



The inclusion of critical thinking in an accounting curriculum: Students' perceptions

Elmarie Papageorgiou

School of Accountancy, University of the Witwatersrand, Johannesburg, South Africa

Elmarie.Papageorgiou@wits.ac.za

<https://orcid.org/0000-0001-9356-6123>

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Abstract

Employers and professional bodies have called repeatedly for critical thinking to be included in the curricula of higher education courses. Therefore, researchers should actively engage in developing course material that includes critical thinking. The purpose of this paper is to explore students' perceptions of the inclusion of a critical thinking course in an accounting curriculum in order to develop and foster their critical thinking. The study adopted a mixed method design to understand students' perceptions of the inclusion of critical thinking in the accounting course. The findings revealed positive results and the promising perceptions that most students benefitted from the inclusion of the critical thinking in the curriculum. The five highest ranked areas in which students benefitted were communication skills, gaining confidence, writing skills, improved reading, and teamwork skills. In addition, most students confirmed that the critical thinking course assisted them to think logically and clearly and be independent. This study contributes to the improvement of student preparedness and readiness for the workplace and to the acquisition of lifelong skills through formal education.

Keywords: accounting curriculum, critical thinking, higher education, learning, skills, students

Introduction

This study was motivated by those of Hart et al. (2021) and Wolcott and Sargent (2021), which asserted that educators should actively engage in activities to include critical thinking skills throughout the accounting curriculum. Wolcott and Sargent (2021) further identified key recommendations for the development of critical thinking skills and, at the same time, accounting technical knowledge. Earlier studies have also called for exploring new measures to assess critical thinking skills. Wilkin (2017) engaged on how assessment design was used to enhance students' critical thinking. Abbott and Palatnik (2018) adapted teaching methods to assist students to meet professional demands for critical thinking skills. Hart et al. (2021) explored higher education students' critical thinking skills. Douglas and Gammie (2019) investigated the development of non-technical skills in undergraduate accounting

programmes and confirmed that critical thinking is un-actioned; it is purely identified as need for critical thinking rather than actioned as such.

Other studies have also affirmed the importance of developing higher order and critical thinking skills among accounting graduates prior to entering the job market (Muhamad & Sulaiman, 2013; Sangster, 2014; Sangster et al., 2020; Stoner & Milner, 2010). Bezanilla et al. (2019) asserted that educators should do their best to include critical thinking in their curricula because it is an important competency for students' personal and professional lives. Terblanche and De Clercq (2021) stated that critical thinking is currently an ill-developed skill in accounting education. And Young and Warren (2011) noted that accounting educators should develop students' critical thinking skills as a prerequisite for a successful accounting career. Wolcott and Sargent (2021) confirmed this by pointing out that accountants entering the workplace are expected to demonstrate strong critical thinking skills early in their careers. Wilkin (2017) noted the importance of developing critical thinking skills as a vital part of higher education courses—in line with repeated calls from employers and professional bodies. Education should be universal and grounded, with a focus on real-world readiness (Institute of Singapore Chartered Accountants [ISCA] & Institute of Chartered Accountants in England and Wales [ICAEW], 2017) given that it plays a large role in preparing students for their future careers.

The purpose of this paper was to explore students' perceptions of the inclusion of critical thinking in a first-year accounting curriculum, and to determine if critical thinking was developed and fostered. The following two research questions were used to address the purpose of the study:

- What were students' self-evaluations and perceptions of the concept of critical thinking—before and after including the critical thinking interventions in the accounting curriculum?
- Will these critical thinking interventions assist students in their studies by growing or establishing an awareness of being critical thinkers?

The research questions are important to address the gap in response to repeated calls from employers and accounting bodies for the inclusion of critical thinking in accounting curricula. Giving students the opportunity to answer open-ended questions, compared with Likert-scale questions provided students with a voice for their opinions. The main finding of this study was that most accounting students benefitted from the inclusion of critical thinking in the accounting curriculum, which created an awareness of critical thinking skills. Further, the critical thinking intervention can not only create an awareness of critical thinking, but also, with continued exposure to critical thinking, students may grow into critical thinkers, which may contribute to better academic results.

The paper is structured as follows: first, the literature review, and then the theoretical framework are presented, followed by detail of the methodology. Thereafter, the findings and discussion of students' perceptions and opinions and, finally, the conclusion are presented.

Literature review

Accounting education has been criticised for not preparing graduates for their professional careers by equipping accounting students with a wider range of skills (Christensen et al., 2019). Recent studies have stated that accounting degrees continue to be criticised for failing to develop non-technical skills to the required level, and have called for an increased emphasis on developing students' soft skills and revisiting the skill set requirements for professional accountants (Bayerlein & Timpson, 2017; Coady et al., 2018; Douglas & Gammie, 2019; Moore & Morton, 2017; Rebele & St. Pierre, 2019). In addition, calls for changes have been made repeatedly by accounting educators and researchers. Flood (2014) stated that accounting education is failing students in two ways; firstly, by inadequately preparing students for the workplace and secondly, by failing to develop critical thinking. In recent years, professional accounting bodies, institutions, and associations have engaged with educators to determine whether university accounting programmes develop skills that prepare students for the workplace (Moore & Morton, 2017). St. Pierre and Rebele (2014) called for an increased emphasis by accounting educators on developing students' soft skills, including critical thinking, communication skills, and ethics. Therefore, there is a gap to include critical thinking skills in the accounting curriculum to equip students to be ready for the workplace. However, Lubbe (2017) stated that the process of changing a curriculum is always problematic and may provoke conflict, passion, anxiety, and resistance to change.

