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USING THE IGCRA (INDIVIDUAL, GROUP, CLASSROOM REFLECTIVE ACTION) TECHNIQUE TO ENHANCE TEACHING AND LEARNING IN LARGE ACCOUNTANCY CLASSES

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Abstract

First year accounting has generally been perceived as one of the more challenging first year business courses for university students. Various Classroom Assessment Techniques (CATs) have been proposed to attempt to enrich and enhance student learning, with these studies generally positioning students as learners alone. This paper uses an educational case study approach and examines the implementation of the IGCRA (individual, group, classroom reflective action) technique, a Classroom Assessment Technique, on first year accounting students' learning performance. Building on theoretical frameworks in the areas of cognitive learning, social development, and dialogical learning, the technique uses reports to promote reflection on both learning and teaching. IGCRA was found to promote feedback on the effectiveness of student, as well as teacher satisfaction. Moreover, the results indicated formative feedback can assist to improve the learning and learning environment for a large group of first year accounting students. Clear guidelines for its implementation are provided in the paper.

Keywords - Classroom Assessment Techniques (CATs), formative teaching assessment, reflective learning and teaching

1 INTRODUCTION

Accounting educators have stressed the importance of the first accounting course taken by students at university [1-2] in shaping their future encounters with the subject and the profession. It is therefore not surprising to see that a significant amount of research has been conducted in this area. Initially, researchers aimed to ascertain whether prior accounting education had an impact on the performance of students in first year introductory accounting courses [3-8]. Subsequent studies also examined the learning styles of accounting students [9,10]. The field has begun to explore areas to make what can be a dry and daunting topic more engaging to the first year student. Accounting educators have begun to explore how Classroom Assessment Techniques (CATs) may be used to improve pedagogy [11-19]. CATs are simple feedback tools that teachers use to find out what, how much, and how well their students are learning [12, 20-21]. The use of CATS provides formative evaluative data to teachers with diagnostic information that can lead to the improvement of teaching and learning [22]. It is seen as an important part of good teaching [23].

Cognitive learning theory connects classroom assessment to learning, describing learning as an establishment of connections between a learner's previous knowledge/experience and the new information/skill that is being learned [24]. CATs potentially enrich the student experience by requiring students to reflect on and explain their learning, usually by writing short and anonymous responses to simple questions [21, 25-27]. Frequently used CATs include such simple 'gadgets' as one-minute papers (brief, in-class assessments), categorising grids and concept maps (both visual presentation of organised knowledge), directed paraphrasing, and diagnostic learning logs [24].

The CATs movement is driven by the view that teaching and learning can be enhanced by enhancing feedback from students to teachers, and reversing, to some degree, the classic pedagogical current [28-29]. CATs shapes teacher behaviour as much as student behaviour. Palomba and Banta [30] suggest that CATs can be divided

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into three groups. The first group contains those used to assess course-related knowledge and skills (such as the minute paper or the background knowledge probe). In the second group are those CATs used to reveal attitudes, values, and self-awareness of students (such as process analysis and punctuated lectures). Finally, the last group contains those techniques used to assess students' reactions to specific aspects of instruction, including class activities, assignments, and materials as well as teaching (such as Brookfield's Letters to Successors).

CATs began to be documented in the USA in 1989 when Cross and Angelo conducted a classroom research study to help community college faculty members from the San Francisco Bay area to develop CATs. Angelo [31] argues that using classroom research can link research and teaching, and can provide teachers with information on what students are learning and how well they are learning it. The major three benefits of using CATs were that students responded favourably to the assessment process, teachers gained additional contact with colleagues, and they gained enjoyment from studying teaching and learning in their disciplines and applying what they learnt [31]. In 1991, Angelo describes ten examples of CATs used by teachers in different disciplines. The techniques had been designed to collect information to allow higher education teachers to adjust classroom instruction. They focus on four dimensions of learning: declarative, procedural, conditional and reflective [4]. In 1993 Angelo and Cross published a handbook on CATs for College Teachers. This provides guidelines for collecting information on classroom outcomes [26] to improve teacher effectiveness [32]. The model presented by Angelo and Cross [12] supports the modification of instruction based on frequent, quick, and anonymous written feedback from students about their understanding of course content and their reactions to instruction [32].

