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Students' experience of team assessment with immediate feedback in a large accounting class

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ABSTRACT

Team assessment has been suggested as a competency-based collaborative learning technique. Critical to the success of an assessment for learning, in competency-based education, is the use of formative feedback. This study reports on the development of, and the students' experience of, a Team Assessment with Immediate Feedback (TAIF), in which immediate formative feedback is provided to the students by their peers and the assessment instrument (the IF-AT® form). Results of the quantitative and qualitative data, collected in a survey, suggest that the majority of the students experienced the TAIF positively. Many students highlighted that they had constructed new knowledge and understanding of the content and practiced numerous skills during the team assessment. The learning benefits of the immediate feedback component of the team assessment were widely acknowledged by the students. The study also provided some initial evidence that team assessment in a culturally diverse student cohort may enhance intercultural collaboration. Team assessment may also contribute towards re-establishing the link between professional accounting education and practice.

Introduction

This study reports on the use of a Team Assessment with Immediate Feedback (TAIF) as a competency-based collaborative learning technique, in which immediate formative feedback is provided to students by their peers and the assessment instrument. In particular, this study documents the design of a TAIF and the students' experiences thereof in a culturally diverse undergraduate professional accounting education course. Team assessment, also referred to as cooperative assessment (Zimbardo, Butler, and Wolfe 2003) or collaborative assessment (Kapitanoff 2009), involves assessment of students in small groups (Stark 2006) working towards a common goal (Wilson, Ho, and Brookes 2018). Team assessment has been associated with professional higher education contexts (Bay and Pacharn 2017), given the potential thereof to meet the needs of students, employers and society through developing collaboration, reflection and lifelong-learning skills (Harris et al. 2017). Professional higher education refers to institutions and programs that are profession-oriented and offer vocational training, incorporating 'practical skills development or training' for prospective 'professionals' (Delspace 2018) such as accountants, engineers, physicians, dentists, veterinary surgeons, and architects.

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Professional accounting education and training is historically characterised by a dual qualification system with a higher education degree, followed by a period of training in professional practice (Eraut 1994). A critical disadvantage of this system is the separation of 'theory' from 'practice' (Wilson 2011), where professional education has emphasised propositional knowledge, while largely ignoring process knowledge and the development of generic skills (McLoughlin and Luca 2002). The increasing use of information technology, internationalisation, teamwork and networking in the professional workplace has necessitated a realigning of higher education to include the development of generic skills (McLoughlin and Luca 2002). Problem solving, teamwork and communication skills are the most needed skills in the 21st century workplace (Tabary 2015), and accounting employers have indicated that the development of these skills at higher education institutions is more important to them than the acquisition of technical accounting knowledge (Jackling and de Lange 2009).

For instructors, the realignment of professional education towards an increased emphasis on the development of generic skills requires a change towards a more competency-based approach (Biggs 1999). Competency-based education requires a broadening of assessment from a summative focus on assessment of knowledge to approaches that integrate formative assessment for learning, to construct knowledge and develop skills, behaviour and attitudes (Harris et al. 2017). Critical to the success of formative assessment for learning is the use of formative feedback (Harris et al. 2017). Formative feedback is behaviour and/or task specific, based on direct observation, allowing students to gain a timely awareness of their strengths and weaknesses (Epstein et al. 2002), and facilitates learning in a student's zone of proximal development (Chen, Breslow, and DeBoer 2018). The positive effects of feedback on learning may, however, be negated by instructors and students excessively focusing on test scores rather than on feedback (Crooks 1988). This may be particularly true in professional accounting education, given the ingrained fixation of instructors, the profession and students with pass rates in professional accountancy examinations (Wilson 2011; Coetzee and Schmulian 2012).

This ingrained fixation with pass rates results in 'teaching to the test', with worrying overtones of rote learning of content and disregard for process knowledge, problem solving and the development of other generic skills (Wilson 2011; Coetzee and Schmulian 2012). Team assessment may assist in the realignment of accounting education towards a greater focus on process knowledge and the development of generic skills. The facilitation of collaborative learning, which is suited to developing these skills, is challenging (Wilson, Ho, and Brookes 2018). Faculty may, therefore, require specific professional development in the facilitation of collaborative learning (Burbach et al. 2010).

There is no research, of which we are aware, into the use of a summative team assessment, integrating immediate formative feedback, in competency-based professional higher education. This article, therefore, provides a thick description of the development and facilitation of a TAIF, as a competency-based collaborative learning technique, to develop accounting students' generic skills, in a professional undergraduate accounting education course. This article further reports on the students' experiences of the TAIF. A mixed methods approach, incorporating both quantitative and qualitative analysis, was adopted to explore the students' lived experiences of the TAIF.