Critical thinking is now discussed in the accounting context. As per Wolcott and Sargent (2021), no definition of critical thinking has been agreed on in the accounting context or accounting profession. Thus, critical thinking will be explored through various accounting bodies, institutions, and associations. The South African Institute of Chartered Accountants (SAICA, 2019) indicated that curriculum developers and educators should address the skills deemed appropriate for inclusion in the academic programme. One of the competencies per the SAICA competency framework is decision-making, which comprises analytical/critical thinking, integrated thinking, problem solving, judgement and decision-making, and professional scepticism. The SAICA (2019) framework also indicated that critical thinking is the process of actively conceptualising, applying, analysing, synthesising, and/or evaluating information. The American Institute of Certified Public Accountants defined critical thinking as follows: critical thinking incorporates the capability to link data, knowledge, and insight from various disciplines to provide information for decision-making (as cited in Abbott & Palatnik, 2018). And the Association of Chartered Certified Accountants (n.d.) listed critical thinking as part of the seven professional competencies that are included in the softer skills and interpersonal behaviours that future accountants need to excel in their careers and adding value to employers and clients. The Chartered Institute of Management Accountants' (2019) Global Management Accounting Principles highlights that good communication improves decision-making and facilitates integrated thinking. The South African Institute of Professional Accountants (SAIPA, 2017) indicated that critical thinking is embedded in the mission of the institute to improve the wealth of stakeholders by developing unique skills such as the use of professional judgement to evaluate situations, to communicate effectively, and to apply knowledge in a dynamic environment. The Southern African Institute of

Government Auditors' (2020) Competency Framework incorporated critical thinking as a higher-order thinking skill.

Internationally, ISCA and ICAEW (2017) indicated in their report the 10 highest ranked skills listed by the World Economic Forum (Turner & Taylor, 2022). The second highest ranked skill was critical thinking, and the highest ranked skill was complex problem solving (ISCA & ICAEW, 2017). The education sector has responded to a discussion on the role of the accountancy profession to develop higher order thinking skills as an important skill for lifelong learning (ISCA & ICAEW, 2016), and some United Kingdom educators were interviewed on different aspects of the future accountant. Pedley-Smith, Head of Learning, Kaplan, United Kingdom, responded on current gaps in terms of skills and knowledge that the accountancy profession needs to build up quickly; by starting to build these skills now, will assist in providing the building blocks for accountants of the future to be able to survive “a more volatile, uncertain, and disruptive environment” (ISCA & ICAEW, 2017, p. 35). Another interviewee, Jones, Senior Lecturer in Accounting and Finance, Newcastle University Business School, responded on the uncertain and disruptive world in which we live and the implications of this for professional learning to develop higher level skills like analysis, reasoning, and problem solving (ISCA & ICAEW, 2017). A study by Lucas and Mladenovic (2014, p. 133) investigated what educators can do to change the perceptions of accounting and confirmed that when the “traditional lecture-based, technically-focused course was compared with a non-traditional, case-based course, less emphasis was placed on technical material and more emphasis on critical thinking and discussion.”

Young and Warren (2011) indicated that there is no general consensus on how to assess critical thinking skills in an introductory financial accounting course, but stressed that accountants do need critical thinking skills to be successful in practice. Flood (2014) stated that educators and researchers need to drive change by fostering critical thinking among accounting students. St. Pierre and Rebele (2014) raised concern with the concept of teaching critical thinking, which focused on the ability of educators to teach this soft skill. They further confirmed that while the majority of educators (89%) stated that critical thinking was of primary importance in their instruction, 77% of these educators had little or no conception of critical thinking content coverage.

A study by Sangster (2014) stated that in recent developments in the accounting curriculum in the National University of Córdoba, Argentina, an introductory course was introduced to encourage the development of critical thinking before the study of accounting standards. Cunningham (2014) stated that accounting educators need to collaborate with other educators in teaching critical thinking skills because accountants value critical thinking differently from others in other disciplines. These pressures continue with the finding in the study by St. Pierre and Rebele (2014) that the main concern is the ability of academic staff to teach critical thinking. The following five critical thinking skills elements were developed from the literature review to guide students using a THINK model (see Figure 1) to understand what critical thinking is, and how to use it in accounting studies as preparation for the remainder of their studies.

Figure 1
THINK

T	<i>Teach and Trust</i> yourself to make good decisions and become a contributing member of society (Facione, 2013).
H	<i>How</i> to act professionally and ethically in all areas, and be confident in reasoning and solving problems (Facione, 2013; Snyder & Snyder, 2008).
I	<i>Interpretation</i> : express the meaning or significance of a wide variety of situations, data, judgements, decisions, rules, procedures, information to each situation (Facione, 2013).
N	<i>eNgage</i> and participate actively (Papageorgiou, 2021; Precourt & Gainor, 2019).
K	<i>linK</i> theory to application in the process of learning, and link critical thinking skills to content (Snyder & Snyder, 2008).

