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**Research Proposal**

**“Measuring the level of critical thinking skill of a public university students in Cambodia”**

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**Course: Research Methodology**

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# CHAPTER1: INTRODUCTION

## **Research Background**

In today's ever-changing world, critical thinking skills are crucial for individuals. As Cambodia works towards improving its education system and preparing students for the challenges of the 21st century. According to [Thomas, Theda](https://acuresearchbank.acu.edu.au/researcher/80q43/theda-thomas) (2011). Critical thinking is a crucial skill that students need to develop while at university. It is important for a well-educated person to be able to make well-informed judgments, be able to explain their reasoning and be able to solve unknown problems.

Another study from Ghazi Vakili, Et al (2014). The current world needs people who have a lot of different abilities such as cognition and application of different ways of thinking, research, problem solving, critical thinking skills and creativity. In addition to critical thinking, learning styles is another key factor which has an essential role in the process of problem solving.

However, there is a lack of thorough research on measuring critical thinking skills specifically among Cambodian university students. It is essential to understand the current level of critical thinking abilities among university students in Cambodia so that areas for improvement can be identified and targeted interventions can be implemented.

## **Research Problem**

Critical thinking is also one of the 21st century skills that are essential for success in the global economy. These skills are the foundation for lifelong learning and the ability to adapt to change.

According to the study by the Asian Development Bank (ADB) in 2019, only 17% of Cambodian students were able to demonstrate critical thinking skills at a basic level. The study also found that only 25% of Cambodian teachers were able to teach critical thinking skills effectively.

Moreover, based on a survey of university graduates in Cambodia, Neak (2018) reported that graduates have low critical thinking skills. The survey also found that graduates had difficulty with tasks such as identifying and defining problems, gathering and evaluating information, and drawing conclusions.

According to the studies by Khem and Sok (2017) and Neak (2019), Cambodian university students have low levels of critical thinking skills. The authors found that students were often unable to identify the main points of an argument, distinguish between facts and opinions, or evaluate the strength of an argument

Another study by the World Economic Forum (2018) found that Cambodia ranked 114th out of 137 countries in terms of critical thinking skills. The study, which was titled "The Global Competitiveness Report 2018", found that Cambodia scored 4.2 out of 7 on the critical thinking pillar. This means that Cambodia's critical thinking skills are below average compared to other countries.

There is a large body of literature that studies the level of critical thinking skill (Khem & Sok, 2017; Neak, 2018; WEF, 2018; Neak, 2019; ADB, 2019); however, those studies explored the level of critical thinking skill in Cambodia context many years ago. A study by [Butler (2012)](https://www.emerald.com/insight/content/doi/10.1108/JRIT-08-2020-0041/full/html), which examined the effects of a short online course on improving students’ reasoning and argument analysis skills, found that the students who completed the course showed significant improvement in their critical thinking performance, and that this improvement was maintained after four months. The study also found that the students who improved their critical thinking skills also showed better academic outcomes, such as higher grades and retention rates. This suggests that critical thinking can be learned and developed through training and practice, and that the benefits of better reasoning can persist over time. Therefore, the purpose of this study is to measure the level of critical thinking skill in 2023 in Cambodia context, and to find out the significant difference in the level of critical thinking skill across demographic variables.

## **Research Purpose**

Therefore, the purpose of this study is to measure the level of critical thinking skill of a public university student in Cambodia.

## **Research Objectives**

There are two main objectives of this research:

1. To examine the level of critical thinking skills of a public university students in Cambodia
2. To investigate the significant difference in the level of critical thinking skills of a public university student in Cambodia across demographic variables.

## **Research Questions**

We did depression research among college students that was primarily aimed at Cambodia. To summarize this study article, we have identified two key research questions:

1. What is the level of critical thinking skills of a public university students in Cambodia?
2. Is there any significant difference on the level of critical thinking skills of a public university student in Cambodia across demographic variables?

## **Research Hypothesis**

**Null Hypothesis:**

There is no significant difference on the level of critical thinking skill of a public university student in Cambodia across demographic information.

**Alternative Hypothesis:**

There is a significant difference in the level of critical thinking skill of a public university student in Cambodia across demographic information.