Commonly used CATs include one-minute papers, two categorising grid, directed paraphrasing, diagnostic learning logs, concept maps, the 'muddiest point' and memory matrices [24, 34, 34]. Most of these techniques require students to reflect on and explain their learning, commonly by writing short and anonymous responses to simple questions [26, 34]. The majority of CATs reported in the teaching accountancy literature aim to promote learning of subject matter while providing feedback on teaching effectiveness [25].

Steadman [36] interviewed 136 higher education teachers from 35 community colleges in California, finding that the five most frequently purposes why teachers use CATs are: to obtain feedback on the effectiveness of an student satisfaction with teaching and classroom activities; to improve teaching; to monitor students' learning; to improve students' learning (in terms of retention or learning skills); and to improve communication and collaboration with students.

Cottell and Harwood [37] found that using multiple CATs made it more challenging and complex for researchers to evaluate their impact, and as a result they recommend using a single CAT and developing a classroom routine for its use. Researchers who have found an impact for CATs interventions have identified a range of benefits including:

1. The opportunity to engage in reflection on systematic change of their teaching [36, 38].
2. The possibility to improve teaching methods and materials to take into consideration students' voices [25, 36,38-42].
3. The possibility to discover students' preconceptions and misunderstanding as they learn in the class [27, 38].
4. The ability to promote student improvement and active involvement in learning [36, 39].
5. The opportunity to join a community of other faculty committed to teaching who may be also using CATs [36].

The expanding literature continues to uncover benefits, including increasing sense of control and voice in the classroom [36]; involvement [39], enhanced metacognition [27, 36, 38].

A large quantitative study conducted by Catlin and Kalina [32] found that the use of CATs differentially improved retention rates for women as well as improved classroom experience for minorities.

In contrast, some disadvantages for teachers and students using CATs have also been reported. The two major disadvantages for teachers identified to date include the amount of time required to plan, administer and analyzing these techniques, and having to deal with negative feedback in the form of criticism of teaching from the students [36]. The main disadvantages for students using CATS were the expenditure of classroom time and the need for active student participation on the part of learners who may otherwise prefer to remain passive in

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class [36, 38].

CATs have begun to make their presence felt in accounting [25,37, 39-41, amongst others] with Cottell and Harwood [37] arguing that the use of CATs is consistent with AECC objectives. These authors reviewed accounting education literature and suggested that four CATs (minute papers, feedback forms, background knowledge probes, and quality control circles), when used individually or jointly, are particularly well suited for accounting classes. They further suggested that more empirical research on the effectiveness of CATs was needed since much of the justification of using CATs was based on anecdotal evidence and teaching staff's perception (footnote 2, p. 554).

There has been some response to Cottell and Harwood's call [37]. Almer et al. [39], for example, examined the potential performance impact of one-minute papers on their introductory accounting course students. They found that students performed significantly better in subsequent essay quizzes, suggesting deeper level learning had occurred. However, their performance was significantly higher when one-minute papers were not graded. The study concluded that the one-minute paper was a useful classroom assessment tool that could be adopted with minimum cost. Beard [25] also found that the use of CATs helped the teacher to identify particular teaching methods and materials that promote (or fail to promote) learning, and assisted in focusing how things might be rather than how things have been. Countering these positive findings, Cottell and Harwood themselves [37] found no significant pedagogical impact from using the various CATs (including background knowledge probes, minute papers, feedback forms, directed paraphrasing, and group-work evaluation forms).

The above studies were student-centred in focus. However, as educators in other disciplines (e.g. education, languages and applied linguistics) have established, teaching strategies are an equally important ingredient in students' learning processes. Indeed, the importance of reflective teaching and learning for promoting learner autonomy and student-centred teaching has been pointed out by various authors [42-45]. Acknowledging the need to not only allow students to reflect on their learning in relation to teaching, but also involve teachers in reflecting on the teaching process, Poyatos Matas [38] developed a CAT called IGCRA (Individual, Group, Classroom Reflective Action), working with a group of students undertaking intermediate Spanish at an Australian university. IGCRA uses reflection as a valuable learning activity as well as a tool to provide constructive feedback on the course being taught. The IGCRA technique incorporates three main learning theories: cognitive learning theory [24], social development theory [46-48], and dialogical learning theory [49] and consists of three stages.