Theoretical framework

The critical thinking concept is embedded in Bloom's taxonomy, which includes higher order thinking skills to assist students to inquire, thus leading to deepened knowledge (Anderson et al., 2001; Krathwohl, 2002). And the five elements of THINK (Facione, 2013; Precourt & Gainor, 2019; Snyder & Snyder, 2008) were used as a framework to develop a critical thinking intervention in an accounting curriculum. In an accounting context, both institutes (ISCA and ICAEW, 2016) referred to Bloom's taxonomy in a visible shift for accountants to analyse, evaluate, and create—rather than only apply accounting or auditing standards. In addition, in order to enhance companies' performance and producing significant results, accountants should be able to integrate, examine, and evaluate when interpreting financial and non-financial information. These institutes confirmed that critical thinking is one of the crucial skill sets that important for accountants (ISCA & ICAEW, 2017). Therefore, Bloom's taxonomy (Bloom et al., 1956) is used as a framework to explore higher order skills such as critical thinking skills within the accounting context.

An approach to deepen students' knowledge and understanding of the five elements of THINK was used to assist them to demonstrate critical thinking skills. The definition of "critical thinking" was developed in the context of accounting, using the top category of Bloom's taxonomy (Anderson et al., 2001; Krathwohl, 2002), and "create" was used in relation to thinking creatively, teaching, and trusting yourself to make good and ethical decisions—especially in the wake of some recent corporate accounting scandals. Thus, critical thinking also includes interpretation and especially, sifting and filtering through data to extract the correct data to make decisions, report problems, find solutions, interpret data, and make judgements (Facione, 2013). Another important aspect is to engage and participate effectively (Papageorgiou, 2021; Precourt & Gainor, 2019). And finally, including critical thinking in education programmes could assist with students' higher order thinking skills, linking theory learnt with application (Lorencová et al., 2019).

Context of the study

The university where the study took place responded to calls to prepare students for the workplace by developing a new critical thinking component to be included in the accounting curriculum, which could promote students' development and becoming critical thinkers. Students would be exposed to critical thinking in their first year of study to prepare them for the remainder of their studies and to embed lifelong learning, which contributes to the learning of new skills (Kanuru & Priyaadharshini, 2020). Snyder and Snyder (2008) indicated that critical thinking is a learned skill or set of skills that must be practised by students, and Wolcott et al. (2002) stated that these skills develop slowly. Therefore, in this study, the decision was made to introduce critical thinking skills to students to be practised and learned in their first year of study, and developed slowly over their studies until graduation.

Methodology

A mixed method was used, quantitative and qualitative, that was exploratory in nature, employing an on-line electronic questionnaire (Bryman & Bell, 2015) consisting of closed- and open-ended questions addressing the research questions.

Participants

The sampling frame included first-year students from two registration periods (one cohort was influenced by Covid-19, and the other cohort not) registered for an accounting course at a South African university. Students who were enrolled for the first-year accounting course that is compulsory for the Bachelor of Commerce degree were invited to participate in the study. A total of 908 students were sampled over the two-year period (Year 1 = 474, Year 2 = 434).

Research instrument

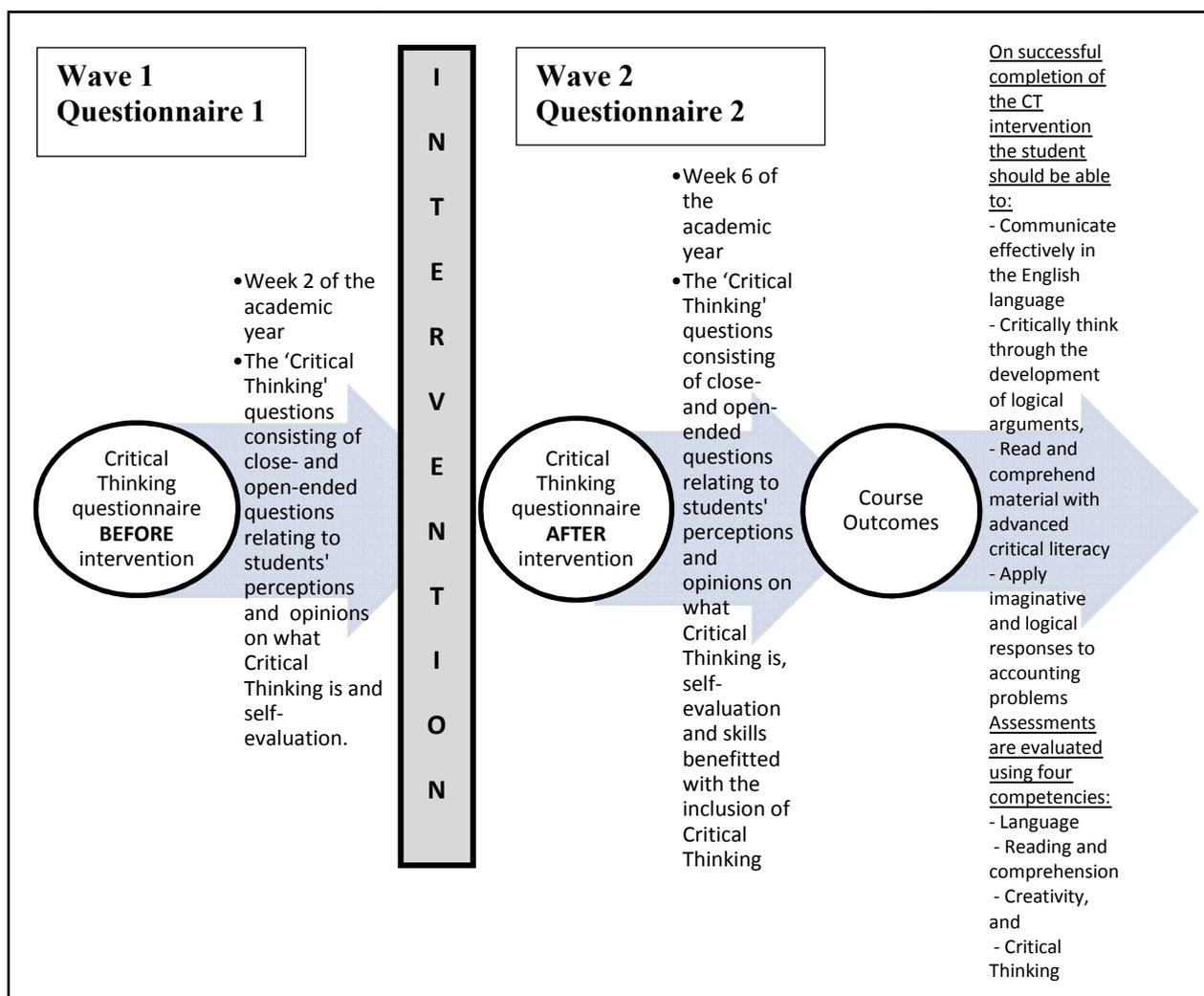
Questionnaires were developed specifically to address the purpose of this study, which was to obtain students' perceptions of critical thinking in an accounting curriculum. Students received an invitation via the university portal to participate in the research and links to the questionnaires were posted on the student portal to the 908 students registered for the first-year accounting course. Lecturers briefed students on the aim and contribution of the research during lectures. The "Critical Thinking Questionnaire" consisted of questions developed to capture students' perceptions of critical thinking, and included closed- and open-ended questions. Open-ended questions and responses are a more extensive way of viewing students' thinking skills, perceptions, and opinions and provide richer data about students' experiences to assess student thinking (Smith, 2014).