Literature review

Historically, knowledge creation or learning was seen as a personal quality or attribute. Vygotsky (1978), however, theorised that every conversation or encounter between two or more people presents an opportunity for new knowledge to be obtained. Grounded in Vygotsky's theory of social constructivism, there has been increasing evidence that learning is a social-based process, where communication and negotiation skills come into play when a learner faces new challenges

in authentic problem solving (McLoughlin and Luca 2002). Constructing knowledge through conversation and collaboration improves students' academic performance (Opdecam et al. 2014; Jang et al. 2017), as students are able to obtain a greater understanding of concepts through collaborative learning with their peers (Damon and Phelps 1989). Additionally, collaborative learning creates a more comprehensive competency-based learning environment than an individual learning environment, by broadening the generic skills that can be developed (Jang et al. 2017; Wilson, Ho, and Brookes 2018).

Competency-based accounting education

Competency-based accounting education is an approach to teaching, learning and assessment that aims to improve the education and training of future accounting professionals so that they can deliver consistent and high quality accounting and related professional services (Boritz, Carnaghan, and Waterloo 2003; Lawson et al. 2014). Competency-based learning in accounting education is influenced by numerous competency frameworks, proposing the knowledge and skills required for effective professional practice, adopted by various professional accounting associations (see Certified Professional Accountants (CPA) Canada, 2018; Association of Chartered Certified Accountants (ACCA), 2018; South African Institute of Chartered Accountants (SAICA) 2018). Education premised on competency frameworks should engage students in authentic tasks that emphasise competency-based *assessment for learning* (Schuwirth and van der Vleuten 2011) situated at the 'showing how' and 'doing' levels of Miller's Pyramid of Professional Competence (Miller 1990) (Figure 1). Competency-based assessment, which might not reflect conventional examination methods, improves the quantity and quality of feedback to students, supports the practice of reflection and the development of lifelong learning skills (Harris et al. 2017).

The affordances of team assessments are therefore framed by social constructivist competency-based learning.
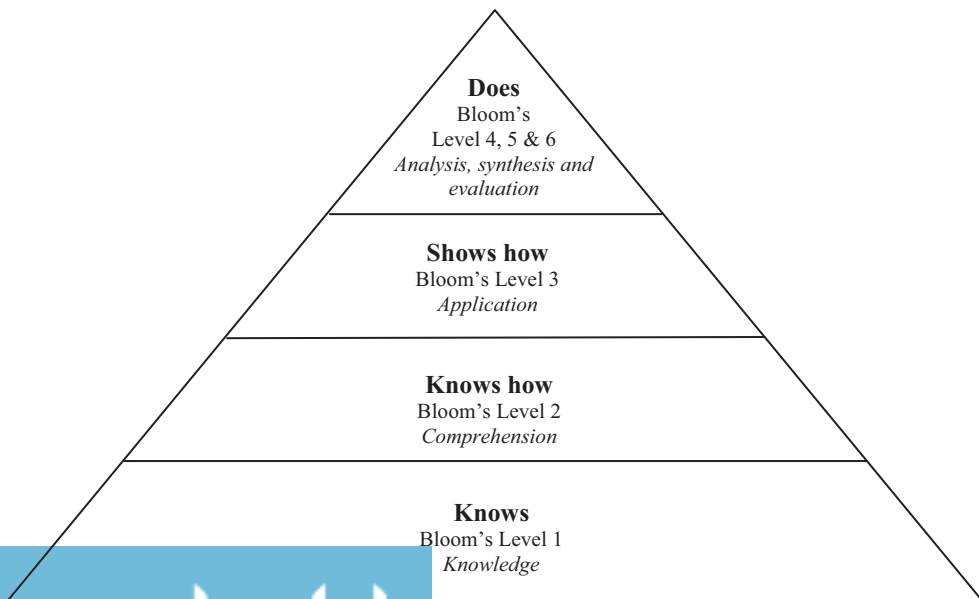

Figure 1. Miller's pyramid of professional competence (Miller 1990, adapted for equivalent Bloom's levels).

Team assessment

Team assessment, or assessment of students collaborating in small groups working towards a common goal, has been suggested as an effective competency-based collaborative learning technique (Jang et al. 2017). Team assessment improves academic performance (Simpkin 2005; Slusser and Erickson 2006) and cognitive processing (Kapitanoff 2009), increases retention of concepts (Kapitanoff 2009; Zipp 2007), increases motivation (Shindler 2004; Zimbardo, Butler, and Wolfe 2003), decreases test anxiety (Lusk and Conklin 2003; Zimbardo, Butler, and Wolfe 2003), creates positive rapport between classmates (Sandahl 2010), develops communication and teamwork skills (Reinig, Whittenburg, and Horowitz 2009) and improves student evaluations of teaching (Hite 1996).

Team assessment places the emphasis on authentic interactions and teamwork and students learning to collaborate. Despite the evidence of the effectiveness of team assessment in the broader literature (see Jang et al. 2017), team assessment has not achieved the same effectiveness in accounting education as in other disciplines (Clinton and Kohlmeyer 2005; Gabbin and Wood 2008). Where the literature has provided some positive evidence in accounting education (see Reinig, Horowitz, and Whittenburg 2014; Bay and Pacharn 2017), the generalizability of these results is uncertain as these studies reported on small classes of graduate accounting students ($n = 35$ and 47, respectively). It is therefore 'urgent for accounting educators to push forward in searching for cooperative learning techniques that produce positive results in accounting education' (Bay and Pacharn 2017, 317), particularly in competency-based, undergraduate, professional accounting education.

