

Critical Thinking at The Tertiary Level: Individual and Collective Intentionality

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ABSTRACT

At tertiary level, students are expected to think critically, but the research has shown that there is much contention, if not confusion, in the way the term has been defined, with as multiplicity of variations, for decades. Most students believe they can think critically but when asked what is critical thinking, there is skepticism and uncertainty with multiple answers emanating. This is a qualitative study conducted with faculty members, and tertiary level students who are in the final year of the Bachelor of Education degree, at the University of Trinidad and Tobago. There were 53 participants belonging to both full-time and part-time cohort of students. The other participants included 7 lecturers at the same tertiary level institution. Data were collected through semi-structured interviews, questionnaires, focus groups and field notes. Analysis of data included forming categories and coding to arrive at emergent themes. The findings revealed that tertiary level students as well as lecturers conceptualize critical thinking differently, in a variety of ways including reasoning, analysing, questioning, 'thinking outside the box' and reflecting. While conceptual differences allow for dynamic discussions and explorations, the incoherence and the lack of common understandings place tertiary level students in an untenable situation, as they are unable to ascertain the requirements or demands of critical thinking, especially because their tutors have differential understandings.

Keywords: critical thinking, tertiary level education, qualitative study, themes

INTRODUCTION

At the tertiary level, critical thinking is one of the skills students are expected to be equipped with especially in terms of acquiring twenty first century competencies. Every course that is taught at tertiary level includes critical thinking as a key component or an embedded concept. But there are multiple issues with regard to the lack of a clear definition for critical thinking, especially in terms of assessment. What exactly are assessors demanding? Is the inquiry based on personalized ruminations or approaches? Is there specificity on a rubric in which critical thinking is well defined or ill-defined and multifaceted? Given the requirement for critical thinking at the tertiary level, this study explores what students and faculty understand by the term.

PURPOSE AND SIGNIFICANCE OF THE STUDY

The study investigates what conceptions tertiary level students and faculty members have about critical thinking. The purpose of this research is to examine and explore the ways it is conceptualized and it also unearths what tertiary level students and lecturers perceive to be the benefits of critical thinking.

The research provides invaluable information particularly for students, teachers and tertiary level lecturers. The study is significant for educators, researchers, policy makers, professionals, and leaders at tertiary level in particular. The study is a source of information that can generate further discourse on critical thinking, how it is conceptualized and taught, extrapolated and re-evaluated in a meaningful way at all tertiary level institutions. It adds to the literature locally, regionally and internationally.

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

The philosophy of Socrates and the work of theorists Dewey, Vygotsky, Piaget undergird this research. The Socratic method through questioning is generally utilized to advance critical thinking and foster inquiry. [9] Dewey (1933) identified critical thinking as goal of education and referred to it as reflection, and a scientific attitude of mind. He defined reflection as, "active, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions which it tends" (p. 9). [22] Piaget (1950) referred to cognitive thinking as based on experiences while [29] Vygotsky (1978) focused on interactions in the socio-cultural setting for critical analysis.

The literature is replete with a multiplicity of definitions for critical thinking. In her investigation on critical thinking [18] Moon (2008) has discovered more than twenty-four definitions that are varied, multifaceted, discrepant and sometimes overlapping. She has delineated the concept as 'a source of confusion' (p. 19). [12] Ennis (1990) concluded that critical thinking involves questioning and searching for justification while also referring to it as reflective thinking. [21] Paul and Elder (2010) view critical thinking is the art of analyzing and evaluating thinking with a view to improving it.

In a study [23] Phillips and Bond (2004) conducted in New Zealand, they found that the participants consisting of 13 undergraduate students, described critical thinking as 'critical reflection' and other conceptions including objectivity. This perspective is supported by [14] Guo (2022) in research using a systematic search of literature, which yielded a total of 2010 participants, but he also referred to the process as reflective thinking.

The term has been defined as the ability to question; to acknowledge and test previously held assumptions; to recognize ambiguity; to examine, interpret, evaluate, reason, and reflect; to make informed judgments and decisions; and to clarify, articulate, and justify positions [3] (Baruthram, 2018).