Data collection

Data were collected using four questionnaires over a period of two years, two questionnaires per year. Each year consisted of two waves (see Figure 2). Ethical clearance to administer the

questionnaires was obtained from the ethical committee of the university. The questionnaires were reviewed by the institution and participants were invited and provided their consent to participate in the study.

Figure 2
Research procedure: Waves 1 and 2



Wave 1 (before intervention)

The first wave was administrated at the beginning of the academic year in Week 2 before the critical thinking interventions. Three questions were asked. Questions 1 and 2 were closed-ended questions. The first question indicated six qualities: creative, independent, practical, think outside the box, think clearly, think rationally. Answers were to be indicated on a 5-point Likert scale ranging from “Very much true of me” to “Not at all true of me” for each quality. The second question asked, “How would you describe yourself by using five descriptive words?” The third question was open-ended and asked, “What do you think is critical thinking?”

The critical thinking intervention

A critical thinking course pack was included in the accounting course material and distributed to the students. This pack was developed by a team consisting of accounting educators, curriculum developers, English educators, a writing specialist, an external member of a different discipline, and another person who ensured all the critical thinking components were included as per the conceptual frameworks of the accounting bodies. The following elements were included in the pack: analytical/critical thinking, integrated thinking, problem solving, judgement and decision-making, and professional scepticism (SAICA, 2020). The pack was first circulated among accounting educators to be reviewed and minor adjustments were made. Students were constantly reminded about the five elements of THINK and the concept of lifelong learning (Kanuru & Priyaadharshini, 2020).

The main aims of the critical thinking component were firstly, to develop communication and critical thinking skills by exposing students to a range of readings to encourage them to think about the dialectical relationship between critical thinking and accounting and secondly, to encourage them to think about the consequent effect this dialectical relationship has on individuals and society. The title of the critical thinking course material pack was “Putting a Human Face to Numbers,” and consisted of readings on various topics such as the politics of language, corruption and ethics, and artificial intelligence. By engaging them with a diverse media of still pictures, motion pictures, poetry, short stories, journalistic articles, opinion pieces, and theoretical grounded readings, students were presented with numbers and how they influence and affect human lives.

In addition, the integrated annual reports of three companies listed on the Johannesburg Stock Exchange (JSE) were included in the pack. Students were informed that they were the preparers of financial statements and that it would be their responsibility to prepare these reports. This can be described as a *touch and feel* approach. Normally, students would only have been exposed to, or have learned about, the structure of the statement of comprehensive income and statement of financial position at the end of the first semester. But, by showing them the annual reports at the beginning of the academic year, students could visualise what they were working towards in preparing financial statements. In addition, students engaged in writing exercises, developing presentation skills in front of an audience (small and large groups), identifying what a professional person is, how to act in a working environment and be ethical, and how to communicate effectively and efficiently. Lecturers demonstrated these to the students in various settings using their knowledge and expertise. Second- and third-year accounting lecturers attended the lectures to observe, and to include and build on these first-year student interventions and experiences in their following years to graduation.