Intercultural team assessment

Much of the literature supporting team assessment considers its effectiveness in culturally homogenous class groups (Moore and Hampton 2015). Team assessment involving culturally and linguistically diverse students is less explored, and remains more contentious. Students appear to prefer collaborating in group or team activities with students of similar backgrounds for various cultural and pragmatic reasons (Volet and Ang 1998). Collaborative activities, necessitating interaction amongst a diverse student group, may however improve students' cultural awareness and their positivity towards intercultural teamwork.

Intercultural teamwork is perhaps more necessary and prevalent in South Africa than in many other countries, given the county's diversity. Almost 25 years since the demise of Apartheid, South Africa continues to grapple with the integration of its culturally diverse population (Habib 2016). Embracing students as active partners in the learning process and working towards a common goal, through team assessment, may have the potential to be a catalyst for a more democratic and inclusive approach to education and enhance the students' positivity towards, and effectiveness for, working in intercultural teams.

Feedback

In a social constructivist, competency-based learning environment, students begin to form their understanding of a concept from their prior knowledge and experiences (Chen, Breslow, and DeBoer 2018). The gap between the students' current understanding and the desired learning goal is facilitated by formative feedback (Shute 2008). Formative feedback is, therefore, an essential element of competency-based *assessments for learning* (Brown 2005; Harris et al. 2017). Formative feedback can assist students in correcting behaviours that are ineffective and reinforce behaviours that are effective in a safe environment (Bazrafkan, Ghassemi, and Nabeiei 2013). Formative feedback has the potential to support learning, particularly in courses with a

hierarchical structure (Schneider, Hein, and Murphy 2014), like introductory or intermediate accounting, where topics build directly on earlier course topics.

Feedback is defined as 'information given by an agent (eg teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding' (Hattie and Timperley 2007, 81) and comprises several dimensions: feedback on task execution; feedback on learning strategies; feedback on metacognitive skills; and feedback on the self as person (Chen, Breslow, and DeBoer 2018). Feedback on learning strategies and metacognitive skills impose the heaviest cognitive load but encourage deeper learning than the surface knowledge gained from feedback on task execution (Balzer, Doherty, and O'Connor 1989). The dimensions of feedback are, however, not mutually exclusive and it is possible, and perhaps preferable, to give feedback for task execution and deeper learning simultaneously (Earley et al. 1990). Within a zone of proximal development feedback at the task execution level for a student, with the necessary metacognitive awareness, can help that student develop learning strategies on their own. This may be more powerful than direct feedback to the student on learning strategies (Chen, Breslow, and DeBoer 2018). Therefore, although feedback in a team assessment may be simply at the task execution level, it is reasonable to expect that students, with strong metacognitive skills, could develop effective learning strategies from that feedback. The students may, for example, develop the skills to diagnose errors and skills such as self-assessment and self-reflection (Chen, Breslow, and DeBoer 2018).

In addition to the dimensions of feedback, there is debate on the effectiveness of the timing of that feedback (Kulhavy and Anderson 1972; Kulik and Kulik 1988). Timely and informative feedback can help students recognise and correct knowledge gaps and misunderstandings, motivate them to construct new knowledge, and increase the students' confidence (Epstein et al. 2002).

Immediate feedback

Immediate feedback in the classroom, as opposed to delayed feedback, appears most effective as it increases a student's confidence and motivation to learn (Dihoff, Brosvic, and Epstein 2003; Dihoff et al. 2004). Immediate feedback reduces interference from incorrect knowledge (Epstein et al. 2002) and may limit repetition of retrieval failure (Roediger and Marsh 2005). During an assessment, immediate feedback provides an opportunity to potentially realise the positive effects of feedback, while avoiding the students' disregard of feedback received with the later release of test scores (Schneider, Ruder, and Bauer 2018).

Although immediate feedback during assessments has been found to be beneficial for learning (Brosvic and Epstein 2007), it is exceptionally difficult to provide timely individual feedback in the large classes that characterise many higher education courses at the undergraduate level (Chen, Breslow, and DeBoer 2018). Many instructors, therefore, provide generalised feedback for the group and leave it up to the students to decide how and when to use this (Schneider, Ruder, and Bauer 2018). Peer feedback may serve as an alternative to instructors providing immediate feedback in large classes.

Peer feedback

Historically, peer feedback was characterised by the assessment and grading of a student's work by their peers (Topping 1998). Such unilateral feedback is, however, unlikely to lead to greater learning (Crisp 2007). Contemporary literature, therefore, encourages less emphasis on grading and greater emphasis on peer review, whereby students evaluate and share feedback on each other's work through social interaction (Liu and Carless 2006; Nicol 2013; Orsmond et al. 2013). Through social interaction, the students are able to make sense of their new knowledge and

develop greater conceptual understanding. In addition to encouraging social interaction, peer feedback encourages active learning, self-assessment, self-management and develops subject knowledge. Further, the benefits of peer feedback extend beyond the education environment and assist students to prepare for their careers in practice, by developing their ability to evaluate the work of others and to communicate that evaluation to others.