A definition of critical thinking put forward by [2] Bailin and Siegal (2003) reads, "An umbrella term that refers to the quality of thinking" (p. 188). While they advocated problem solving and higher order thinking, they do not subscribe to Blooms' hierarchical taxonomy of thinking. [2] Bailin and Siegal (2003) opine that the term denotes thinking which must meet certain criteria

inclusive of dispositions. [16] Heard, Scoular, Duckworth, Ramalingam and Teo (2020) believe it is a skill of paramount importance for the 21st century.

In a speech given by [11] Eales-Reynolds (2017) on “Critical thinking: More questions than Answers?” she bemoaned that students are often confused when required to engage in critical thinking. Another view is that of [21] Paul and Elder (2010) who believe that the intellectual tools of critical thinking allow one to analyze, assess, and improve thinking. Other researchers included reflective thinking as well as problem solving [28; 19; 12; 13] (Van Damme, 2020; Padmanabha, 2018; Ennis, 1990; Foresman, Fosl & Watson, 2017).

METHODOLOGICAL CONSIDERATIONS

Research Questions

How do tertiary level students and faculty conceptualize critical thinking?

What are the benefits of critical thinking for tertiary level students and faculty?

Participants

A total of 60 participants from the same tertiary level institution were selected for the study. Convenience sampling was utilized, which involved a sample of 7 lecturers, as well as 19 part-time and 34 full-time students of whom 46 were females and 7 males. Their ages varied significantly as lecturers were more mature. The part-time students are generally older than the full-time ones but, there were three younger students in the part-time group as they transferred from full-time, to meet the demands of jobs they acquired, in order to continue pursuing the programme. However, all students were in the final semester to complete a four-year Bachelor of Education degree and would have been exposed to the same courses throughout the programme. In addition, 7 lecturers from the same institution were included in the sample.

Collection of Data

Data were collected during the final semester of the programme. The data gathering exercise included semi-structured interviews, questionnaires, focus groups and field notes. These techniques allowed for triangulation and corroboration of data, which made the study more robust. [5] Cohen, Manion & Morrison (2007) have emphasized the importance of verifying the accuracy of the data in qualitative research. There were seven focus groups, each with a complement of between 7 to 9 students. Semi-structured interviews were conducted with members of the focus groups and individual lecturers. These allowed participants to share their opinions, perspectives and experiences without inhibitions, and also assisted in maintaining the focus and direction of the study [8] (Denzin & Lincoln, 2011). Lecturers were interviewed primarily via the phone but in some instances, they were asked questions face to face, informally, in the staff room. There were two instances where a few members of the focus groups were absent, but their peers were well coordinated, as they communicated via WhatsApp messages to ascertain their viewpoints. Focus group sessions were held very informally in a conducive environment so that participants could voice their opinions without constraints. The field notes complemented the data and gave a clearer understanding of the meaning and interpretation of the ideas expressed. All participants completed the questionnaires which included both open-ended and closed-ended questions to encourage

respondents to express their views openly and clarify meanings. Details of the study were communicated to every participant and verbal consent was sought to have conversations audio-recorded. Participation was voluntary and all participants were assured of confidentiality [5] (Cohen, Manion & Morrison, 2007) and pseudonyms were used to ensure anonymity.

ANALYSIS OF DATA

Data from semi-structured interviews and focus groups were transcribed verbatim. A thematic analysis is justified for this study as the views, opinions and understandings of participants were explored. Analysis of data included reiterative readings of the texts to discern commonalities [24] (Saldana, 2021). Significant ideas were captured, marked and highlighted. On three occasions, different participants were contacted via WhatsApp messages and calls, to clarify ideas of possible misunderstandings or misconceptions. Through repeated readings, clusters of common meanings, words, phrases and sentences were highlighted and codes were formed. Categories were then generated from the codes as suggested by [17] Miles, Huberman & Saldana (2014). Data from questionnaires were dealt with in a similar manner and merged with the categories created. There was corroboration of data and the patterns that evolved were organized in tandem with the ideas of the respondents.