In the individual stage, the technique requires students to reflect on metacognitive, emotional and social aspects of their learning experience, and requires the teacher to assess and reflect on different aspects of her/his teaching. The second and third stages of this technique recognise the importance of social interaction [46-48] and dialogue [49] in the development of cognition and learning processes. IGCRA encourages social interaction and promotes dialogical learning [49-51], as establishing a dialogue between students and the teacher, giving them an opportunity to share and negotiate different aspects of the learning and teaching process. Poyatos Matas [38] found that the use of IGCRA improved both the teaching and learning environment in her course, improving student engagement. However, the class size of this course was quite small, with an enrolment of just twenty students. Thus, the applicability of this technique to other courses, especially business programs with large class sizes remains untested.

The purpose of this paper, then, is to adopt this technique to an introductory accounting course offered by an Australian university, as well as to replicate earlier results with a larger sample. The paper examines the degree to which results from the earlier study can be generalised from language learning to accounting and from small class sizes to the larger populations of first year courses. The paper focuses largely on the first 'semi-circle' of a full loop of feedback: that is, it focuses on value of IGCRA in providing feedback to the teacher. The students provide formative teaching feedback to the teacher based on their learning experiences in class. Therefore, the changes made to the teaching as a result of this student evaluative formative will impact on the learning experience of the student, as this will be improved.

2 PARTICIPANTS AND THE CONTEXT

The course Accounting Principles is offered in both semesters of an academic year. It is a compulsory course for students undertaking a number of undergraduate business degrees, including a Bachelor of Business Management, a Bachelor of Business Communication, and a Bachelor of Commerce in Financial Planning and

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Investments in an Australian University. Total enrolment for the course was 148 students. All learning materials for the course are available on the web, and students have the flexibility to learn the course at anytime and from anywhere at their own pace. However, a regular weekly two-hour lecture is conducted on Thursday night between 7 pm and 9 pm, as well as a one-hour tutorial in small groups (around 20 students per group) prior to the lecture. There is no requirement for students to attend either the lecture or tutorial.

During the first lecture, a short questionnaire was distributed to all students to gather data on their gender, age, intended learning modality, knowledge of computers, knowledge of the internet, and previous learning experience with on-line courses. The survey had a very high response rate (94.6%). Eighty-two of the 140 students who responded (or 58.6%) were females. Almost two-thirds of the students were aged below 20, while another 11.4% (or 16) were over 30, including one above 50. An analysis of the intended learning modality indicated that a majority of students (115 out of 140) intended to learn this course through a combination of on-line and face-to-face learning modes. Seventy-four percent of the students said that their knowledge of the internet was either good or excellent, despite the fact that many of them had no previous learning experience with an on-line facility 3. It was found that, towards the end of the semester, about 50% of these students were opting to use the online version of the course instead of lectures and tutorials on campus, mainly due to personal and time constraints (such as work and family).

The teacher is a qualified accountant with professional memberships of the two Australian accounting bodies. She has 18 years tertiary teaching experience at six Australian universities.

3 THE IMPLEMENTATION OF THE IGCRA TECHNIQUE

As mentioned previously, IGCRA consists of 3 parts: individual student and teacher reports stage, group report stage, and classroom negotiation stage (see Fig. 1). It was implemented in the following manner. Some modification of previous IGCRA implementations [38] was required, due to larger class size: in this study, reports are used instead of diaries at both the individual and group stages.