This study explores students' experiences of TAIF in a large, culturally diverse undergraduate professional accounting education course in which immediate formative feedback is given to the students by their peers and the Immediate Feedback Assessment Technique (IF-AT®).

Immediate feedback assessment technique (IF-AT®)

In large classes, the multiple-choice format is often selected for assessment (Henriques, Colburn, and Ritz 2006). The multiple-choice format reduces grading time and is a reliable assessment method (Schneider, Ruder, and Bauer 2018). It is, however, challenging to assess critical thinking and problem-solving skills with multiple-choice questions and often many questions may be guessed by a student without a full understanding of the content. Feedback on multiple-choice questions is regularly limited to what the correct answer is and not on the student's (mis)understanding of the concepts assessed. Reading or endorsing the incorrect distractor option can result in the construction of incorrect knowledge (Roediger and Marsh 2005; Butler et al. 2006). Providing corrective feedback in these circumstances is particularly important for less prepared students who experience larger negative effects (Butler and Roediger 2008). The limited feedback associated with the multiple-choice format in large classes can be overcome by allowing students multiple attempts for reduced credit (Slepkov, Vreugdenhil, and Shiell 2016). The awarding of partial credit may increase test scores and discourage students from merely guessing answers on subsequent attempts.

Unlike the conventional multiple-choice form (eg the Scantron form), the IF-AT® (Epstein, Epstein, and Brosvic 2001; Epstein et al. 2002) makes use of a multiple-choice answer card that

Illustration 1. An example of a completed IF-AT® form.

allows students multiple attempts for reduced credit (Dibattista, Mitterer, and Gosse 2004). The card contains rows of responses for each question with each option in a row of responses covered in a thin opaque film similar to that of a scratchable lottery card (Parmelee et al. 2012). Students scratch off the coating on their preferred response with a coin, student card or similar. Immediate feedback is then provided to the student by the presence of a star appearing somewhere within a rectangle, which indicates the correct response has been selected, or a blank space indicating an incorrect response. If the first response is incorrect, the student may make multiple attempts for reduced credit. In the example provided of an IF-AT® form (Illustration 1), four points are awarded for a correct first attempt, two points for a correct second attempt and one point for a third attempt that proves to be correct. Instructors may apply their discretion at determining the awarding of the points for each attempt.

Students in introductory psychology courses positively experienced the use of IF-AT® forms in an individual assessment (Epstein et al. 2002; Dibattista, Mitterer, and Gosse 2004). The students commented that the IF-AT® assessment felt like a game contributing to their learning (DiBattista and Gosse 2006) and reducing their anxiety associated with the assessment. Within the science domain, the use of IF-AT® forms within a team context has been explored (White 2005; Cotner, Baepler, and Kellerman 2008; Carmichael 2009; Slepkov and Shiell 2014), and the students' experience of the IF-AT® forms has been positive. Students commented that the IF-AT® forms assisted in identifying misconceptions in their learning and improved their academic performance. The prior literature on the use of IF-AT® forms is concentrated in the knowledge-based higher education environment as opposed to a more vocational competency-based professional higher education environment. This study extends the existing literature by considering the use of IF-AT® forms in a large, competency-based professional accounting education course, characterised by multicultural teams.

TAIF in a large accounting class

In the course in which the TAIF was adopted, the class meets three times a week for a total of four hours of instruction per week. Knowledge creation is facilitated by the Guided Inquiry Design® Framework. Guided Inquiry Design is a linear looking process, based on the constructivist theory (Vygotsky 1978), guiding students through the process of constructing new knowledge (see https://guidedinquirydesign.com/gid/ for more information). Learning is facilitated by a combination of team-based learning, case-based teaching, and problem-based learning. Teaching practices include video-based tutorials, lectures, role play, interactive problem-solving sessions with immediate feedback using Google Forms, small group discussions, and think-pair-share sessions. TAIF was, therefore, a natural extension of these classroom practices.

At the beginning of a semester, students were clustered into groups based on their prior academic achievement in an introductory accounting course. The students were then randomly drawn from each cluster forming teams of approximately four students. Each team, therefore, included academically stronger and weaker students. A numerical sorted list, based on student numbers, was published, indicating the name of each student's team. Students were not informed of the reason they were allocated into teams. The students were requested and regularly reminded to memorise their team name for use at an undisclosed time during the semester.

