

A CONCEPTUAL PAPER: THE EFFECT OF CRITICAL THINKING ON LEARNING STRATEGIES AMONG UNIVERSITY STUDENTS IN NANCHANG, CHINA

Zhang Si Hang, Wong Siew Ping and Ng Mindy

Abstract – The purpose of this research is to investigate the effect of critical thinking on various learning strategies among college students in Nanchang, China. A questionnaire will be used to collect primary data as part of a quantitative research method, and the data will be analysed using statistical analysis software. This study will utilise a sampling method known as probability sampling. In order to conduct a probability sample using the Krejcie and Morgan sample size formula, a total of 377 Chinese students enrolled in graduate school will be chosen. It is necessary to promote critical thinking skills among university students, the implications of the study are important for educators and policymakers in China. Specifically, the implications highlight the importance of promoting critical thinking skills among university students. Incorporating instruction in critical thinking into the curriculum and providing students with support to develop their critical thinking skills may improve students' learning strategies, which in turn may improve their academic achievement.

Keywords – Critical thinking, Nanchang, University students, Learning strategies.

I. INTRODUCTION

In the educational background of Chinese students, the importance of critical thinking has become increasingly prominent. Critical thinking is a kind of independent thinking ability, which can help students think about problems from different angles, to better understand and solve problems. In China, the importance of critical thinking in the educational context of students has been increasingly emphasized. Students are taught to think about problems from different perspectives to better understand and solve problems. For example, students are asked to think about issues from different perspectives such as history, culture, society, and politics to better understand the complexity of issues.

The students' ability to think critically is standard fare in the educational system. The art of critical thinking is sometimes taught as a means to "better" thinking, but in reality, it is a thinking approach and, more significantly, learning that incorporates altering one's conceptions about the nature of thinking itself. How students construct and apply ideas to comprehend the potential for growth in their

thought processes is an important part of critical thinking. By definition, a critical thinker is someone who makes a concerted effort to grow intellectually regularly (Alsaleh, 2020). The study of critical thinking is predicated on a simple premise: by identifying one's areas of strength and progress, one may better preserve one's strengths while compensating for one's flaws.

People in today's society need a wide range of skills, including adaptability, curiosity, investigation, problem solving, critical thinking, and creativity, to thrive (Kasalaei et al., 2020). Overcoming obstacles and gaining easier access to knowledge in life are two of the reasons critical thinking has been widely regarded as a valuable skill.

A person's learning strategies is the way they take in and make sense of new knowledge. Teachers may better guide their students toward the training's ultimate objectives of critical thinking and problem solving if they are aware of the students' individual learning strategies and how they absorb information. Kolb's characterization of learning strategies as an individual's way of prioritising some learning skills above others is maybe the most accurate (Niemi, 2023). Kolb's theory of experiential learning is a synthesis of three experiential learning models: Lewin's practical and laboratory model, Dewey's learning model, and Piaget's pattern of learning and cognitive development. Kolb thought that learning occurred when discrepancies between these three models were ironed out.

The connections between learning strategies and other factors have been the subject of several research. Students' grades are an important indicator of how learning strategies affects their performance in school (Neroni et al., 2019). Studies have consistently defined thought as the integration of information, experience, and perspective. This synergy allows intelligent people to advance on their journey to success by gaining knowledge and skill in a variety of scientific and technological disciplines. Researchers have shown that students who adopt a critical thinking stance do better in the classroom. The findings demonstrated a marked difference between the critical thinking abilities of those with an assimilationist and a convergent mind set. The greatest levels of critical thinking were shown by those with convergent, divergent, assimilating, and accommodating styles. Nursen İlçin study from 2018 is an example of research that links learning strategies with academic success.

Students at today's universities need to not just think, but think critically, and not only recall information but investigate which learning method is most effective for them. This is why there has been so much focus in recent

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years on investigating students' mental processes and how they take in new information while studying.

