabling them to tackle academic challenges confidently. This observation supports the research by Zajacova et al. (2017), which found that self-discipline significantly impacts academic success. The interplay between self-awareness and self-discipline fosters a continuous self-regulation cycle; a concept echoed in Zimmerman's (2022) study, which identified self-efficacy as a mediator in the relationship between self-awareness and academic performance.

The study identified motivation as a significant driver of academic performance, influenced by self-efficacy, outcome expectations, and goal setting. Participants noted that strong self-efficacy beliefs led to increased motivation, facilitating engagement in learning activities. These findings align with Bandura's (2001) framework, emphasizing motivation's role in learning and achievement. Research by Liem et al. (2008) further supports this idea, indicating that high intrinsic motivation correlates with improved academic outcomes. The fear of failure emerged as a powerful motivator, prompting participants to seek support and resources, reflecting previous studies highlighting the strong influence of intrinsic and extrinsic motivations on student performance.

The findings demonstrate that multimedia resources significantly enhance students' learning experiences. Participants appreciated various resources, including digital textbooks, videos, and recorded lectures, facilitating flexible engagement with course content. This aligns with Mayer's (2019) research, which found that multimedia tools can improve learning outcomes when effectively designed. Liu and Zhang (2022) further support this by indicating that intrinsic motivation increases the perceived value of multimedia resources, leading to improved academic performance.

Recommendations Based on Study Results

Building on these findings, future research should investigate African American students' specific challenges in diverse educational settings. Studies must explore the intersection of race and technology in course design to address technology access disparities among student groups. Developing digital resources that cater to the unique needs of this population will enhance their academic experiences.

Educators and institutions should provide various multimedia resources to accommodate diverse learning preferences. This includes offering digital textbooks, incorporating external materials like articles and videos, and recording lectures for convenient review. Furthermore, promoting peer collaboration and engagement will enhance the learning environment and nurture resilience and adaptability among African American students.

Limitations and Delimitations

While this study provides valuable insights, it is essential to acknowledge its limitations and delimitations:

Limitations:

Sample Size: The study involved 20 participants from a single 'diverse and inclusive 'university. Although the in-depth qualitative approach yielded rich data, the findings may have limited generalizability to a broader population of African American students.

Self-Reported Data: The study relied on self-reported information from participants, who may be subject to biases or inaccuracies when recalling their experiences and perceptions.

Researcher Bias: Despite efforts to remain objective, the researcher's cultural background and personal experiences as an international student of African descent may have shaped the interpretation of the data.

Delimitations:

Institutional Context: The study was limited to a single, diverse, and inclusive university, which may have unique characteristics that differ from those of other institutions. Exploring multiple diverse and inclusive universities could offer a more comprehensive understanding of the phenomenon.

Academic Disciplines: The study included participants from various academic disciplines but did not focus specifically on any one field. Analyzing metacognitive strategies within specific academic programs may provide additional insights.

Socioeconomic Status: The study did not explicitly consider the participants' socioeconomic backgrounds, which may have influenced their academic experiences and access to resources. Incorporating this factor could reveal additional nuances in the findings.

Despite these limitations, this study offers a valuable foundation for future research. It contributes to the expanding body of knowledge regarding metacognition's effectiveness in improving African American students' academic performance in a diverse and inclusive university.

Conclusion

This research emphasizes the critical role of metacognition in shaping African American students' academic performance in a diverse and inclusive university. Key factors identified include persistence, adaptability, self-awareness, self-discipline, resilience, self-confidence, prioritization, and effective time management. The study highlights the importance of social interactions and multimedia resources in enhancing learning outcomes.

The insights gained from this research enhance understanding of metacognitive strategies in academic settings and establish a foundation for developing effective interventions that support African American students in their educational journeys. Further research is encouraged to examine these factors over time, ensuring that educational policies and practices continue to adapt in response to the needs of these students.

The findings of this study validate the theoretical framework and emphasize the importance of fostering inclusive and supportive environments that promote collaboration between students and instructors. By integrating

creative resources and encouraging peer engagement, educational institutions can significantly enhance the academic experiences of African American students. This research contributes to the growing body of knowledge on metacognitive practices, underscoring their critical role in influencing academic performance and nurturing resilience, adaptability, and motivation among diverse student populations.

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