The TAIF was administered mid-semester during a time scheduled for an individual written summative assessment, typical of the course and degree program. The intention, therefore, was that each student is optimally prepared for the assessment, minimising the risk of any 'freeloading' during the TAIF. Upon arrival at the assessment venue, students were requested to locate their teams. Before commencement of the assessment, the instructors spent time describing it to the students in detail, on the assumption that students had no prior experience of the

IF-AT® format. The instructions focused only on the practical use of the IF-AT® form and did not include any suggestions or guidance in respect of the teamwork component or the approach to developing a response to each question. It was left to each team's discretion to determine the roles of each member in the team and to strategise their approach to the assessment. It was observed that one student would take, or be assigned, the responsibility to do the scratch off on the IF-AT® form, as each team was assigned only one IF-AT® form. Team members were all attention as they determined if their response was correct. Audible cheers or groans were given to correct or incorrect responses. Discussion invariably became more passionate and urgent should the first attempt be wrong and the stakes became higher. The students were allowed to reposition themselves and their teams in the venue. While there was no audio insulation between teams, the students seemed to be sufficiently focused on their own discussion so that other teams' discussions did not appear to affect them.

The assessment purposefully expected greater insight than an individual, written summative assessment to encourage collaboration, problem solving and productive discussion amongst the team members (Jang et al. 2017). Designing an assessment of high difficulty is important to ensure even higher-ability students are open to the thinking of their peers (Jang et al. 2017). The assessment is available at: https://goo.gl/eq1sD9. The level of difficulty of this assessment as opposed to summative *assessments of knowledge* was validated, in line with the university quality assurance procedures, by an external examiner who is an expert in the course content. The TAIF counted for credit and contributed approximately 2.1% of the students' final grade. The point distribution selected for correct answers was 6, 4, 2 or 0 points awarded for the first, second, third or fourth attempt, respectively. However, despite the allocation of credit, the students' grade in this *assessment for learning* was a secondary consideration to the creation of an opportunity for students to collaboratively develop various competencies. The assessment was scheduled for two hours and comprised seven high-difficulty questions.

Method

In addition to providing a description of the development of the TAIF, this study explored students' experiences of the assessment. Given the limited literature relating to TAIF in a large culturally diverse classroom in a competency-based environment, a mixed methods approach was adopted to investigate the lived experience of the students in the process. Understanding more about their experiences may potentially enable the process of TAIF to be improved. The methodology for this study, therefore, borrows from phenomenology (Husserl [1900], 2002), in that it seeks to understand the phenomenon of a TAIF through the eyes of the people experiencing it. An interpretive phenomenological approach is suited to 'What's it like for them?' studies that can provide 'startling new insights' into complex education related issues (Van der Mescht 2004, 1).

Survey approach

A survey approach was adopted to collect quantitative and qualitative data pertaining to the students' experience of the TAIF. The survey approach allowed data to be collected from all students who undertook the team assessment. Quantitative data were generated using a yes/no response and a scaled Likert-attitude response (1 - extremely negative to 7 - extremely positive). Open ended questions were used to collect qualitative data, to gain a deeper understanding of the students' lived experiences of undertaking a TAIF. The survey instrument questions are presented in Table 1.

The questions posed in the survey instrument are based on those used in another study exploring collaborative assessment of placement learning (Cooper 2017). The survey instrument

Table 1. Survey instrument questions.
- Would you want to be assessed again in this manner during your degree?
- On a scale of 1 (extremely negative) to 7 (extremely positive), rate your overall experience of the team assessment.
- Tell us about your experience of the team assessment – how was it for you? (describe the process from start to finish and how it felt - what was going on for you/others, what worked or did not work for you)
- What was it like giving yourself a grade? How did it feel? Why was that?
- How would you rate the team assessment compared to other forms of assessment that you have experienced during your degree thus far?
- What do you think the team assessment was actually assessing?
- If you designed this assessment what would you do differently and why?
- Is there anything we should have asked you about in your reflection, but haven't?
- Why would you, or why would you not, want to be assessed again in this manner?
- Is there anything further that comes to mind in your reflection that you would like to add?

was independently reviewed by the authors for the design and the clarity of the questions. The review resulted in no amendment. The survey instrument was delivered using *Google Forms* following approval from the institutional review board.

Analysis

The quantitative data were analysed in SPSS Statistics 21. Descriptive statistics (eg mean, median, standard deviation and percentage of response) and frequencies were calculated and an initial data integrity check performed. A Chi-square test was employed to compare the proportions of categorical variables between different demographic characteristics; where the expected count of a cell was less than 5, a two-tailed Fisher's Exact test was applied instead (Field 2013). As parametric statistics can be used to analyse Likert data (Norman 2010; Sullivan and Artino 2013) an analysis of variance (ANOVA) test was used to compare the mean (standard deviation) of the Likert scale data between different demographic characteristics.

The qualitative data from the survey instrument were analysed using a thematic approach (Cooper 2017). Initially each response was read and re-read to begin the process of open coding, identifying themes that were significant in relation to the participants' experiences of the team assessment. In the initial analysis, the authors independently assigned descriptive codes to each statement made by the students. Basic themes were developed and coded using NVivo 12. Codes were independently checked for repetition and similar codes then grouped to develop organising themes. The process was repeated independently at a later point in time. The authors then each scrutinised and resolved discrepancies between their own initial and subsequent analysis. Thereafter the two sets of coding were scrutinised together and differences between the coding sets resolved through discussion and mutual consensus.