Meaningful patterns, codes and categories were derived through repeated readings and outliers were perceived. A matrix was constructed using the codes and categories formed in order to discern sub-themes and eventually the emergent themes. The processes involved in the data collection and data analysis in this study established objectivity, 'validity', credibility and accuracy of information. [7] Creswell & Poth (2013) refer to 'validity' in qualitative research as the accuracy of the findings. A rigorous approach was adopted by the utilization of three data collection procedures. These also allowed for data triangulation [6] (Creswell, 2012) and served to establish trustworthiness, dependability and consistency of findings. Continuous exploration, reflectivity and re-evaluation of the data analysis method ensured confirmability [17] (Miles, Huberman & Saldana, 2014). Data analysis therefore included clustering of common ideas, creating categories, forming codes, and seeking emergent themes which are supported by the data gathered.

Findings

Five themes that emanated from the data, with corresponding verbatim remarks are outlined below.

1. Reasoning, Analysis and Evaluation
 2. Questioning and Syllogizing Conclusions
 3. Rational, Higher Order/ Innovative Thinking
 4. Problem Solving, Metacognition and Thinking "Outside the Box"
 5. Reflection
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1. I use a deeper level of analysis to communicate my thoughts and ideas about different topics, new situations/trends and share personal experiences . . . Engaging in critical thinking skills allows you to use your ability to question, reason, analyse and evaluate information.
 2. I believe that critical thinking involves questioning and looking at a situation from different perspectives in order to make informed decisions and arrive at conclusions.

3. Critical thinking enables one to create innovative ideas . . . To be a critical thinker, it enables one to engage in higher order thinking, . . . to identify, analyse and solve problems systematically.
4. Critical thinking strengthens my problem solving-skills and I gain a deeper wider perspective when solving these problems . . . Using my critical thinking skills enables me to think "*outside the box*" to arrive at new solutions making the subject area more meaningful to study and explore . . . Critical thinkers engross themselves in metacognition and acknowledge that there is no single or correct way to understand and evaluate information or arguments . . . They often keep an open mind, think before acting and engage themselves in active questioning.
5. One of my personal experiences of critical thinking has been having to reflect and evaluate information, especially online information, to write research papers . . . I have to think independently and creatively as information provided on the internet can either be biased, true or false.

Discussion

The results revealed that students and faculty have conceptualized critical thinking in different ways but they all contend that they use it in speaking, listening, reading, and writing. They believe that they benefit as they can reason, analyse and evaluate especially with regard to research. They question, engage in deep thought and ruminations about subject matter as well as assess evidence and draw conclusions. They employ rational, higher order/ innovative thinking for discussions and assessments.

The participants believe that critical thinking includes problem solving, metacognition and thinking 'Outside the Box' by envisioning and using their imagination. It encompasses introspection, reflection and evaluation of personal thoughts on pertinent issues.

Reasoning, Analysis and Evaluation:

Critical thinking is defined in a multiplicity of ways, but many participants considered it an intellectual process of reasoning, analysing and evaluating. To reason logically, to analyse rigorously and evaluate dexterously have been identified as core elements by most participants. They all believe that they derive benefits from these skills, particularly with regard to writing and research.

However, each of those concepts outlined may be variable. When participants were asked to clarify reasoning, the majority explained that it incorporated drawing conclusions and deconstructing ideas logically, inductively and deductively. Some respondents added making inferences, problem solving and meta-reasoning. But, there were no precise and distinct delineations.

Many studies have identified different types of reasoning such as analytical, categorical, and linear, among others, and critical thinking has also been perceived as a type of logical reasoning [10] (Dixon, Lee & Corrigan, 2021). To analyse means engaging in methodical thought, logic and critique to assess information. It is also perceived to be the breaking down ideas into its essential components and ascertaining how the constituent parts form the whole. However,

synthesis is defined very similarly. Given the commonalities in describing the various terms, it may be difficult to ascertain exactly what is critical thinking unless it is contextualized.

Some participants have aligned evaluation with the elements of Bloom's revised taxonomy [1] (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Wittrock, 2001) which involves a continuum of increasing cognitive complexity. While the taxonomy is a reasonable disciplined, skilful framework, which provokes a gradual process of spiral thinking which ranges from remembering, understanding, applying, analyzing, synthesizing, evaluating and creating, it gives no indication of where critical thinking begins, ends or is encompassed. [20] Paul and Elder (2006) have added, "clarity, precision, accuracy, significance, relevance, completeness, logicalness, fairness, breadth and depth" (p. 21) as intellectual standards for critical thinking. In addition, evaluation can be used to adjudge whether conclusions have been arrived at inductively, deductively or logically.