II. PROBLEM STATEMENT

Students' individual learning strategies are an essential consideration in the problem-solving and education process, just as critical thinking is. "Absence of speculation" is a common problem among Chinese College students (Hua, 2023). It mainly manifests itself in the lack of critical thinking abilities, such as listening to lectures without asking questions, back-to-back speeches, illogical composition, lack of discussion centre, lack of fluency in thinking, and excessive haste in expression, which ultimately leads to the failure to train qualified innovative talents, and at the same time, which restrict the future development of the country and the nation. It creates learners that are focused on remembering information as opposed to understanding the characteristics of the information and then deconstructing that from a critical and analytical perspective.

The implementation of critical thinking is a problem among the students because students do not think critically in its entirety and they do not know the actual process of using critical thinking in their studies. Besides students' personal bias that stops them from thinking critically, students have not been taught the process of critical thinking as many subjects such as philosophy and others which can create this process are missing from most curriculums around the world (Ongesa, 2020). As a consequence, students face difficulties to resolve issues regarding their studies and make proper decisions. Their learning strategies will be less efficient. This then impact their working performance. It is crucial to tailor teaching methods to each individual learner if we want to see an increase in students' critical thinking abilities. Additionally, given that the coronavirus situation is fundamentally changed the way interactions take place and the type of jobs which will be available, critical thinking is becoming even more important and is said to have an even larger impact. Despite the eagerness to foster critical thinking among the students, it was found that most students or even educators have yet to receive training on critical thinking (Alam, 2022).

When it comes to strategies and development of critical thinking, most of the strategies are focused on the capability of the teacher to impart some of these critical thinking skills to the students (Brečka et al., 2022). However, the training of these teachers can have an impact and can disrupt the process of knowledge transfer, especially when it comes to complex subjects such as critical thinking programmes that aim to improve students' critical thinking assume, without substantiation, that educators already have the knowledge and skills necessary to instruct their students in this area. However, many educators are not equipped to impart the value of critical thinking to their students (D'Alessio et al., 2019). It was found that there is a lack of educators who will guide the students of the universities of Nanchang, China, about the process of using critical thinking in their studies in a proper way. This is to be expected, given they are the ones

who have been schooled in the tried-and-true methods of teaching.

III. LITERATURE REVIEW

The focus of the current chapter is to provide the literature review about the recent research on critical thinking and to understand various dimensions along with setting the foundation for the theoretical and conceptual framework which will be used for analysis for further investigation in the next chapter.

According to El Soufi & See, (2019), the common critical thinking ability skill enhances the approaches like debate. The process of critical thinking is a process where a subject is analysed and evaluated and a judgement is made on what is described (Saputra et al., 2019). The initial step in the impacts of critical thinking in education is identification, with that quality one can identify the problems and how to solve them. By solving the problem an individual concept is growing in him which helps him to take independent decisions in his further education and his research work. When he is comparing things and arguing for any sources that create an eye of a student identifying the wrong information, and thus later he can give independent conclusions which are not influenced by others, as much as he takes part in the argument he comes to know more about that topic.

When one can infer, that allows oneself to generalise and come across prospective outcomes when he is evaluating the situation. Before jumping to a conclusion, a student can collect lots of information for his stand and a proper reason for every point on his controversy. A student becomes independent rather than dependent on the teacher, which means he can make the right decision for himself (Loeng, 2020). In a new situation where a student has to answer his question on his own, especially in any entrance examination, he can solve the analytical part like reasoning with the power of critical thinking that makes him successful.

According to Seruni et al, critical thinking is an ability in the 21st century which can be progressed by the use of proper media in education (Wilujeng & Putri, 2020). A student learns by practising the way how to separate the theory from the opinion, and thus he can give an unbiased opinion. Critical thinking ability grows a feeling to control himself in the augmenting time, whenever he is right at a point he doesn't make noise to prove himself right. He can consider all points before making any decision and try to listen to all other points of view. He tries to learn from others' points of view and evaluates them to learn new information from the others. By practising this theory, one person can make a difference between the decision-making analytically and emotionally. The student can choose a process which can fulfil his goal very fast, and this process is known to him only when he is properly practising the theory. When a person is practising critical theory properly, it also helps him in his future workplace, he can motivate and make a team with others rather one may lack skills and develop a better work ethic. Cognitive learning is a process of acquiring knowledge and skills using mental processes such as thinking, reasoning, and problem solving (Wolcott & Lobczowski, 2021). It is a

process of acquiring and storing information, and then using that information to make decisions and solve problems. Cognitive learning has been studied extensively in the field of psychology and education. The literature on cognitive learning has been divided into two main categories: cognitive learning theories and cognitive learning strategies. Cognitive learning theories focus on how people learn, and the processes involved in learning.