The critical thinking educators consisted of sessional non-accounting lecturers and tutors from the Humanities Faculty’s Writing Centre, and an associate professor from the School of Accountancy who was also the accounting course co-ordinator. The non-accounting lecturers or tutors typically have completed a doctorate in English or are registered for a master’s or doctoral degree in English. The teaching team was common across both years. The accounting students were divided into smaller groups for tutorials. Tutorials were compulsory

and attendance registers kept; students had to attend the lectures to be able to tackle the tutorials. In the tutorials, the tutorial assistants monitored each student's ability to communicate, write, sift through data, analyse, think critically, raise opinions, judge, and present.

Wave 2 (after intervention)

The second wave was administered in Week 6 after the critical thinking interventions. The critical thinking questions consisted of closed- and open-ended questions relating to students' perceptions and opinions on what critical thinking is, self-evaluation, and their skills benefitted by the inclusion of critical thinking. Students' critical thinking skills were tested at the end of Week 7 by using a formal written assessment on the work done in the critical thinking lectures. Students were briefed on what material had to be prepared for the assessment. On successful completion of the critical thinking components, the students should have developed or gained critical thinking skills (see Figure 2). Students were assessed by using the following criteria: to be able to answer open-ended questions, relate to real-world scenarios, ability to apply theory to new situations, ability to compare different situations, ability to sift through data to make judgements, and reasoning skills in solving problems. Examples of two questions are as follows.

In Year 1, the critical thinking question consisted of an article "Steinhoff Collapse: A Failure of Corporate Governance" (Rossouw & Styan, 2019) with relevant questions testing the students' critical thinking skills and whether they could raise opinions and make decisions in an accounting context. One of the required tasks was to write a short essay of 300 to 350 words from the perspective of a professional accountant on what could have been done to prevent the Steinhoff crisis. Marks were allocated for logic, clear writing, argumentation, and structuring of sentences and paragraphs. Students had to use their critical thinking skills to read, write full sentences, group sentences in paragraphs, present their arguments, provide reasons for their arguments, and structure an essay.

In Year 2, the critical thinking question consisted of a JSE company's integrated annual report and an article from a business magazine with questions assessing students' accuracy, judgement, reading skills, understanding, analysing of information, reporting on data gathered, opinions, and general knowledge. Questions such as the following were included: "Was there an increase or decrease in the company's revenue in the current year compared to the previous year? Provide two reasons for your answer." Students used their critical thinking skills to read, extract the correct information from the report, analyse the information, and provide the answers. Students also used their general knowledge to interpret the results.

Data analysis

The Statistical Package for the Social Sciences (IBM SPSS Statistics V27) was used to describe and analyse the quantitative sample of closed-ended questions and present the descriptive statistics. A content and thematic analysis was adopted to analyse the qualitative sample of open-ended questions. The responses to the open-ended questions were analysed

and various patterns and themes evolved and took shape to address the purpose of the study. The themes and the students' responses were grouped into the two waves: critical thinking before, and critical thinking after, the intervention. For each wave, the qualitative data were copied into a spreadsheet and a manual coding method was used to identify the themes. Themes evolved, which allowed the classifying of the data under the relevant themes. Core words were used to assign codes to the students' answers to the open-ended questions. In each wave, the data were analysed to classify and identify key words and common themes in the students' responses.

Findings and discussion

A total of $N = 1,618$ responses were recorded—an average response rate of 89.4% for the four questionnaires over the two years. A total of 908 students were registered for the course over the two-year period (Year 1 = 474, Year 2 = 434). There were two questionnaires per year and responses were as follows: Questionnaire 1, Year 1 = 414 and Year 2 = 410; Questionnaire 2, Year 1 = 372 and Year 2 = 422. See detailed responses presented in Table 1.

Table 1
Responses

Year	N = Number of students registered	N = Responses	Wave 1: Questionnaire 1 Response rate	Wave 2: Questionnaire 2 Response rate
1	474	414	87.3%	
2	434	410	94.5%	
1	474	372		78.5%
2	434	422		97.2%

The analysis first sought to address the first research question, namely, “What were students' self-evaluations and perceptions of the concept of critical thinking—before and after including the critical thinking interventions in the accounting curriculum?” Students had to indicate their perceptions of “Very much true of me” to “Not at all true of me” before (Wave 1) and after (Wave 2) the critical thinking interventions in each of the two years. Descriptive statistics were performed of the frequencies of the six qualities, independent, think clearly, practical, think rationally, think outside the box, and creative (see Table 2).

Descriptive results indicated that students rated themselves in Year 1, Wave 1 ($N = 414$) to be “Independent” as the highest (79.0%), “Think clearly” second (73.9%), and “Practical” as the third highest (71.3%). Results for Year 1, Wave 2 ($N = 372$) indicated “Independent” as the highest (86.6%), “Practical” second (81.6%), and “Think rationally” as the third highest (79.6%). There was a significant shift in students' self-evaluation from Wave 1 to Wave 2 for all the six qualities. Interestingly, the “Practical” and “Think out of the box” values increased dramatically from Wave 1 to Wave 2.

