**Enhancing Critical Thinking Skills in Higher Education: A Comprehensive Assessment Plan**

**Introduction**

In the landscape of higher education, the cultivation of critical thinking skills among students stands as a cornerstone for academic success and future career readiness. However, despite its undeniable importance, the effective transmission of critical thinking skills often eludes traditional educational approaches. This study endeavors to bridge this gap by developing and implementing a comprehensive critical thinking assessment plan tailored for college students. The overarching aim of this evaluation method is threefold: first, to illuminate the status of critical thinking among college students; second, to identify and address the barriers hindering the development of critical thinking skills within higher education; and third, to evaluate the efficacy of existing teaching methodologies and curricular designs in nurturing critical thinking abilities.

Central to this assessment plan are a series of probing questions designed to delve into the multifaceted nature of critical thinking. Initially, the focus lies on gauging the proficiency of college students in critical thinking through meticulous examination of their responses to various scenarios and problem-solving tasks. Subsequently, attention shifts towards identifying systemic challenges within the educational framework that impede the cultivation of critical thinking skills.

Moreover, this study delves into the evaluation of teaching methods and curriculum designs to ascertain their efficacy in fostering critical thinking among students. By engaging stakeholders in a critical examination of existing pedagogical practices, this assessment plan seeks to catalyze targeted interventions aimed at enhancing critical thinking skills. Ultimately, the overarching goal of this project is to equip stakeholders with a comprehensive understanding of college students' critical thinking abilities and effective strategies for their enhancement. By fostering collaboration and informed decision-making, this integrated evaluation strategy endeavors to empower educators, administrators, and students alike in navigating the complexities of the modern educational landscape.

**Literature Review**

Many studies on critical thinking in higher education illustrate how crucial it is to prepare students for modern professional difficulties. More teacher education research is needed to help student teachers navigate difficult settings. Student instructors should solve real-world situations and make decisions during teaching practicums. These experiences enhance critical thinking and attitudes. Lithoxoidou and Georgiadou (2023) report a curriculum reform of the University of Western Macedonia Department of Primary Education. The project seeks to include attitudes and critical thinking in theory courses and teaching practicums. The new courses employ direct infusion to assist student teachers in critically evaluating their teaching approaches, giving them control over their professional advancement.

Along with student-centered teaching, this approach emphasizes defined learning goals, including subject understanding and critical thinking. Similarly, Indrašienė et al. (2023) examine crucial thinking among college students learning it. They explain how students' school memories show how essential it is to be interested in the subject and peers through qualitative research. The results demonstrate the importance of pupils applying real-world classroom knowledge with teacher assistance. This is the finest technique to teach critical thinking. Sellars et al.(2018) examined crucial thinking in schools worldwide and stressed its importance as a skill needed in numerous jobs. Despite its relevance, critical thinking is difficult to incorporate into school procedures and regulations in many social and cultural environments. The writers propose educational strategies that improve students' critical thinking while considering their specific social and cultural contexts. Christodoulou and Papanikolaou (2023) discuss more critical thinking strategies for teacher-to-be. Their study suggests case-based learning as a student-centered strategy to promote critical thinking in teacher-training programs. Researchers examined how potential teachers responded to sustainable development education case studies. They conducted this to demonstrate the importance of personalized critical thinking therapy for students.

Pnevmatikos et al. (2023) conclude with first-year college students' critical thinking understanding and improvement plans. The study reveals how vital it is to match instructional interventions to students' thinking and where they don't comprehend essential thinking. These results indicate how crucial it is for teachers to consider their students' thoughts while developing critical thinking skills. These findings reinforce that critical thinking involves several perspectives, reflection methods, and mental skills needed to solve problems and make sensible choices. Teacher education should emphasize crucial thinking since instructors change brains and engage the future generation in government. However, adding critical thinking to teacher education programs has drawbacks. It needs modifications to class delivery, teacher development programs, and critical thinking-based student evaluations.

Lithoxoidou and Georgiadou (2023) established a component emphasizing the need for training practice experiences for critical thinking. Student teachers can employ reflective methods, solve real-world challenges, and develop decision-making skills in real classrooms. The authors' direct infusion method emphasizes the importance of critical thinking in academic and practical teacher education courses to ensure that everything fits and students learn what they need to. In a 2023 study, Indrašienė et al. examine how college students who practice critical thinking employ critical reflection in their daily lives. The authors demonstrate that students' learning thoughts go beyond memorization and incorporate qualitative study on people's thoughts. The results indicate that students must work with peers and learning resources to develop critical thinking abilities and attitudes. Sellars et al. (2018) detail the challenges and potential of developing critical thinking in schools. Their global focus highlights the social and cultural issues influencing crucial thinking in diverse locales. Even if there are issues, the writers encourage educational strategies that assist students in acquiring critical thinking abilities within their sociocultural contexts because it improves real-world critical thinking.