Cognitive learning strategies focus on how to apply cognitive learning principles to improve learning outcomes (Biwer et al., 2020). According to Mutakinati, Anwari & Kumano (2018), critical impacts have important effects on schooling, the workplace and daily life critical thinking skills are needed for every child in every step of life, and it should be practised by lots of activity. It gives the power to a student to solve the puzzle and properly map them and enhance the skills of self-control to solve any problem and focus to solve anything, making connections, perspective taking, and communicating ability. A student learns from another student through this ability of critical thinking, the ability to search for the answer of 'Why', a student learns from another how to solve the problem and their way to react to their problems.

A student becomes able to ask questions about the main reason behind every incident and starts to notice every change that occurs in the course that helps him in his future life when he is pursuing his further studies. To solve the question that arises in him 'Why', he started to gather his information and from that information, he can make the answer and uses another part of the information in another query, he can also find out the false and true information from numerous pieces of information. He can experiment more with those topics and thus the way of processing one's knowledge starts and shows a great result in the future.

Critical thinking is needed for the mental growth of children as it makes a strong foundation for their future goals (Elder & Paul, 2020). Mental growth through critical thinking helps in creating the child's enthusiasm, active, judgemental, inquisitive, imaginary and so on. Through critical thinking, children learn to read and take in more and more information which leads them to the library. From childhood, library practice with their brain makes them very much patient. Critical thinking helps in mental growth in every aspect like curiosity pursuing, learning from others, evaluating information that he or she had in their brain, promoting creativity, and scientific problem-solving skills. This mental growth through critical thinking helps children fire every goal of their life (Taimur & Sattar, 2020). Mental growth which makes children good and prosperous citizens are obtained through critical thinking. The mental growth of children helps to make good relationships with everyone. The mental growth of human beings helps them to understand others' thinking according to the situation. Good mental growth achieved by critical thinking makes students independent and confident in their life path (Renatovna & Renatovna, 2021). When it comes to critical thinking, Bloom's Taxonomy and other similar frameworks go hand in hand. Students are guided through a critical thinking process using Bloom's taxonom. Beginning with a focus on

students' existing knowledge, Bloom's taxonomy gradually challenges them to expand their understanding through a sequence of increasingly complex questions and increasingly specific keywords designed to elicit a response from the learner. Education and meta-cognition require both critical thinking and Bloom's taxonomy.

The ability to think critically is essential in the modern world, whether in the business, the classroom, or just in dealing with everyday problems (Szabo et al., 2020). Teachers should encourage students to remember information, but they should also ask probing questions and create engaging activities that encourage students to think critically. Students need to be posed questions that force them to think critically even at the elementary level.

Bloom's Taxonomy is a useful framework for designing classroom activities and questions that promote critical thinking. Bloom's Taxonomy is a framework for identifying and differentiating among many tiers of human cognition (Dutta et al., 2023). According to Bloom's Taxonomy, there are six distinct types of thought which are mentioned below, with type one representing the most basic and type six representing the most sophisticated. The ability to call upon relevant, stored knowledge in order to derive factual responses. The six levels of Bloom's Taxonomy are: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating.

When discussing how people go about obtaining new information and abilities, we talk about their "learning behaviour" (Palupi et al., 2020). It includes many different things, from reading to taking notes to solving problems to being an engaged member of group conversations to introspecting on one's own progress. Because of its predicted relationship to the students' critical thinking skills, students' learning behaviour may be seen as a dependent variable in this investigation.

The term "learning environment" is used to describe the physical, social, and mental surroundings in which education takes place (Olmos-Gómez, 2020). Classroom conditions, including instructional strategies, materials, peer dynamics, and teacher encouragement, play a role. The learning environment may be thought of as a second dependent variable in the investigation of how critical thinking affects instructional approaches.