Stage one: Individual report stage (weeks 3 – 13). This stage involves the creation of a weekly individual one-page report by both students and the teacher. Early in the course students were presented with printed information on how to use IGCRA technique (including various learning strategies). Commencing in week 3, students were asked to write a one-page individual report at the end of the class to reflect on their learning experience, including their opinions of the teaching environment, learning strategies employed, learning problems encountered and possible reasons and solutions for them. The teacher also wrote her teaching and perceptions of the learning environment in the teacher report. However, due to time constraints, students had the option to write their reports outside the class. The task took between 5 and 10 minutes and was performed until week 13. These individual reports were subsequently used to compile group reports in the next stage.

Stage two: Group report stage (weeks 5 and 10). The second stage of IGCRA involves the creation of a group report entry. Upon completion of three consecutive individual reports, in week 5, students formed small groups (4-5 learners) to draw on their individual reports and compile a one-page summary group report in the class. The constituency of group were held static the same for the second group reports gathered in Week 10. Students took between 15 and 30 minutes to produce these reports. Students were provided with clear guidelines on how to create their group report within the timeframe. These group reports were then analysed by a research assistant. Matters raised in the group reports were classified into three mutually exclusive categories: issues that could be improved, issues that could not be changed, and issues that needed further clarification.

Stage three: Classroom negotiation stage (weeks 6 and 11). The outcomes of various group reports and the teacher's weekly reports were considered at this stage in the class. Negotiation took place in order to find solutions for problems encountered by participants and to improve teaching and learning environment. The teacher reflected with the class on issues that have been raised and could be improved, issues that could not be changed and why, and issues that needed further clarification. She then proposed a possible plan of action for students to consider in the class. This classroom negotiation stage enabled the teacher and learners to share ideas on how to improve teaching and learning and provided a chance to clarify any issues raised by group reports. This stage took between 20 and 30 minutes.

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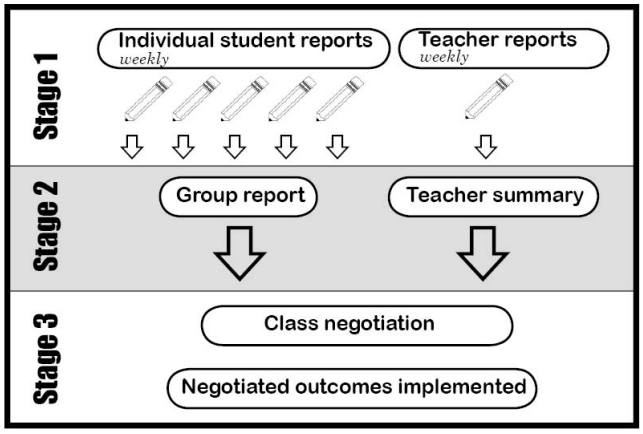

Fig. 1. Overview of IGCRA technique, using individual and group reports

4 RESEARCH METHODOLOGY AND INSTRUMENTS

Considering this is an exploratory study, the use of a blend of qualitative and quantitative methodology seems appropriate [52-56]. Amongst various qualitative research methods adopted by social and educational researchers, the case study approach has been employed as a data collection method [55], and as a research instrument in itself [57]. The term case study has been used to represent the investigation of an individual, a particular group of people, or a phenomenon [57.A]. This research study adopts the educational case study approach [57.A] to examine the process of implementing the IGCRA technique in a large classroom and its possible effects on learning and teaching. Different sources of data were collected to monitor and triangulate [58] findings. The research instruments used to gather the data included:

1. An initial student questionnaire, which collected general student information at the beginning of the semester to establish the participants' profiles.

2. A final student questionnaire, which required students to evaluate the three stages of the IGCRA technique in the last lecture of the semester. A total of 61 questionnaires were collected, of which 54 were useable. The data from this instrument is indicated in this paper with the code SN-Q2 (eg. S41-Q2 means that the quote comes from the second student questionnaire of Student No 41).

3. A student interview, which was conducted in week 15 of the semester. Due to financial constraints, a research assistant randomly selected only 20 volunteer students for the telephone interview. This data is indicated in this paper as SN-I (eg. S3-I indicates that the quote is coming from the third student's interview).