Descriptive results indicated that students rated themselves in Year 2, Wave 1 (N = 410) to be “Independent” as the highest (79.5%), and “Think clearly” together with “Think rationally” as second highest (76.3%). Results for Year 2, Wave 2 (N = 422) indicated “Independent” as the highest (84.1%), “Think clearly” second highest (80.9%), and “Think rationally” as third highest (78.3%). There was a significant shift of students’ self-evaluation from Wave 1 to Wave 2 for all six values. Interestingly, the value that shifted the most from Wave 1 to Wave 2 was the “Think out of the box” (increased by 9.9%). This could be due to the Covid-19 epidemic when students participated in Wave 1 before the epidemic, and in Wave 2 during Covid-19, and when students had had to adjust to this new phenomenon.

Table 2:
Students’ self-evaluation per year and per wave

Year	Wave	Ranking of Values	%
Year 1	Wave 1 (N = 414)	Independent	79.0
		Think clearly	73.9
		Practical	71.3
		Think rationally	69.1
		Think outside the box	57.5
		Creative	53.4
	Wave 2 (N = 372)	Independent	86.6
		Practical	81.6
		Think rationally	79.6
		Think clearly	77.4
		Think outside the box	68.0
		Creative	62.4
Year 2	Wave 1 (N = 410)	Independent	79.5
		Think clearly	76.3
		Think rationally	76.3
		Practical	74.6
		Creative	60.0
		Think outside the box	56.8
	Wave 2 (N = 422)	Independent	84.1
		Think clearly	80.9
		Think rationally	78.3
		Practical	79.7
		Think outside the box	66.7
		Creative	61.7

Students also responded to the third question, “What is critical thinking?” in Waves 1 and 2. The responses were analysed, grouped, and reported verbatim. Students’ responses were compared between Waves 1 and 2 to indicate the differences in their knowledge of the critical thinking concept before and after the intervention.

Students responded as follows in Wave 1 before the critical thinking intervention:

I don't know.

High level of problem solving.

To think about something deeply.

Cool.

Not everyday thinking. Thinking that solves problems rationally.

Thinking hard.

Not jumping to conclusions, but rather, unpacking a topic or statement.

Thinking about a situation by looking at facts.

Thinking deeply about something.

Students responded as follows in Wave 2 after the critical thinking intervention:

Critical thinking is the ability to challenge, interpret, analyse, and question certain situations and topics.

Critical thinking is a mode of thinking that is utilised to conceptualise and rationalise complex (or simple) subject content to form a well-informed opinion.

Being able to unfold a certain situation and apply logical sense and more, do it according to what you understand about the problem.

Critical thinking is the skills when you can think from a different perspective and “out of the box” along with analysing problems in order to form a judgement.

Critical thinking is being able to analyse a situation and to use creative and innovate solutions to solve the problem. It is about using your knowledge to understand beyond the problem.

It is thinking “out of the box,” always being responsive to every issue put in front of you to come up with a response or solution.

In Wave 2, the written responses provided richer data about students’ experiences after the inclusion of the critical thinking interventions and the reasoning behind their views. In Wave 1, students were not yet exposed to critical thinking and their responses on critical thinking were in some cases vague, short phrases or only one word. After the intervention of critical thinking in Wave 2, most students responded with full and longer sentences describing critical thinking in detail. These findings indicated students were definitely aware of critical thinking and could define it. Students also used the knowledge learned in the critical thinking lectures and tutorials to write clear sentences.

The second research question addressed the purpose of the study: “Will these critical thinking interventions assist students in their studies by growing or establishing an awareness of being critical thinkers?” In Questionnaire 2, Wave 2, students had to indicate their responses to five statements about whether the critical thinking interventions assisted them; they had to select one of the following: “Strongly disagree,” “Disagree,” “Agree,” “Strongly agree,” and “Neither agree nor disagree.” Descriptive statistics were performed on the frequencies of

these statements, and responses are illustrated in Table 3. The results indicated that most of the students responded well to the inclusion of critical thinking module in the accounting curriculum. Year 2 responses were slightly lower compared to Year 1 and this could be due to the interruption of lectures, tutorials, and assignments during the Covid-19 period. One of the five options on the Likert scale was “Neither agree nor disagree,” and 4.3% of the students selected this option in Year 2, which could also be a reason for the lower score compared to the previous year.

Table 3

Critical thinking statements after intervention: Wave 2

Statement	% Agreed	
	Year 1 N = 372	Year 2 N = 422
The critical thinking course assisted me in thinking logically.	81	80
The critical thinking lectures were beneficial to think critically.	82	77
The critical thinking tutorials were beneficial to gain self-confidence.	74	73
I would recommend critical thinking to be included in the remaining part of my degree to enhance lifelong learning and self-learning.	73	68
The critical thinking assignments helped me to explore other resources in the accounting field.	73	70

Students had to each name three skills that they had benefitted from being exposed to the critical thinking interventions. The qualitative data were analysed using an Excel spreadsheet, and N = 2,014 benefits in skills were recorded. The benefits in skills students experienced after the inclusion of the intervention, critical thinking, were grouped in different skill categories as per Table 4. The highest ranked skill was “Communication skills” (18.7%), and second highest, “Confidence” (15.1%; some students indicated “Self-confidence” because it was grouped under the theme, “Confidence”), and the third highest “Writing skills” (11.0%). The category, “Improved Writing skills” (4.8%), was reported separately to “Writing skills” and not combined because with the inclusion of critical thinking interventions in the accounting curriculum, some writing skills were “Developed” while others “Improved.”