Overall, both learning behaviour and learning environment may be thought of as dependent variables in the study examining the impact of critical thinking on learning techniques among university students in Nanchang, China. The purpose of the research is to learn how students' critical thinking skills affect their learning behaviour and how those skills, in turn, are affected by the learning environment.

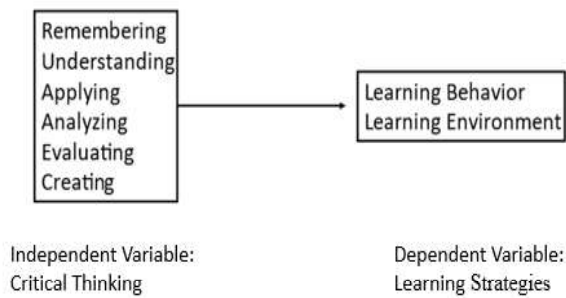


Figure 3: Conceptual Framework

IV. METHOD

The chapter consist of the basic methodology used in the study about critical thinking in university students. The study will be conducted using quantitative research design. Quantitative data will be collected through a survey administered to university students. The survey will include questions about their experiences with critical thinking and their attitudes towards it. The data will be analyzed using both descriptive and inferential statistics. Descriptive statistics will be used to summarize the survey data and to identify patterns in the responses. Inferential statistics is used to explore the relationships between the variables and effects of IVs on DVs. The research method will be a quantitative method with primary data collection. Questionnaires will be used as the research tool of this study. Quantitative data is collected because hard numbers, by polling the general public or asking predetermined questions in surveys and questionnaires, are the best ways to obtain data which are used in quantitative design (Stockemer, 2019).

Quantitative analysis is appropriate for this research topic because it can provide a numerical assessment of the influence of critical thinking on learning processes and strategies among university students in Nanchang, China. Through quantitative analysis, the impact of critical thinking on student learning performance will be measured and this gains insight of how different learning strategies are affected by critical thinking.

Quantitative data can also be used to compare the various learning strategies by different age and cultural groups of students, providing valuable insight into how much the use of critical thinking can improve student learning outcomes. Quantitative research is the optimal choice for exploring the influence of critical thinking on learning processes and strategies among university students in Nanchang, China for several reasons. As such, the analysis can provide valuable insight into the ways in which level of critical thinking can improve student learning outcome. Quantitative analysis can provide a numerical snapshot of the influence of critical thinking on learning processes and strategies among university students in a given region, making it an ideal choice for this kind of research. The population of the study consist of the Chinese university students from different universities in Nanchang because the study consist of critical thinking of Chinese students.

The population consist of 20,000 students at universities in Nanchang. Probability sampling will be selected in this research. 377 graduate students will be selected via simple random sampling using Krejcie and Morgan sample size formula, and as implied the goal is to target only Chinese students. The simple random sampling would require that individuals are shortlisted from various universities that have been selected and then shortlisting individuals before they are selected at random. The random selection can take place by using a random selection generator which is available online and can be used for this purpose. Using that tool, 377 individuals will be selected as part of the overall sample, a slightly higher number will be included in the final list so that non responders can be filtered out. Probability sampling minimises the potential for erroneous inferences and outcomes resulting from a biased sample by selecting a portion of the population at random (Yang, 2020). Researchers can learn about the thoughts and feelings of a large group without bothering every single member of that group if they randomly sample a portion of the population.

A questionnaire will be adapted so that data can be collected for the study by focusing on latest information by devising new questions related to current situation about the influence of critical thinking on the learning process among university students in Nanchang. Most of the information that is used in the research project on the effect of critical thinking on the learning process among college students in Nanchang, China, will be gathered through the use of quantitative approaches. The surveys will be developed in such a way that they would validate the responses of the respondents and earn their trust. Checklists and questions on a rating scale tend to make up the bulk of quantitative surveys because they are helpful in simplifying and quantifying the respondents' attitudes and behaviours. The data collection will be conducted using online forms. It will be distributed to the sample of population. It will be done so by using social media and other forms of distribution like email, WeChat and etc. The sample is expected to complete data collection based on the study within 2 weeks.

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