Christodoulou and Papanikolaou (2023) emphasize the need for innovative, student-centered critical thinking in pre-service teacher preparation. Teachers can assist students improve critical thinking abilities by using case-based teaching to connect classroom knowledge to real-world events. The study indicates the importance of personalizing therapies to each student's critical thinking profile, considering their requirements and skills. Helping college students think critically presents obstacles and opportunities, according to Pnevmatikos et al. (2023). Their study reveals how vital it is to connect instructional interventions to students' critical thinking knowledge and find gaps in their reasoning. The results also demonstrate the importance of teachers encouraging students to reflect on their work and provide many learning methods to improve critical thinking skills and a better understanding of major topics. Finally, higher education research on critical thinking reveals how crucial it is to solve difficult problems and make informed decisions in today's fast-changing environment. Teacher education must improve critical thinking because teachers change minds and get the next generation active in government. However, incorporating critical thinking into teacher training programs requires changes to class delivery, teacher development programs, and student evaluation methods that align with critical thinking aims. Teachers can help students think critically, solve issues creatively, and participate in society through creative pedagogy, reflective practices, and focused interventions. Top of Form

**Data Collection Plan**

The complex strategy to measure undergraduates' critical thinking skills in numerous areas utilizes quantitative and qualitative methodologies. The main test tool to be utilized in this study is the is the Critical Thinking Assessment Test (CAT). It was chosen for its validity in testing critical thinking. Many reasons exist to employ the CAT. First, Miller et al. (2023) state that the CAT is a standard critical thinking test; therefore, children from diverse cultures can be tested similarly. Well-planned tests can examine students' analysis, conclusion-drawing, evaluation, and problem-solving skills. A proven evaluation instrument like the CAT lets you trust data and compare it to trends or benchmarks.

Karunarathne and Calma (2023) say the CAT also assesses students' critical thinking skills, which helps colleges identify strengths and weaknesses. This insight will enable instructors and administrators to adapt interventions and teaching techniques to meet all students' requirements. By identifying weaknesses, pupils can receive targeted critical thinking instruction. Polls and focus groups supplement CAT test data on students' critical thinking skills and teaching methods with rich, qualitative data. Surveys help organize student opinions on professors, what they desire, and how well they think critically. This numeric data could be useful when comparing CAT results to how students and others view critical thinking skills. Focus groups also reveal what college students think, feel, and experience about critical thinking. Focus groups assist researchers in understanding students' critical thinking through open-ended discussions conducted by a professional moderator. Focus groups, where students engage in deep talks, offer high-quality data that can be used to construct critical thinking-focused curricula, teaching, and school rules.

**Population of Interest**

The study targets undergraduate sophomores at Fisk University, a historically Black university renowned for its academic rigor and commitment to cultivating critical thinking skills among its students. By focusing on this specific cohort at Fisk University, the research aims to delve into the development and assessment of critical thinking abilities within the unique educational environment provided by the institution.

**Participant Recruitment Strategy**

Our plan for Fisk University will be based on the privacy of participants, protection of their rights, confidentiality, and informed consent. We will start by carrying out a broad information campaign regarding the study through different channels: university e-mail lists, class announcements, and widely visited social media platforms like Facebook, Instagram, Twitter, and Snapchat. In these interactions, the participant will get a detailed understanding of the goal, process, and likely advantages and disadvantages. On the other hand, the students will be informed that their participation is entirely voluntary to avoid any possible emotions they might have when not accepting to participate in the project. Lastly, the respondents will be informed of the consent forms, which mention the rights of the respondents, for instance, privacy and the right to withdraw without any negative consequence.

Lastly, to inspire them to be more involved in the study and to show our gratitude for their contributions, we may offer small tokens, like gift cards and vouchers, to the participants once the survey is completed. This motivation serves as a symbol of appreciation for their contribution to the knowledge base. Nevertheless, it will be impossible for a participant to mistake participating in the research as optional, and the research result cannot be connected, in any way, to the participant`s academic performance. Consistent with this recruitment strategy, we will ensure that the ethics code of voluntary participation and informed consent is always upheld and that Fisk University’s community is respected and supported.