4. A teacher interview, which was conducted at the end of the semester to provide information on her view of the advantages and disadvantages of using the IGCRA technique with reports in a large size classroom. (Quotes from this data source are coded as TI meaning Teacher Interview)

5. Classroom observations conducted by two external researchers. The aim was to assess the participation of students and teacher in their creation of group reports in weeks 5 (code CO1) and 10 (code CO2). In addition, this activity was audio taped and transcribed in weeks 6 (codes CN1) and 11 (code CN2) to provide more detailed information on the classroom negotiation process.

6. Reports' Analysis: The content of the group reports from weeks 5 (code GR1) and 10 (code GR2) and teacher reports (code TR) were analysed to assess the effect of the IGCRA technique on teaching and learning.

The materials used for this study are available from the first author on request.

One of the authors was the teacher in this study. Therefore, all care was taken to overcome the potential impact of situational subjectivity. A research assistant conducted the administration of student questionnaires and telephone interviews at the end of the semester to enable students to express their views freely and anonymously. Information obtained from classroom observations and documentation analysis was corroborated with the same two external researchers referred to in point five above, to ensure accuracy and reliability. Following Miles and Huberman [59] and Coffey and Atkinson [59.A], the researchers used qualitative research procedures to analyse data collected.

5 ANALYSIS OF FINDINGS

As noted earlier, it was found that due to work, study and family constraints at the end of the semester, about 50% of the students in the course opted to use the online version of the course instead of the lectures on campus. With IGCRA a technique designed for use in class, this resulted in a smaller sample size, with 54 students completing the questionnaires referred to in point 2 above. The same factor eroded the number of group reports obtained towards the end of the semester. In this section, we analyse the data collected from the study to illustrate the forms of reflection, dialogue, and student/teacher interactions during various implementation stages.

5.1 Individual student reports

While the majority (83%) of students evaluated completed their individual reports, the frequency of writing these reports varied. Just 11% completed weekly reports, with the figures for fortnightly (26%), monthly (16%) and one time only (30%) all higher. Interestingly, 15% of the students claimed to prefer to produce a weekly individual student report—more than actually did so. A number of students never wrote their individual reports and they indicated that they did not know how to go about the tasks of reflecting.

As to the key advantage of writing an individual student report, 63% of students acknowledged the power of IGCRA to create two-way dialogue, saying it allowed students' voice to be expressed, and over a third (37%) believed the process allowed the course to undergo improvement and a third (33%) saying CATS acted as a stimulus for student-teacher discussion. Fifty-four percent of students surveyed indicated that IGCRA allowed them to reflect on teaching, and another 48% of them thought that this activity enabled them to reflect on learning. As a result of this reflective process, some students became aware of their learning difficulties (33%). More than a quarter of students mentioned IGCRA assisting with metacognitive awareness of their learning difficulties, helping them to focus on goals and learning strategies and providing a useful tool for revision.

Despite acknowledging these advantages, many students complained that the use of IGCRA was time-consuming (63%). Others expressed concern about the repetitive nature of the instrument (54%) and the fact that the exercise was not part of the assessment (35%). The number of negative comments however, was significantly less than the positive comments. However, students also complained of difficulty in reflecting on learning and teaching, and a lack of guidelines at the outset.

Students were also given an open-ended question probing how the use of individual student reports could be improved to reflect teaching and learning. In line with previous research suggesting a preference for structured questions [55, 60], only 19 students took the opportunity to comment. Their responses varied greatly, suggesting the method had no clear and overwhelming fault from a student perspective. Amongst the small clusters of responses were echoes of the results from the structured questions: a desire to treat the process as a piece of the assessment method and receive some mark allocation (5%); a reduction of the work involved (10%); provision of more information at the outset of the course on how to reflect (3%), and the suggested use of a website (8%).

6 TEACHER REPORTS

Classroom observations and personal interviews indicated that the use of weekly individual reports helped the teacher to improve teaching through:

1. Promoting action research. Content analysis showed the teacher used the reports to reflect on teaching sessions, structure and content, teaching resources (audio visual and PowerPoint support, whiteboards, worksheets and handouts), approaches used (problem-based learning, collaborative learning, group assessment), and, not surprisingly, her frustration. For example, the teacher reported: "*It was very frustrating to see a group of students sitting at the back kept talking while the lecture was on".* (Teacher report, week 4)

2. Getting to know students and their views. Individual teacher reports incorporated students' constructive feedback collected at the group report stage. For example, in week 7, the teacher reported incorporating some suggestions in her teaching methodology following class negotiation. She said: "*Students seem very pleased about the changes that I have incorporated following their advice. It was nice to hear that from a group of students today*". (Teacher report, week 7).