Table 4

Skills students benefitted after the inclusion of the intervention critical thinking

Skill	Frequency	%
Communication skills	226	18.7%
Confidence	183	15.1%
Writing skills	133	11.0%

Skill	Frequency	%
Reading skills improved	101	8.3%
Teamwork skills	82	6.8%
Improved writing skills	58	4.8%
Think logically, clearly, rationally, quickly	42	3.5%
Understanding	40	3.3%
Analysing	39	3.2%
Listening skills	36	3.0%
Presentation skills	36	3.0%
Creativity	32	2.6%
Structuring an argument and response	28	2.3%
Thinking critically	21	1.7%
Referencing skills	20	1.7%
Active listening	15	1.2%
Open-minded	14	1.2%
Time management	13	1.1%
Social awareness	12	1.0%
Reading skills	10	0.8%
Interpretation skills	9	0.7%
Critical thinking	8	0.7%
Debating skills	8	0.7%
Academic writing	7	0.6%
Stating facts	7	0.6%
Expressing opinions	6	0.5%
Knowledge	4	0.3%
Patience	4	0.3%
Rational thinking	4	0.3%
Evaluation skills	3	0.2%
Explanation skills	3	0.2%
Flexibility	3	0.2%
Technical skills	2	0.2%
Punctuality	2	0.2%

Students' perceptions

Most students seem to have benefitted from the inclusion of the critical thinking module that sought to create awareness around critical thinking, and that sought to develop their critical thinking skills. The analysis of the open-ended questions' responses was grouped into themes using the five elements of THINK as per the literature review. Students responded as follows to each theme.

Teach and trust yourself to make good decisions

Students indicated that the critical thinking intervention assisted them in understanding the world after high school, in adapting from school to university, learning more about the real-world, making decisions, and trusting their thinking. Facione (2013) asserted that by teaching and trusting yourself to make good decisions you can become a contributing member of society. The Bloom's taxonomy (Anderson et al., 2001; Krathwohl, 2002) asserts the "Create" aspect of critical thinking as one of the elements through which to trust yourself and make good and ethical decisions. Some verbatim responses include:

I think the critical thinking course teaches valuable lessons and is a good introduction for students to learn more about the real-world upon leaving school.

It [critical thinking] is beneficial to help first year students understand the world beyond high school and to make the correct decisions throughout their studies.

To think thoroughly and rationally before making decisions or accepting things the way they are.

Allowed me to see what the broad scope of accounting will look like especially out of school. Allowed me to look at myself and makes me make sure my decisions are not selfish.

Carefully analysing outcomes of decisions before making a choice.

It [critical thinking] helped me gain confidence in being able to participate in group discussions and presentations. It also helped me think logically and creatively. It helped me make rational decisions.

To trust that what I am thinking about is worth being said also.

Act professionally and ethically in all areas and be confident in reasoning

Students aired their opinions on being ethical, applying good governance, the ability to think rationally and outside the box, being creative without being unethical. Students also indicated their stances on their ability to differentiate between ethical and unethical. Snyder & Snyder (2008) confirmed that students who think critically are able to solve problems effectively and also be effective in the workplace after completing a professional degree. Further verbatim responses include:

The critical thinking course is a very good course for first year students [to] take because it increases the students' ability to interpret, analyse, and evaluate problems in an ethical way that allows them to give proper judgements thus preparing them for the workplace.

Think ethically, with empathy. Understanding the facts.

The critical thinking course has helped me understand the importance of concept understanding in education. For one to understand, relate, and apply logical thinking to many situations that we face in our daily lives, be it in our personal or professional life we need to understand the background or identify the root cause to any situation.

I'm glad it [critical thinking] was introduced into the syllabus, especially after reading the articles. . . . It was clear how important critical thinking is in both university and in the professional world.

Interpretation of situations around critical thinking

Students voiced their opinions on the critical thinking interventions to help them interpret any situation, being it reading material, facing a problem, and interacting with other students and lecturers. They now interpret situations better on a daily basis, resulting in their making better choices and becoming better critical thinkers. Facione (2013) stated that experts include "interpretation" as one of the very core elements of critical thinking. While institutions indicated that accountants should be able to integrate, examine, and evaluate when interpreting financial and non-financial information (ISCA & ICAEW, 2016). The extent to which students directly benefited from the interventions are evident in their responses:

My interpretation of reading material changed for the best.

Critical thinking is a type of process that allows for a person to see a problem with a clear and objective lens in order to form the correct type of judgement and interpretation

The ability to think clearly and be able to analyse and interpret a problem then come up with a solution.

Critical thinking is the ability to challenge, interpret, analyse and question certain situations and topics.

eNgage and participate actively

Engagement and participation are important for students, and they indicated that participating in discussions, debating, and presenting in a small group benefited them in various ways like increasing their communication skills and boosting their confidence. Another important element is to engage and participate effectively in lectures and if students engage effectively, they can become critical thinkers (Papageorgiou, 2021; Precourt & Gainor, 2019). Verbatim responses included:

I learned to better engage with reading matter in a critical way.

The critical thinking course has been engaging and fun to participate in.

I think critical thinking should be included as one of the courses that accounting students do, because it has much greater benefit to students as it encourages them to engage in discussions and debate on certain issues in class. This improves their communication skills and boosts their confidence.