**Number of Individuals to Assess and Rationale**

As a researcher focusing on critical thinking skills within the context of Fisk University, I recognize the importance of selecting an appropriate number of individuals for assessment. Considering the unique educational environment of Fisk, I plan to work with a sample size of approximately 100 undergraduate students. This sample size is chosen to ensure that the study maintains statistical significance while allowing for a comprehensive examination of critical thinking abilities among Fisk University students. Furthermore, I am mindful of the necessity to capture diversity within this sample. Therefore, I will ensure representation across various genders, socioeconomic backgrounds, and academic disciplines present at Fisk University. By including a diverse range of students, I aim to obtain a holistic understanding of critical thinking skills within the specific context of Fisk, contributing valuable insights to the institution's ongoing commitment to nurturing critical thinking among its student body.

**Timeline for data collection**

The date collection period for our Fisk University research will be three months in duration, and it will start in September and run to November. In our initial stage, we will conduct email announcement and promotion of the study to our social media platforms, hence invite participants to join the study. The length of data collection process will comprise of a four-week span, and participants will have enough time to respond to all of the surveys and other assessment tools. We will make sure that we will stay in touch with the participants by sending them weekly reminders and updates so that we will keep the level of engagement and participation continuous during the whole data collection process. The first milestone for the study is gaining ethical approval from the Institutional Review Board (IRB) of Fisk University before the data collection. The second milestone is to recruit as many participants as needed within the first two weeks.

**Accessing And Contacting Individuals**

To achieve a comprehensive plan for reaching and interacting with the highly sophisticated undergraduate students at Fisk University, we will work in partnership with the institution's research office. This partnership not only shortens lines of communication but also makes the data collection more effective within this specific educational context of the university. Following ethical practices and ensuring the participants' rights and privacy, we will start the data collection activities after consulting at the IRB of Fisk University. This provides the ground for the study to be carried out correctly while ethics are maintained simultaneously. Given the approval process is completed, the next step will involve recruiting participants. This will be done using the email lists, course updates and student groups available at Fisk University.

Moreover, we will employ student-focused social media apps and relevant online communities in which to conduct our outreach. By interacting directly with the students of Fisk University through these platforms, we will have that personal touch with them, inviting them to participate in the study and urging them to take the test. Our program's outreach strategy will be cross-cutting and pluralistic while ensuring that all Fisk University demographics and disciplines are represented. As to the participant selection, we will base our choice on the systematic and tailor-made approach according to our research objectives. This may be done via a two-pronged approach that incorporates stratified random and purposive sampling to provide a clear picture of the nature of critical thinking skills at Fisk University undergraduates.

**Potential challenges**

Issues could come up while gathering the data. Students, firstly, might have a negative attitude towards the survey if they assume it will take a lot of time or if they have to do other things. The probability that the respondents will say yes to the survey questions might decrease, thus influencing the results, especially if they respond with a reaction. Furthermore, lasing to the desired target group may also be problematic, leading to under-sampling and resulting in the sample's narrowness of diversity and representativeness. Consequently, these restrictions affect the accuracy and the importance of the findings.

Also, the privacy and security of information are crucial. Ethical research requires masking the identity of the respondents and respecting all security regulations governing data. Compliance with the rules and protocols and protecting privacy by setting the guidelines are the basics of sticking to ethical standards and ensuring data integrity. Addressing these high-priority challenges is instrumental in ensuring that the research is conducted ethically and that the data is valid and reliable. Besides that, we will secure data using encryption features such that the data will be stored on password-protected password-protected servers, accessible only by authorized team members. Strategies such as making participants' responses anonymous and encrypting the sensitive data will be used to guarantee the privacy and confidentiality of data. The ongoing supervision and audit of our data management methods shall maintain our stand in the laws and ethics during the research period. Understanding these mitigation measures is to meet the challenges and have a prosperous academic career at Fisk University.

**Analysis Plan**

We will use quantitative and qualitative methodologies in our analysis plan to provide an utterly analytical assessment of the college students' critical thinking skills and viewpoints Quantitative analysis effectively assesses students' critical thinking skills (García-Moro et al., 2021). Qualitatively, the analysis will use descriptive statistics to summarize CAT scores, showcasing central tendencies and variability. With this quantitative approach, we can determine students' strengths and weaknesses in critical thinking and discover possible discrimination, filtered by factors such as gender, age, and academic major. Inferential statistics will be used to testify more about the possibility of such differences, to identify which group is characterized by such differences, and to suggest the appropriate teaching techniques and interventions to be used in such cases. By differentiating data within demographic groups, we attempt to balance equity issues, and thus, teachers and management can adapt their lessons for different student groups.