## **Significance Of Study**

This study will help to enhance the knowledge of the readers about the level of the critical thinking skills of public university students in Cambodia. It will also be useful as a supporting document for upcoming studies which are related to this topic. Furthermore, it may help to make the readers, particularly Cambodians, to identify clearly about the level of critical thinking skills of a public university students' in Cambodia, and it will provide the significance as below:

## **Practical Significance**

This study aims to assess the level of critical thinking skill among public university students in Cambodia and to inform relevant stakeholders on the level of critical thinking skill of a public university students’ in Cambodia. Measuring the critical thinking skills of Cambodian public university students provides valuable insights to enhance a deeper understanding of students, enabling relevant stakeholders to create effective programs, refine education policies to improve the level of critical thinking skill, thus, equip them with the necessary skills for success in academics, employment, and society.

Also, the result of the study will help to identify which group has the highest priority to improve critical thinking skills. The study aims to examine the level of critical thinking skill across demographic information such as gender, age, ethnicity, and educational background. Therefore, the result will help to identify the significance difference between demographic information on the level of critical thinking skills of a public university students’ in Cambodia.

## **Theoretical Significance**

Critical thinking skill is an important ability for university students to develop and apply in their academic, professional, and social contexts. However, there is a lack of research on the level of critical thinking skill among university students in Cambodia, a developing country with a unique culture, history, and education system. Therefore, this study aims to fill this gap by measuring and analyzing the level of critical thinking skill among public university students in Cambodia, using a valid and reliable instrument. The result of the study will contribute to the literature on critical thinking skills in higher education, especially in the Cambodian context. It will also provide useful insights and implications for researchers, educators, policymakers, and students who are interested in improving the quality of higher education and the development of human capital in Cambodia.

## **Definition Of Key Terms**

Critical thinking refers to the process of actively and objectively analyzing information and arguments, identifying biases and assumptions, and considering alternative perspectives in order to arrive at a well-informed conclusion. It involves the ability to analyze, evaluate, and synthesize information logically and effectively to form well-reasoned judgments or decisions. Critical thinking enables individuals to assess the credibility and reliability of information, develop creative solutions to problems, and make sound decisions based on evidence and reasoning. In essence, critical thinking is about questioning assumptions, challenging beliefs, and using logic and evidence to arrive at informed conclusions.

## **Proposed Chapter Outline**

To conduct our research proposed outline there are three chapters divided. In chapter one, Introduction will introduce the research background, research problem, research purpose, research objectives, research questions, research hypothesis, the significance of the study, definition of key terms, and proposed chapter outline. In chapter two, the literature review will focus on the concept of critical thinking skill, the way to measure the level of critical thinking among university students, the level of critical thinking skill and the conceptual framework. Chapter three, the methodology will present the research design, tools, sample and sampling, data collection procedure, data analysis, and conclusion. Furthermore, references and appendices will be included in the last page’s part.

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# CHAPTER 2: LITERATURE REVIEW

## **What are critical thinking skills**

According to Paul (2016), Critical thinking is the ability to think clearly and rationally, understanding the logical connection between ideas. It is a skill that can be learned and developed through practice. Critical thinkers are able to identify, evaluate, and use information effectively. They are also able to think creatively and solve problems.

Here are some of the benefits of critical thinking:

* **Improved decision-making:** Critical thinkers are better able to make informed decisions because they are able to weigh the pros and cons of different options.
* **Increased creativity:** Critical thinkers are more likely to come up with new and innovative ideas because they are not afraid to challenge the status quo.
* **Enhanced problem-solving skills:** Critical thinkers are better able to identify and solve problems because they are able to think outside the box and consider different perspectives.
* **Improved communication skills:** Critical thinkers are better able to communicate their ideas clearly and concisely because they are able to organize their thoughts and arguments in a logical way. Beside from critical thinking skills there are also some skills that associated with it and here are some of those skills:
* **Identifying the problem:** The first step in critical thinking is to identify the problem that needs to be solved. This may involve gathering information, defining the problem, and clarifying the goals.
* **Gathering information:** Once the problem has been identified, critical thinkers gather information that is relevant to the problem. This information may come from a variety of sources, such as books, articles, websites, and interviews.
* **Analyzing information:** Critical thinkers analyze the information they have gathered to identify patterns, trends, and relationships. They also evaluate the credibility of the information and identify any biases or inaccuracies.
* **Generating solutions:** Critical thinkers generate solutions to the problem by brainstorming, considering different options, and weighing the pros and cons of each option.
* **Evaluating solutions:** Critical thinkers evaluate the solutions they have generated to determine which one is the best solution to the problem. They consider the feasibility, effectiveness, and cost of each solution.
* **Communicating solutions:** Critical thinkers communicate their solutions to the problem in a clear and concise way. They may use a variety of communication methods, such as written reports, presentations, or infographics.