3. Raising awareness of teaching strategies. The teacher reported experiencing difficulty with handling the large

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class size-especially since the majority were not going on to major in Accounting and therefore lacked motivation. Through student group reports, weekly teaching reports and class negotiations, the teacher became more aware of her students' problems and understood how the use of different teaching strategies might affect their learning. As she wrote: "*Until I used the IGCRA technique, I had not paid too much attention to my teaching strategies*." (Teacher report, week 7)

Her willingness to find out students' learning difficulties and the adoption of various teaching strategies to help students was also acknowledged by students. For example, one student declared: "*She's the only teacher who cares about her teaching*." (S15-I1)

7 GROUP REPORTS

The creation of group reports by students took place in weeks 5 and 10. According to student questionnaires, the use of group reports gave them an opportunity to share their course concerns with their fellow students, particularly in relation to accountancy as a discipline (63%). These reports also enabled them to discuss the way the course was taught (30%), course content (28%) and ways in which pedagogy could be improved (41%).

In their group reports, students reflected on what they liked, disliked, their learning difficulties and their perceived reasons and proposed solutions. They also commented on their perceptions of the learning environment, teaching methodology and style, with a number of consistent themes emerging, which helped the lecturer to refine her pedagogical style. Prominent amongst the themes were those relating to pace of presentation, with students making 20 references to pace at the Week 5 stage, reducing to 13 references at the Week 10 stage. As a result of the class negotiation in week 6, the teacher changed some of her teaching techniques, including, for instance, her way of using the microphone system, the pace of the lecture and even the time in which the lectures were uploaded into the website of the course. In the second classroom negotiation that took place in week 11 some groups commented on the improvements made after the first negotiation.

When students were asked about how often group reports should be written in a semester, 41% of them indicated in the final student questionnaire that they should be written twice during the semester, and 16% thought that they should only be written once. Eleven percent chose 'never', while the balance of students chose more frequently than twice.

While the reports may not have been universally popular, in follow-up questions on the consequences of report writing, students indicated a number of positives. Over half (52%) felt it presented an opportunity to share with classmates thoughts about the course, while 50% felt the group reports offered an opportunity to get to know their fellow students. Almost as many (48%) saw the group reports as a means to influence the way in which the course was taught, and high percentages (39% in each case) of students also saw group reports as an opportunity for exchanging learning tips, and to reducing anxiety through sharing concerns. A third of students (35%) also noted that group reports allowed them to share an opinion of the course without the teacher knowing their identity, and gain feedback from fellow students on their views of the course.

Students also commented on the disadvantages of creating group reports in the final student questionnaire. Not surprisingly, two thirds (67%) felt that the creation of group report in the class was time consuming. Prominent amongst the other negatives expressed by students was the view that the group reports required time that did not go towards assessment (33%), while students also complained of lack of clear guidelines on completing the group reports (26%), and lack of skill in the area of reflecting on teaching and learning (22%). Despite these complaints, students were short of suggestions on how to improve the use of group reports. Only ten students offered suggestions, with no new common themes emerging from analysis.

8 CLASSROOM NEGOTIATION

The classroom negotiation stage took place in weeks 6 and 11 following group reports sessions. As noted earlier, this was a collaborative process, which enabled students and the teacher to share issues of concern, and attempt to negotiate possible changes. In analysing this element of the study, we have divided the issues up into those that can be changed, those that are unchangeable, and those that could potentially be changed, pending clarification of underlying issues. In week 6, not surprisingly, negotiations raised more than triple the issues than the week 11 negotiations (69 to 20).