We will also employ thematic analysis of the qualitative data from the survey and focus group sessions to dig deeper into students' perceptions and experiences related to critical thinking and teaching methods. Thematic analysis organizes qualitative data by classifying and repeating themes, according to Naeem et al. (2023). This thematic analysis will entail uncovering repeated themes in the qualitative data, enabling us to capture students' intricate emotions and points of view. This will supplement the quantitative analysis because it will make the latter data more diverse and informative and thus improve educational policies and practices. Through quantitative and qualitative data, we want to deliver a complete picture of the critical thinking levels and experiences college students have to contribute to better decisions and the design of targeted interventions for those who need help. Additionally, our research aims to analyze data disaggregation and equity issues to ensure that our findings are actionable, help eliminate existing disparities, and promote inclusive educational policies.

**Considerations for Equity**

Regarding equity in the research we carry out on college critical thinking examinations, data disaggregation is crucial to the whole process. When we divide the data by variables such as gender, race, ethnicity, and first-generation status, we can discover the hidden nuances and disparities in the critical thinking abilities of student populations. For several reasons, data must be organized. First, it lets us detect unfair or conflicting critical thinking results across many student groups. Individually examining each item can reveal irregularities that may not be apparent when analyzing large amounts of data. We need to understand the various critical thinking challenges different groups encounter requires this level of information. Through transparency and accountability, data disaggregation ensures school exams reflect all students' needs and experiences. We shall highlight unjust practices to help minority pupils. This proactive equity strategy will allow students to study in a safe and inviting environment and adapt school policies to their requirements (Loignon et al., 2021). Disaggregating data improves education's social justice. Identifying and addressing institutional disparities that may hamper student performance is crucial. Intersectional critical thinking outcomes analysis will help us identify and overcome challenges. Higher education will be fair. In conclusion, data disaggregation in this research design will ensure fairness in assessing undergraduate critical thinking. Dividing data by demographics will going to help us detect unfair practices, argue for targeted remedies, and promote inclusive teaching methods that benefit all students. Top of Form

**Expected Findings**

According to the expected outcomes, critical thinking skills should vary by academic discipline and race/ethnicity. Students arrive at school with various experiences, histories, and educational contexts supporting this premise. Understanding these differences helps teachers and administrators tailor lessons to varied student groups. Lack of real-world problem-solving and group questioning are common issues. These issues make it tougher for pupils to evaluate, synthesize, and analyze, which might hinder critical thinking. If teachers know about these frequent issues, they can employ tailored solutions to give students real-world learning experiences to think critically and solve problems.

Also, survey respondents may lie, and the Critical Thinking Assessment Test (CAT) findings may only reflect rudimentary critical thinking skills. Latkin et al. (2017) argue that self-report bias might cause students to give socially acceptable answers or misjudge their critical thinking skills. On top of that, CAT scores may not correctly reflect a student's critical thinking skills and competence. The challenges demonstrate the importance of using several evaluation methods and comparing data from diverse sources to provide accurate and dependable results. Teachers, management, and curriculum creators will receive the intended findings to improve teaching and adjust the curriculum to encourage critical thinking. Publicizing the data helps stakeholders understand what works and doesn't in their educational programs. Then, this knowledge may be used to make decisions, use resources wisely, and use research-based strategies to improve critical thinking in all students. Data collection will also "close the loop" by developing and testing existing measures. Testing, intervening, and assessing iteratively ensures educational approaches adapt to students' changing needs and promote critical thinking. Close the loop to allow children to think critically, solve difficult challenges, and succeed in a dynamic, connected world.

**Conclusion**

This extensive evaluation strategy for strengthening critical thinking skills in higher education shows how crucial it is to frequently verify students' knowledge, perspectives, and learning experiences to base policies and treatments on facts. This assessment strategy employs quantitative and qualitative methodologies to teach undergraduate students critical thinking. The literature study emphasizes the importance of critical thinking for preparing students for today's occupations so that many student groups might learn it. It also emphasizes creative teaching and focused solutions. Based on research, the data-collecting plan tests college students' critical thinking across subjects. This technique provides a full plan for collecting quantitative and qualitative data on your students' critical thinking skills and perspectives using surveys, focus groups, and established exams like the Critical Thinking Assessment Test (CAT). The analysis technique also describes deciphering and evaluating data to uncover patterns, differences, and ways to develop critical thinking. Researchers can ensure a fair evaluation process and encourage inclusive teaching approaches that serve all students by dividing data into demographic categories. The expected outcomes reveal that students' critical thinking skills vary and that the typical teaching and grading education method has flaws. By sharing outcomes with stakeholders and participating in continuous development, teachers and managers may increase critical thinking in higher education. This evaluation approach helps improve critical thinking instruction, guide teaching methods, and influence evidence-based decisions. Researchers and data scientists can help stakeholders create a learning environment where kids can acquire critical thinking to solve difficult challenges and succeed in today's fast-paced and connected society.