So we can say that critical thinking is a valuable skill that can be used in a variety of settings. It can help you make better decisions, solve problems, and communicate your ideas more effectively. If you want to improve your critical thinking skills, there are a number of resources available to help you. You can take courses, read books, or attend workshops. You can also practice critical thinking skills in your everyday life by asking questions, challenging assumptions, and thinking about things from different perspectives.

## **Why critical thinking skills is important**

Critical thinking is an important skill that should be developed and honed by individuals throughout their lives. It involves the ability to analyze, evaluate and interpret information effectively, which is essential for making informed decisions and solving complex problems. In this essay, we will discuss why critical thinking skills are important in various aspects of life and how they can benefit individuals.

**The first** reason why critical thinking skills are important is that they help individuals to make well-informed decisions. In today's world, we are constantly bombarded with information from multiple sources, such as social media, news, and advertisements. Critical thinking skills allow individuals to sift through this information, identify reliable sources, and evaluate the credibility of the information presented. This helps individuals to make informed decisions based on facts and evidence rather than being swayed by opinions or emotional responses.

**Secondly**, critical thinking skills enable individuals to solve complex problems. The ability to think critically and objectively is crucial when faced with a challenging problem that requires creative and innovative solutions. Such skills allow individuals to approach problems from different angles, consider multiple perspectives, and choose the most effective solution. This not only improves problem-solving abilities but also leads to better outcomes in both personal and professional life.

**Thirdly**, critical thinking skills are vital when it comes to innovation and creativity. The ability to think creatively and develop new ideas is becoming increasingly important in today's rapidly changing world. Individuals who possess critical thinking skills are more likely to come up with innovative solutions to complex problems and contribute to society's progress. They can identify gaps in knowledge or understanding and find ways to bridge them, leading to new discoveries and advancements in various fields.

**Fourthly**, critical thinking skills are essential for effective communication. Effective communication involves being able to articulate ideas clearly, listen actively, and respond thoughtfully. Critical thinking skills enable individuals to communicate their thoughts and ideas effectively and persuasively. They can evaluate arguments and counterarguments and present their ideas in a logical and coherent manner, leading to more productive discussions and better outcomes.

**Fifthly**, critical thinking skills enable individuals to avoid being misled by fake news and misinformation. With the rise of social media and the ease of access to information, it is becoming increasingly challenging to distinguish between reliable and unreliable sources of information. Critical thinking skills allow individuals to evaluate the credibility of the information presented, identify biases and underlying assumptions, and make informed decisions based on facts and evidence rather than emotions or opinions.

**Lastly**, critical thinking skills are essential for personal growth and development. They help individuals to challenge their own beliefs and assumptions, question the status quo, and expand their knowledge and understanding of the world around them. This leads to personal growth and self-improvement, as individuals become more open-minded, reflective, and receptive to new ideas and perspectives.

**In conclusion**, critical thinking skills are essential in various aspects of life. They enable individuals to make well-informed decisions, solve complex problems, and communicate effectively. They also facilitate innovation and creativity, prevent people from being misled by fake news and misinformation, and promote personal growth and development. Therefore, it is important for individuals to develop and hone their critical thinking skills throughout their lives.