Amongst the issues that were categorised as amenable to change, were elements relating to the lecturer's

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presentation, those relating to the course design, those relating to the content, and those relating specifically to the student's response. In the first category, the lecturer was described as speaking too fast, for example, providing insufficient detail and having verbal tics (overusing "you follow me?") In the second category, students raised issues relating to lecturer notes, a study guide, and visual aids. In relation to the course content, not surprisingly students raised issues relating to the complexity of the subject and concerns about the textbook. In the last category, student response, students confessed, for example to being concerned about looking stupid when asking for help and losing interest in the topic. It is interesting to note that the most dramatic drop in issues raised occurred in the general category of 'issues that can be changed', falling from 33 discrete categories to just seven at week 11. Only two issues raised at the initial negotiation stage were raised again at week 11, indicating the teacher was able to address the concerns of the students effectively.

In the 'unchangeable' category, students raised issues relating to the inherent complexity of the topic (as opposed to the degree to which the lecturer managed to break the subject down into comprehensible elements). Again, course logistics, such as the length of the lectures, class size, and the timing of the lecture (night time) were raised.

In the category relating to issues that required further clarification, students raised issues such as assessment overload, an unmotivating textbook and general malaise relating to their response to the subject, captured in expressions such as "I'm struggling" and "I'm confused."

When students were asked, in the final questionnaire, about these changes enacted between the first negotiation and second negotiation periods, a solid majority (65%) indicated that the teacher took seriously what the students said in the group reports. A mere 17% felt that the lecturer had not responded to the negotiation process.

Students were directly asked in the student questionnaire to indicate the ways in which the course may have improved as a consequence of using the IGCRA technique. More than half (57%) of the respondents mentioned that the teacher improved the quality of the course and the same proportion felt she had become more aware of the learning problems students were having. Other strong response rates indicated an improvement in the teacher's teaching technique (48%) and the quality of delivery of the course content (43%).

Some students in the student interviews also praised the impact that IGCRA had on teaching and the course saying their "*learning improved because the teacher gave us more stuff to do and more stuff to practice*" (S2-I). Another student noted IGCRA "*helps students put their opinion across and show possible outcomes of what can be improved. The teacher responds to make learning better*." (S20-I).

The teacher herself also expressed in the teacher interview that the classroom negotiations provided an opportunity to address issues raised by students, particularly in relation to the issues that cannot be changed. The teacher indicated that the classroom negotiation also enabled her to explain her modifications to the technique. It was observed that with the use of the IGCRA technique, the teacher became aware of her students' learning processes and needs during the semester, rather than at the end of it. The teacher indicated in the teacher interview that receiving timely feedback from students during the semester was useful to improve the delivery of the course.

In terms of the students' reflection on learning, the results were somewhat less positive. Almost half of the students surveyed (48%) felt that their learning might have improved as a result of having an input in the way in which the course has been taught, while 41% came to a greater understanding of the constraints the teacher was operating under in presenting the course. The other results were weaker. Around a third of students expressed the view that they felt more responsible for their own learning, were able to clarify issues relating to assessment, and share with their fellow students and their teacher issues of concern.

9 OVERALL EVALUATION OF THE IGCRA TECHNIQUE

Of the twenty students interviewed by telephone at the conclusion of the course, two thirds indicated that the quality of teaching had been affected by the use of IGCRA. A total of 80% felt IGCRA had improved the quality of teaching either substantially or slightly. However, a reassuring 55% of respondents said that they didn't have a problem with the teacher's teaching in the first place. Students were asked about the quality of their learning, with the majority (55%) responding that that the learning experience had been enhanced, with a further 5% conceding some improvement.

In this study it was observed that the use of IGCRA had an impact on students by creating a more democratic

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and dialogical classroom [51]. In the classroom observations it was noted that there were opportunities for an open dialogue between the teacher and students. This aspect of IGCRA was also probed in the follow-up phone interviews. Nearly half (45%) of students conceded the technique had given an avenue to express their voice in class, and that it enabled them to improve the lecturer's understanding of their needs. In addition, many of the students interviewed thought that students' needs had been addressed in class as a result of using the IGCRA technique (75%). Interestingly, 25% of respondents to the phone survey raised the issue that some of their classmates had not taken the IGCRA tasks seriously, and two students expressed the view that much of their feedback would only "really benefit future students."