These ideas can be very subjective, particularly based on context and contextual relevance and the findings of this study reveal the conundrum that continues to prevail. Students complained that they have not been taught critical thinking in an easily understandable and adaptable way throughout their educational experiences, and they lamented that members of the same faculty convey different interpretations.

Questioning and Syllogizing Conclusions:

Socratic questioning which is inscribed in critical thinking is defined as a disciplined method of questioning to examine and evaluate complex ideas [20] (Paul & Elder, 2006). Participants believed that questioning at the tertiary level is a component of critical thinking that allows one to discern assumptions, engage in logical analysis and syllogize conclusions. They elaborated on different types of questions such as convergent, divergent, probing, evaluative and problem-solving as stimuli for critical thinking. It is designed to develop higher order thinking competencies to solve problems and apply information in an innovative, creative manner.

Syllogism, on the other hand, is construed to be an innate part of the human cognitive and thinking capacity to analyse, reason, make inferences and draw conclusions. However, there are many types of syllogism such as fundamental, disjunctive, sequential and coded, which provoke arguments, but those ideas do not deviate from the fact that many of the concepts are integrated or embedded into critical thinking. This research has demonstrated that many of the conceptions are synonymous. Therefore, unless critical thinking is clearly described in curriculum, research, assessment and teaching/ learning, it is subject to different interpretations which has implications for tertiary education as well as policy making.

Rational, Higher Order/ Innovative Thinking:

The data revealed that critical thinking incorporates rational thinking which means the ability to reason, evaluate, draw conclusions and solve problems. It also includes analytical thinking, self-reflection, justified reasoning and challenging ideas. These conceptualizations correspond with many of the ideas espoused previously, so there is no clear distinction among the concepts. Additionally, participants believe that critical thinking encompasses higher order thinking which involves the ability to evaluate, take initiative and be creative. It should be free from bias, prejudice and distortion. This notion is supported by [30] Wang & Wang (2014) who posit that

higher order thinking is the ability to evaluate information. Another school of thought as suggested by [26] Toplak, West & Stanovich, (2012) is that critical thinking is a sub-set of rational thinking or rationality, but this was not evident in the findings.

Innovative thinking includes viewing information from a new viewpoint, advocating justified, potential opportunities with resilience, evaluating risks, critiquing, exploring alternatives and coming up with enterprising, creative solutions. Also, reference is made to Bloom's (2001) taxonomy with particular emphasis on evaluating and creating. However, all of these postulations fall within the parameters of critical thinking, but there is no clear indication of significant differences.

Problem Solving, Metacognition and Thinking 'Outside the Box':

Problem solving, which also has many guises, is deemed as versatility to incorporate thinking laterally, convergently and divergently as well as analytically, flexibly, and creatively. These ideas are also parallel and immersed into metacognition and thinking 'outside the box', indicating the issue of ideation, that is generation, selection and development of new insights. Problem solving is often associated with these articulations whereby innovative ideas are generated.

Most participants conceptualized metacognition as the general notion of 'thinking about thinking' / 'cognition about cognition' or analysing, evaluating and reflecting on one's personal thoughts to come up with novel ideas. It includes intentional thinking about one's thought process and engaging in heutagogy [4] (Canning & Callan, 2010) which involves principles of self-determined learning and thinking. But, these conceptions may be subject to contentious debate as there are different levels of 'thinking about thinking', which can be from a simplistic base level to the expansive propensity of the mind to solve problems and illuminate infinite possibilities. Also, the concept may be viewed diversely or uniquely in different disciplines. [32] Zimmerman & Schunk (2001) proffer that metacognition in the educational setting refers to self-regulated learning and self-determinism [31] (Yorke & Knight, 2004) but these viewpoints were not expressed by any participant in this study.