## **How to measure critical thinking skills**

According to BioScience’s journal (Bissell, A. N., & Lemons, P. P. (2006)), they chose Bloom's taxonomy of educational objectives (Bloom 1956), which is a well-accepted explanation for different types of learning and is widely applied in the development of learning objectives for teaching and assessment (e.g., Aviles 1999). Bloom's taxonomy delineates six categories of learning: basic knowledge, secondary comprehension, application, analysis, synthesis, and evaluation (box 1). The first two categories, basic knowledge, and secondary comprehension do not require critical-thinking skills, but the last four—application, analysis, synthesis, and evaluation—all require the higher-order thinking that characterizes critical thought. The definitions for these categories provide a smooth transition from educational theory to practice by suggesting specific assessment designs that researchers and instructors can use to evaluate student skills in any given category. Other researchers and even entire departments have investigated how to apply Bloom's taxonomy to refine questions and drive teaching strategies (e.g., Aviles 1999, Anderson and Krathwohl 2001). Nonetheless, the assessments developed as part of these efforts cannot be used to measure critical thinking independent of content. The second major impediment to developing critical thinking in the classroom is the difficulty that faculty face in measuring critical-thinking ability per se. It is relatively straightforward to assess students' knowledge of content; however, many faculty lack the time and resources to design assessments that accurately measure critical-thinking ability (Facione 1990, Paul et al. 1997, Aviles 1999). A large body of literature already exists showing that critical thinking can be assessed (e.g., Cromwell 1992, Fisher and Scriven 1997). The critical-thinking assessments that have been most rigorously tested are subject-independent assessments. These assessments presumably have the advantage of allowing measurements of critical-thinking ability regardless of the context, thus making it possible to compare different groups of people (Aretz et al. 1997, Facione et al. 2000). And according to Psychology Learning and Teaching, 2(1), 17-22 by VAIVA RIMIENE at Vilnius Pedagogical University. They used the California Critical Thinking Skills Test (CCTST) and California Critical Thinking Disposition Inventory (CCTDI) to measure the cognitive and motivational components of critical thinking. The CCTST yields an overall score (0-34) on critical thinking skills, and five subscales: analysis (0-9); evaluation (0-14); inference (0-11); deductive (0-16); and inductive (0-13). Scores on the seven CCTDI scales (truth seeking, open-mindedness, analyticity, systematicity, self-confidence, inquisitiveness, maturity) can range from 10 to 60; scores above 40 indicate a positive inclination toward the scale’s target disposition. The overall score can therefore range from 70 to 420, scores above 280 indicating a positive inclination toward critical thinking.

As we have researched so far, we decided to measure critical thinking(CT) skill of university students depending on 2 main groups' opponents such as CT Disposition and CT skills.

For Disposition skills, we will focus on asking questions that involve the topics of truth seeking, open-mindedness, self-confidence, and maturity.

For cognitive Skills, we will focus on asking questions that involve the topics of analysis, evaluation, Inference, deductive and inductive. Both of these 2 main group components will be measured in 2 categories for the experimental and the control.

## **Level of critical thinking skills**

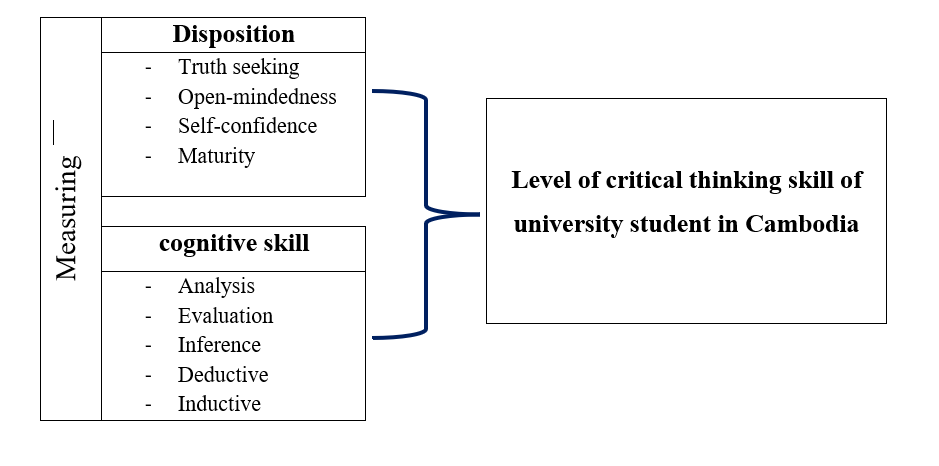
According to a study by Sarah R. Bevan (2016) found that Cambodian students scored significantly lower on a critical thinking test than students from other countries. The study, which was published in the journal Thinking Skills and Creativity, found that Cambodian students scored an average of 39 out of 100 on the critical thinking test, while students from other countries scored an average of 56. This suggests that critical thinking skills in Cambodia are generally low.