Results

Descriptive statistics

The majority of students experienced the TAIF positively ($M = 5.95$; $SD = 1.145$) (Table 2). 75% of the students rated their overall experience as 'positive' or 'extremely positive'. A statistically significant difference was identified between the male ($M = 6.19$; $SD = 0.912$) and female ($M = 5.78$; $SD = 1.258$) students ($F = 10.123$; $p = 0.002$) rating of their experience of the team assessment. Significantly more female students ($n = 24$; 7.5% of total respondents) than male students ($n = 5$; 2% of total respondents), rated their experience negatively (4 or lower on the Likert scale). There was no statistically significant difference between the different cultural groups ($F = 1.783$; $p = 0.170$) rating of the overall experience: 93% of the African (black indigenous or native South African) students, 90% of the White students, and 89% of the students from the other cultural

Table 2. Students' experience of TAIF.

	Would you want to be assessed again in this manner during your degree?		On a scale of 1 (extremely negative) to 7 (extremely positive), rate your overall experience of the team assessment.
	Yes n	No n	M (SD)/Median
Total ($n = 321$)	291	30	5.95 (1.145)/6
Gender			
Male ($n = 131$)	122	9	6.19 (0.912)*/6
Female ($n = 188$)	167	21	5.78 (1.258)*/6
Culture			
African ($n = 151$)	136	15	6.05 (1.153)/6
White ($n = 125$)	112	13	5.80 (1.178)/6
Other ($n = 45$)	43	2	6.02 (0.988)/6

*Statistically significantly different on the 1% level.

groups (including Asian, Chinese, Indian and Mixed-race students) rated their overall experience positively (between 5 and 7 on the Likert scale).

The majority (91%; $n = 291$) of students indicated that they would like to experience a TAIF again. There was no statistically significant difference between male and female students ($x^2(1) = 1.675$, $p > .1$), or students from different culture groups (African, White, Other) ($p > .1$, Fisher's Exact test).

Further analysis of the team assessment experience by gender highlighted three outlying teams. These teams comprised primarily (85%) female students who rated their overall experience negatively. These teams received the only failing grades (48%) for the assessment (the average percentage achieved for the assessment was 80%). Analysis of the responses, received from the students in these teams to the open-ended questions suggested that there was unresolved conflict between the members, primarily due to the differing academic abilities of the team members.

Qualitative analysis

The qualitative analysis provided further insights into the students' experience of the TAIF and aspects that may need to be improved to enhance its effectiveness. From the outset, the students differentiated the team assessment from other group work activities. Comments, such as 'It was interesting to interact with fellow classmates, working together to achieve a common goal' allude to the subtle but significant difference of 'group work' referring to individual accomplishments within a group context and 'teamwork' referring to collaborative and interdependent efforts towards a common goal (Wilson, Ho, and Brookes 2018). The students' general positivity towards the team assessment was again evident in the qualitative analysis. Much of this positivity was ascribed by the students to the opportunities for learning that the team assessment provided. 'This was the greatest, coolest, most innovative and frankly the test that I have learnt the most from, not just during my degree thus far but in my entire schooling career'.

The students noted they had constructed new knowledge and understanding of the content from collaborating with their fellow team members. 'having other people's input actually helped me understand the concepts a lot better'. By collaborating, their fellow students were effectively guiding their knowledge creation in their zones of proximal development: 'Someone would question my line of thinking when they got a different answer and help me to focus on things I don't yet fully understand'; 'My own assumptions were tested and either proven, or corrected, while giving me an understanding of the common misconceptions I tend to make'. The construction of knowledge was not only through the scaffolding received from other students, but also by providing scaffolding to others. 'I had the kind of group members who would ask you to explain why you

thought a certain option was the answer, so I had to have understood the concept well enough to not just give an answer, but also explain why and give reasons behind how and why I calculated amounts the way I did'. The value of this social constructivist form of knowledge creation was evident in students' acknowledgement that 'I learn[t] a lot more in this type of scenario than when I read out [of] a textbook' and 'I got to understand the topic better than I had previously understood it on my own'.

The students further acknowledged that the team assessment provided 'a great opportunity to practice some soft skills'. A broad range of generic (or soft) skills were listed by the students. To assist in the classification of these skills, they were mapped against the competency areas for generic skills prescribed by International Education Standard 3 (Revised) (IES 3), *Initial Professional Development – Professional Skills*:

- Intellectual skills: integration, evaluation of thought processes, argue critically and constructively, problem solving, how to formulate answers, critical thinking, analysing;
- Interpersonal and Communication skills: listening, debating, to explain concepts clearly, convey knowledge, share ideas, social, interactive, negotiation, managing different personalities, understanding others' point of view, tolerance, patience, seeing another perspective, collaboration, teamwork;
- Personal skills: confidence in yourself and your knowledge, participation (for introverts), working out of your comfort zone, coping with stress and pressure, assertiveness, ability to adapt; and
- Organisational skills: time management, leadership, conflict management, learning to trust each other, delegation, work with people you have never met before, come together and work towards a common goal, create an inclusive and comfortable environment for people to express their opinions.