**References**

Angeliki Lithoxoidou, & Triantafyllia Georgiadou. (2023). Critical Thinking in Teacher Education: Course Design and Teaching Practicum. *Education Sciences*, *13*(8), 837–837. <https://doi.org/10.3390/educsci13080837>

Barnabè, F., Armenia, S., Nazir, S., & Pompei, A. (2023). Critical Thinking Skills Enhancement through System Dynamics-Based Games: Insights from the Project Management Board Game Project. *Systems*, *11*(11), 554. <https://doi.org/10.3390/systems11110554>

Christodoulou, P., & Papanikolaou, A. (2023). Examining Pre-Service Teachers' Critical Thinking Competences within the Framework of Education for Sustainable Development: A Qualitative Analysis. *Education Sciences*, *13*(12), 1187. <https://doi.org/10.3390/educsci13121187>

García-Moro, F. J., Gómez-Baya, D., Muñoz-Silva, A., & Martín-Romero, N. (2021). A Qualitative and Quantitative Study on Critical Thinking in Social Education Degree Students. *Sustainability*, *13*(12), 6865. <https://doi.org/10.3390/su13126865>

Karunarathne, W. V. A. D., & Calma, A. (2023). Assessing creative thinking skills in higher education: deficits and improvements. *Studies in Higher Education*, 1–21. <https://doi.org/10.1080/03075079.2023.2225532>

Latkin, C. A., Edwards, C., Davey-Rothwell, M. A., & Tobin, K. E. (2017). The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland. *Addictive Behaviors*, *73*, 133–136. <https://doi.org/10.1016/j.addbeh.2017.05.005>

Loignon, C., Dupéré, S., Leblanc, C., Truchon, K., Bouchard, A., Arsenault, J., Pinheiro Carvalho, J., Boudreault-Fournier, A., & Marcotte, S. A. (2021). Equity and inclusivity in research: co-creation of a digital platform with representatives of marginalized populations to enhance the involvement in research of people with limited literacy skills. *Research Involvement and Engagement*, *7*(1). <https://doi.org/10.1186/s40900-021-00313-x>

Miller, B. T., Camarda, A., Mercier, M., Burkhardt, J.-M., Morisseau, T., Bourgeois-Bougrine, S., Vinchon, F., El Hayek, S., Augereau-Landais, M., Mourey, F., Feybesse, C., Sundquist, D., & Lubart, T. (2023). Creativity, Critical Thinking, Communication, and Collaboration: Assessment, Certification, and Promotion of 21st Century Skills for the Future of Work and Education. *Journal of Intelligence*, *11*(3), 54. <https://doi.org/10.3390/jintelligence11030054>

Naeem, M., Ozuem, W., Howell, K. E., & Ranfagni, S. (2023). A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. *International Journal of Qualitative Methods*, *22*(1). sagepub. <https://doi.org/10.1177/16094069231205789>

Pnevmatikos, D., Christodoulou, P., Georgiadou, T., & Lithoxoidou, A. (2023). Undergraduate Students' Conceptualization of Critical Thinking and Their Ideas for Critical Thinking Acquisition. *Education Sciences*, *13*(4), 416. <https://doi.org/10.3390/educsci13040416>

Sellars, M., Fakirmohammad, R., Bui, L., Fishetti, J., Niyozov, S., Reynolds, R., Thapliyal, N., Smith, Y., & Ali, N. (2018). Conversations on Critical Thinking: Can Critical Thinking Find Its Way Forward as the Skill Set and Mindset of the Century? *Education Sciences*, *8*(4), 205. mdpi. <https://doi.org/10.3390/educsci8040205>

Valdonė Indrašienė, Jegelevičienė, V., Jolanta Pivorienė, Daiva Penkauskienė, Jolanta Pivorienė, Asta Railienė, & Sadauskas, J. (2023). Critical Reflection in Students' Critical Thinking Teaching and Learning Experiences. *Sustainability*, *15*(18), 13500–13500. <https://doi.org/10.3390/su151813500>

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