Another study by Sorn Sopheap, Keo Sovannarith, and Bun Sopheak (2019) found that Cambodian teachers also have low critical thinking skills. The study, which was published in the journal *Instructional Science*, found that Cambodian teachers scored an average of 36 out of 100 on the critical thinking test, while teachers from other countries scored an average of 52. This suggests that critical thinking skills among Cambodian teachers are also generally low.

## **Conceptual framework**

We decided to measure cognitive skills and dispositions to see the level of critical

thinking skills of university students in Cambodia.



# CHAPTER 3: RESEARCH METHODOLOGY

## **. Research design**

The current study will employ a quantitative method in descriptive design on measuring the level of critical thinking skills of university students in Cambodia. The main purpose of this study is to investigate and understand the level of critical thinking skills of public university students in Cambodia.

## **Research instrument**

In order to conduct this research, we will use surveys and questionnaires to collect data. We will use Google Forms to survey college students in 8 programs at that university. After collecting the data, we will analyze it using content analysis. We will arrange the data in a way that makes it easy to analyze. To measure the level of critical thinking among universities in Cambodia. The questionnaires will be divided into three main parts. First of all, student information questionnaires such as; age, gender, education, income, married status, married family status, career and religion will be conducted. Secondly, the questionnaires based on their disposition and cognitive skills will be asked in the second section. Finally, questionnaires that can point out about the level of their critical thinking skills will be conducted. The data collection process will be done quantitatively.

## **Research sample and sampling**

To conduct our research a sample of 320 students from a public university in Cambodia, 8 programs who are studying in that university from year one to year 4, located in Phnom Penh will be asked to participate in the survey. This group of samples have been selected because these following reasons:

* Easy to conduct the research
* Each department has different teaching technique
* Compare the level of Critical Thinking skill from year 1 to year 4

Moreover, the students will be selected by means of a multi-stage cluster random sampling method. To ensure the representation of the population, there are 8 programs divided for students (IT, Management, Finance & Accounting, Economic, Tourism & Hospitality, Law, English, Digital Economy), while 40 students from each program (from year 1 to year 4) will be chosen to study so that 40 students from each program will be chosen as a sample to study. All students in each year will be cluster selected to be the sample of the study and will be presented with the profile of the selected sample.

## **Data collection procedure**

To conduct the data collection procedure, we will ask the rector of that public university for a permission paper to allow us to do the survey in each of the program in the university. After that we will also inform the head of each department in order to let us collect the data. The participant will be asked to do via Google form to fill out, so after that, the information will be saved. Then the information will be evaluated after the required amount of data has been collected and the result will be present from the information collected.

## **Data analysis**

After the data has been collected, it will be analyzed by using SPSS (Statistical Package for Social Science).

# Data analysis for research question 1:

To analyze data for research question 2, this study will employ (descriptive and comparative (Mean and standard deviation)

# Data analysis for research question 2:

To analyze data for research question 2, this study will employ compare mean analysis.

Overall, the analysis for the data for the two-research question will be conducted in SPSS.

## **Ethical consideration**

To ensure our research is conducted ethically, we have taken several steps. First, we will ask our university for an official request letter to show our commitment to responsible research. We will clearly explain the purpose and how we will share the research findings. If participants have concerns, they can choose not to take part. We will keep their identity private, and we won't share individual results. Instead, we will present overall findings without revealing who said what. We will ask for informed consent, giving participants the information they need and addressing any questions or worries they have. We will follow ethical guidelines, protecting the data and using the research responsibly. Throughout the process, we will prioritize the rights and well-being of the participants.

# CHAPTER 4: RESEARCH RESULTS

# CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATION

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# APPENDICES