Many students highlighted that not only had they constructed new knowledge and understanding of the content and practiced numerous skills during the team assessment, but they also improved their learning strategies. 'It allowed me to reflect on how I answered the questions, my thought processes regarding the questions, how efficiently I use my time and it was an indication for me to see how well I knew my work and if I had studied hard enough or if my study method for [the course] worked'. Many students commented that the team assessment enabled them to improve their 'exam technique': 'not only did I come out with more knowledge of the topic but also different ideas of how to approach questions which will be very useful'. Some students, however, commented that the team assessment did not prepare them for future summative assessments: 'I would not like to be assessed in that manner because at the end of the day it is not realistic. Other assessments throughout our degree are not going to be tested in this manner thus we need to be constantly put under those high pressure conditions'. Such comments may confirm the ingrained fixation of instructors, the profession and students with pass rates in professional accountancy examinations (Wilson 2011; Coetzee and Schmulian 2012).

The unexpected nature of the team assessment provided some initial anxiety. 'At first, I felt extremely uneasy about the whole idea of doing a test in a team due to the uncertainties that go along with teamwork as well as possible disagreements'. The ability to adapt was one of the outcomes envisaged for this assessment for learning, and comments, such as 'I learned a very valuable lesson from this experience. Sometimes we can prepare ourselves for something only for the circumstances to change. This [is] how the real world works and the successful people in this world are not just who plan but who are also able to adapt to changes in circumstances' suggest that this outcome was achieved.

Many students identified the authentic nature of the team assessment as replicating their future workplace. 'Being able to work efficiently as a group whilst adhering to stringent time frames is commonplace in the audit environment'. The random allocation of culturally diverse students

allowed the students '*to meet people that you have never even seen in class before*'. This random allocation further contributed to the authenticity of the team assessment:

> *I feel the collaborative assessment was a way for us to engage in teams, regardless of race, background and gender. In my team there was Black, White, Indian and Chinese. It was a mix of cultures and personalities in one team. Some were introverts and some were extroverts, but regardless of what type personality each person was, we all broke out of our own bubbles and did what had to be done - do well in the test. I found out that we are actually not all that different. We all have one common goal, and that is to become Chartered Accountants. In the workplace, there's going to be people who look different from us, but that doesn't take away their ability to do their work.*

Some negativity towards the random allocation of students into groups was experienced, due to the assessment counting towards their final grade for the course: '*I would rather be allowed to choose group members I know, as we all know our strengths and weaknesses, as opposed to being put with people I do not know at [all], potentially putting my grade at risk*'. However, this assessment was not focused only on the summative *assessment of knowledge*, but integrated formative *assessment for learning* to facilitate the students' construction of knowledge, and generic skills development.

Formative feedback is an essential element of competency-based *assessment for learning*. Feedback is received by the students by collaborating with their peers during the team assessment. Additionally, the students received immediate feedback as to the correctness, or not, of their response from the IF-AT® form. This was experienced positively: '*Being able to learn from mistakes I made while they are still fresh and I can remember how that happened so that I can correct them*'. In addition to the immediate feedback, the use of the multiple-choice format, with multiple attempts and reduced credit allocated per attempt, may have motivated the students to not guess answers (Slepkov, Vreugdenhil, and Shiell 2016): '*Empowering or rewarding almost, you got to know whether you were right or wrong immediately as a group, and if right, the entire group would be happy and excited. If the answer was wrong, you were determined as a group to find the correct answer next*'.

While the learning benefits of the immediate feedback were widely acknowledged by the students, there was some acknowledgment of the stress associated with the immediate feedback: '*You feel very nervous and scared when you scratch the card, as you do not know if the answer is right or wrong, and you know that if it is wrong, you will be losing marks*'. However, once the total mark was known, the stress appears to have dissipated, '*I cannot emphasize enough how much I loved knowing my mark as I walked out of the venue…I find it difficult to be at peace attending classes, doing homework, sleeping etc. when my mind is constantly mulling over the uncertainty of what my marks are and when the bomb was going to be dropped*'. Also, the students appear to have been less anxious while writing than during a formal summative assessment of learning. '*It's unorthodox which is refreshing. We all expected a quiet test room with everyone stressing. But it was full of communication and discussion which was really nice to see*'.

To bridge the perceived divide between an assessment preparing students for practice and summative assessments of knowledge, many students suggested that they '*would let the students do the questions individually first so that each one can apply their own unique thought process to understand. For example, I prefer to read the question alone and interpret all important points to myself before I can discuss it with the next person. And I would let the students know that they are going to work in groups and still emphasize that individual work will be assessed so that they do not come unprepared, believing they will just get help from others*'. This approach to the TAIF has recently been suggested (Jang et al. 2017). However, in strategizing their approach to the assessment, many students, in any event, described their team's approach as one in which each student worked through the questions individually first, before discussing it in the team and reaching a conclusion on which answer to scratch. As an alternative to an individual assessment component, many students confirmed the unexpected nature of the team assessment with no pre-warning minimised the freeloader risk of team assessment: '*for future purposes it could be a*

possibility that students will study less well for the test if they know it is a collaborative assessment as they may expect to rely on their group members knowledge'.