Reflection:

Many participants have conceptualized critical thinking as reflection, reflective thinking and reflectivity. But the term reflection is defined multitudinously, if not ambiguously, and there is no homogeneous concept at the tertiary level, as participants demonstrated in this study. This research revealed incoherence in conceptualizations by both students and faculty, which suggest that reflection and correspondingly critical thinking need to be more explicit, as the skill has become increasingly endemic at the tertiary level. [27] Van Beveren, Roets, Buyssec & Rutten (2018), in a study conducted in Belgium, agreed that while the term, reflection, is used extensively by both students and lecturers in higher education, there is a lack of a unified concept. This has been confirmed in this study with respect to critical thinking. [25] Tight (2023) concurs that "there is considerable diversity in how reflection is understood, taught and assessed, in the emphasis that is placed on it, and in how significant it is in the overall assessment of the student (or the teacher)" (p. 11). In their study with Australian and Chinese academic staff, [15] Harvey and Vlachopoulos (2020) found that reflection and critical thinking are limited based on the ability of the individual as well as the institutional or cultural setting.

However, the issues of self-directed, self-disciplined, self-monitored, and self-corrective thinking, as outlined by [21] Paul & Elder (2010), proved to be outliers in this study, as they were mentioned by only one faculty member.

CONCLUSION

This study demonstrates that how critical thinking is conceptualized and taught is still an indeterminate, tenuous, contradictory, if not antithetical issue. One of the fundamental ways to address definitional contradictions is to outline well-defined, detailed descriptors and criteria, if students are to develop expertise and proficiency. Within this framework, provisions must be made for mutual understandings as well as original, unique ideas. Otherwise, the skewed way in which critical thinking is viewed could be seen as a hegemonic practice by tertiary level faculty who coerce students to conform to the demands of their personalized opinions and philosophies.

Basically, this research revealed that how critical thinking is defined, is fragmentary, confusing, elusive and embodied in controversy, so there is the issue of definitional challenges. This has implications for assessment and assessment procedures at the tertiary level.

Another perspective is that the term is dynamic, robust, comprehensive and challenging. Therefore, while programmes may be well aligned with their objectives, further work is necessary on critical thinking to advance the quality of tertiary education and engage in essential innovation of reform to contend with the needs of the 21st century and the new era of artificial intelligence.

The Foundation for Critical Thinking defines the term as the intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action [21] (Paul & Elder, 2010). Most of those ideas surfaced and were interrogated in this study but the issue of self-regulation was minimally explored. Another school of thought is the inclusion of dispositions but that perspective was not mentioned by participants.

What remains steadfast is that there must be targeted interventions with well-defined categories for analysis, evaluation, problem solving, creative thinking, and even contradictions or metacognitive resistance. Intensive training is required for both students and faculty to deconstruct the tenets and ambiguities about critical thinking so that appropriate assessment instruments may be created to ameliorate the conceptual problems. There must also be flexibility to inculcate ingenious pioneering or even radical ideas as the world progresses, particularly with regard to technology. Critical thinking also involves creative thinking whereby there is the formulation of original, unique ideas and therefore, there must be room for transferability, and an aperture to embrace future evolving ramifications that may revolutionize the concept.

Therefore, while critical thinking is the sine qua non of tertiary level experience for both students and faculty, this study confirmed that its definition is multifaceted and needs to be contextualized, stipulated and particularized to determine meaning. In fact, it is a generic skill

that is in great demand in the global context and therefore there should be acceptable international comparative evaluations, benchmarks and assessments of the competency. The implication is that both faculty and students require a shared understanding and the criteria for critical thinking should be precisely specified to ensure competitive institutional standards and quality assurance. It also suggests that the concept needs to be rigorous and consistently re-evaluated to meet the challenges of this new era of innovation, creativity, artificial intelligence, critical pedagogy and societal transformation. Critical thinking can enhance the quality of institutions and promote sustainability and dynamism in the tertiary level realm to grapple with the demands of the ever changing 21st century.

It is necessary to further investigate how other different disciplines conceive critical thinking and evaluate the qualitative measures and quantitative metrics that are applied. Also, it would be interesting to ascertain whether it is a generalized concept, whether it is discipline specific or contextual.

In addition, it would be prudent to examine whether staff members from various faculties have similar, or disparate perceptions of critical thinking. There is also need to analyse critical thinking courses offered in the education system. But, more especially, critical thinking should be re-examined and interrogated at the tertiary level internationally, and a philosophical exploration into how critical thinking is viewed in different cultures would be inspirational.

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