It [critical thinking] made me want to engage in creative thinking and look for certain issues and be able to find solutions for them and how can I go about trying to solve them.

linking theory to application, critical thinking skills to content

Linking theory to application using critical thinking skills can enable students to know more and therefore be able to perform better. Critical thinking is the skill or ability to think past what has been taught, or the theory, and apply it to the specific situation; it allows individuals to find solutions applying both what they have learnt within a schooling environment and in higher education. Abbott and Palatnik (2018) indicated that critical thinking incorporates the capability to link data, knowledge, and insight from various disciplines to provide information for decision-making. Snyder & Snyder (2008) stated that critical thinking is the result of education, training, and practice in linking critical thinking skills to the content of a course with the focus on how students learn. Some verbatim responses include:

[Critical thinking] is the importance of a narrative and how it links to objectivity.

Learning how to apply theory into practice.

Applying your mind to everyday problems that you encounter. Looking at problems in a different way.

Summary

This study will hopefully contribute to the goal of embedding critical thinking skills at the first year of study. Achieving this goal will not only enable students to grow into employable graduates but may guide improvements in how accounting educators can assist students through the inclusion of critical thinking in the curriculum to develop these skills. Two student responses:

The more I engage with people about the everyday societal issues that are not humanities students the more I think everyone needs this course across all faculties.

The course is very good and should play a larger role in the complete module. Perhaps a session of critical thinking each week running parallel to the accounting theory to create constant stimulus.

Conclusion

The purpose of this paper was to explore students' perceptions of the inclusion of a critical thinking module in a first-year accounting curriculum to determine if critical thinking was developed and fostered during the course. This study addressed the recommendations of studies by Hart et al. (2021) and Wolcott and Sargent (2021) to actively include critical thinking skills throughout the accounting curriculum. The critical thinking module was embedded in Bloom's taxonomy and included higher order thinking skills to assist students to inquire leading to deepen knowledge (Anderson et. al., 2001; Krathwohl, 2002), and the five elements of THINK (Facione, 2013; Precourt & Gainor, 2019; Snyder & Snyder, 2008) were used as a framework to develop the intervention in the accounting curriculum. The findings reveal positive results and the promising perceptions that most students benefitted from the inclusion of critical thinking in the curriculum. The highest five ranked skills students benefitted from were communication skills, gaining confidence, writing skills, improved reading, and teamwork skills. In addition, most students confirmed that the critical thinking course assisted them in thinking logically and clearly, and to be independent. The study contributes to students' preparedness and readiness for the workplace and gaining of lifelong skills through formal education. The findings of the two research questions are now discussed further.

The answer to the first research question, "What were students' self-evaluations and perceptions of the concept of critical thinking—before and after including the critical thinking interventions in the accounting curriculum?" was addressed as follows. Based on the responses from first-year accounting students, the study found that in both years, there was a significant shift in students' self-evaluation from Wave 1 to Wave 2 for all six values. Interestingly, the "Practical," and "Think out of the box" values increased dramatically from Wave 1 to Wave 2. The answers to the second part of the first question ("What is critical thinking?") indicated that the written responses provided richer data about students' experiences before and after the inclusion of the critical thinking interventions. These findings indicated that students were definitely aware of critical thinking and could engage in the material taught in the critical thinking component.

The answer to the second research question, "Will these critical thinking interventions contribute to assist students in their studies by growing/establishing an awareness of being critical thinkers?" was addressed as follows. The results indicated that most of the students reported positively on the inclusion of the critical thinking module in the accounting curriculum and that the critical thinking interventions had a positive influence on the mindsets of the accounting students. This may influence students' perceptions on the impact of critical thinking to equip students and graduates with a skill set required for the workplace. The results of the different skills reported and experienced by the students compares with SAICA's (2019) view of what critical thinking is: to actively conceptualise, apply, analyse, synthesise, and evaluate information. The results of this study support Koeplin (2003) and Howcroft (2017) that employers require students to possess critical thinking skills and creative problem-solving abilities when entering the workplace. Thus, the inclusion of critical

thinking in the accounting curriculum could contribute to increasing students' communication, writing, and presentation skills, which would prepare them for the workplace. The results confirmed that most students responded positively to the inclusion of the critical thinking module in the accounting curriculum. Year 2's responses to the question to include critical thinking in the accounting curriculum were slightly lower compared to Year 1, which could be as a result of the interruption of lectures, internet connectivity, and access to the questionnaire during the Covid-19 period.

The value of the study is that it provides new insights and evidence on students' perceptions and opinions on critical thinking with particular reference to accounting studies. On successful completion of the critical thinking skills module, the student should be able to communicate effectively, critically think through the development of logical arguments, read and comprehend material with advanced critical literacy and apply logical responses to problems. This study contributes to creating an awareness among accounting students on the value of embedding critical thinking skills early in their studies (in their first year of study rather than in their third year) to foster their critical thinking skills for the remainder of their studies. In addition, the inclusion of the critical thinking intervention in the accounting curriculum was a learning curve for both the lecturers and students.

This study has some limitations. Only one university was used. Only first-year accounting students participated. And only students' perceptions and opinions were tested in the study. Collaborations with other disciplines and universities are recommended in order to determine the extent to which critical thinking is actively being developed, incorporated, or actioned in courses. Further recommendations are that future studies need to continue to share critical thinking inclusions in course material to improve such material and assessment that help to produce well-rounded employable graduates who are critical thinkers.

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