Discussion

The purpose of the TAIF was to broaden a summative *assessment of accounting knowledge* to integrate a formative *assessment for learning*, to construct knowledge and develop various generic skills expected by many professional accounting associations' competency frameworks and by employers. It is argued, based on the students' perceptions of the TAIF, that it was able to achieve this purpose, although future research exploring actual learning gains is encouraged to corroborate the students' perceptions.

In terms of Vygotsky's (1978) theory of social constructivism, every conversation between two or more people presents an opportunity for knowledge construction. The students perceived that they constructed new knowledge by collaborating with other students towards the 'common goal' of attaining a passing grade for the summative assessment of knowledge. Through social interaction, the students may have received scaffolding in their zones of proximal development from their peers and provided scaffolding for others' knowledge construction. The students perceived that they assisted each other in identifying gaps between their current understanding and the desired level of understanding necessary to complete the assessment by providing formative feedback to each other. The students perceived that this feedback assisted them in developing more effective learning strategies and 'exam technique'.

However, for some students, the social interaction resulted in unresolved conflict with peers, leading to these students not receiving a passing grade for the summative *assessment of knowledge*. It is suggested, for this reason, that student groups be changed for subsequent team assessments, to allow these students a 'fresh' opportunity to collaborate with other students. Further, the students can be assisted with particular interventions and teaching cases (eg the Harvard Business School Mount Everest 1996 Case; Roberto and Carioggia 2003) to develop their conflict management and collaboration skills.

In addition to conflict management and collaboration skills, the students suggested that the TAIF afforded them the opportunity to develop generic skills across all the competency areas prescribed by the *International Accounting Education Standards Board* in IES 3, namely, intellectual, interpersonal and communication, personal and organisational skills. In particular, the team assessment allowed the students to develop their problem solving and communication skills, which have been identified as particularly important in the workplace (Tabary 2015). Further, the students suggested that the TAIF aided in improving teamwork, which has been identified as being inadequately developed in accounting graduates (Wells et al. 2009; Bui and Porter 2010). Based on the students' perceptions, the team assessment may contribute towards re-establishing the link between theory and practice. From the employers' viewpoint, the development of generic skills at higher education institutions meets a long-expressed need (Jackling and de Lange 2009). From the students' viewpoint, the assessment provided the students with an authentic replication of their future workplace which requires them to successfully collaborate in high stakes situations.

A characteristic of the 21st century workplace is the high level of internationalisation, necessitating accounting graduates to be able to work with people from different cultures. Higher education has also globalised, and heterogeneous classes, comprising students from various cultures, are increasingly common (Donald and Jackling 2007; Hammond, Clayton, and Arnold 2009; Coetzee, Schmulian, and Kotze 2014). Through requiring students to collaborate in multicultural teams, the team assessment allowed students the opportunity to improve their cultural awareness and positivity towards collaborating with people of differing backgrounds, a particularly important skill in post-Apartheid South Africa's cosmopolitan business environment.

Another characteristic of many higher education courses at the undergraduate level is large classes. It is exceptionally difficult to provide timely individual feedback in large classes and the course has historically been characterised by the instructors providing generalised and delayed feedback on summative assessments to the group. The team assessment provided the students with the opportunity for individualised formative feedback from their peers. Future research is, however, encouraged to evaluate the nature of the peer feedback through, for example, analysis of the dialogue between team members.

In addition to formative feedback from their peers, the students received immediate feedback from scratching the IF-AT® form. Although this feedback is simplistic, in that it only indicates for each attempt whether the team is correct or not, the feedback is immediate. This enables social learning during the assessment, as students discuss their next attempt in their teams. This feedback, therefore, allows the students to learn from their mistakes while these are still 'fresh' in their memories.

Conclusion

This study extends the literature in a number of respects. Firstly, it demonstrates the students' perceptions of the effectiveness of TAIF in allowing them to socially construct knowledge and develop generic skills in a high stakes summative assessment environment. Secondly, this paper provides insights into the use of TAIF in facilitating competency-based learning in a culturally diverse large class setting.

The majority of students surveyed in this study experienced the TAIF positively. Several generic skills were perceived as being developed by the students during the competency-based team assessment, while the assessment also created an opportunity for social constructivist learning. The study provided some initial evidence that a team assessment in a culturally diverse student cohort may enhance intercultural collaboration.

While a single site study of a particular intervention may limit the generalisation of the study's findings, this study provided a thick description of the development and facilitation of a TAIF as a competency-based collaborative learning technique. The paper drew qualitatively on the experiences of the TAIF of a large cohort of students, and this phenomenological approach provided valuable insight into this collaborative learning technique in a professional education environment.

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