Some students also mentioned that the use of this technique created opportunities to exchange views on how to improve teaching and learning in a non-threatening manner. As one of the students said in the interview: "*Feedback and opinions of the students were gained through this for the teacher. Most people wouldn't say it face to face.*" (S13-I).

Other students commented on the fact that the teacher tried to act on many problems brought up by students (30%). Some students made the following comments at the interview: "*The teacher tried hard to take into consideration many of the comments that the students made and many changes were made by her.* "(S1-I); "*The students' needs were addressed because she was listening and trying to accommodate students*." (S2-I); "*The teacher was able to address certain issues and she also found out what people understand and what they don't. She was able to go through things*". (S4-I).

Amongst the changes implemented by the teacher was a study guideline introduced to address student uncertainty. One of the students wrote in the final student questionnaire that: "*The guidelines helped with the end of year exam, Great!*" (S41-Q2).

One of the problems encountered in large size classrooms is the experience of relative anonymity by students. In this study, half of the students reported in the student questionnaires that one of the advantages of creating the group reports was that it was an opportunity to get to know other classmates (50%), as well as share information about the course (52%). It was also found by some students to be a useful method of expressing their opinions to their classmates and receiving feedback on how they felt (35%). It also helped them to feel part of a learning group. As one student said in the student phone interview: "*It gets things out in the open. It allows me more contact in class and with the lecturer, especially for part-time students. Groups are good, more comfortable."* (S7-1).

Furthermore, some students found that using this classroom assessment technique helped them to control their learning anxiety by providing a means to share their experience with other members when creating the group reports and with the teacher at a later stage. Exchanging their learning difficulties with other peers with the same or similar problems helped some students to reduce their learning anxiety. For others, IGCRA also enabled them to maintain dialogues between their fellow students and the teacher Poyatos Matas [38]. This view was reflected in another student's comments: "*Students were able to put forward their ideas and constructively criticise to improve their learning."* (S19-I).

Further, IGCRA promoted the creation of an open, supportive and collaborative teaching and learning environment. Some students saw it as an opportunity to share their learning experience with other students and the teacher [36], with one student rather dramatically characterising IGCRA as giving "voice to the people". Other students reported: "*Ownership is very important in any change. If they are aware that they (the students) are part of it, the more likely they are going to embrace the change*." (S8-I1); "*With this the teacher knows what we're expecting of her as well as us knowing what is expected of us*."(S4-I1).

10 CONCLUSIONS

Findings of this case study need to be analysed with care as the study design had some inherent response bias. There was a relatively low response rate amongst the subject pool, and within those subjects who chose to participate, there was a low response to the open-ended questions, which provide greater insight. It is possible that those subjects who chose to participate were systematically different to the general population of accounting students. Further, students participating in the final assessment constituted a naturally biased sample: only students who completed the course and thus participated in all the stages of IGCRA were eligible for analysis.

The findings of this study buttress the existing Classroom Assessment Techniques' literature. The issue of time

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consumed in implementing CATs techniques again arose, and that there is a subset of students who may prefer to remain passive in class and are challenged by such techniques [36, 38]. In addition, the repetitive nature of this technique was also singled out by some of the participants as a disadvantage. Finally, from the point of view of the teacher, the application of IGCRA (and indeed other forms of CATs) requires skill on the part of the teacher/lecturer to handle students' negative feedback in a positive manner.

Notwithstanding the above, the use of IGCRA technique was found to have certain advantages by both the teacher and students of this first year accounting course for several reasons. From the teacher's point of view, it provided formative student evaluative data to engage in reflection on teaching and its impact on learning, as well as on systematic changes to it to improve students' learning. As with other CATs reported in the literature, IGCRA provided a relatively compact, systematic and coherent forum for teachers to understand students' learning difficulties throughout the course and use students' regular feedback to modify teaching strategies and techniques [12, 24, 27]. It also gave the teacher a chance to communicate her teaching concerns to students on a regular basis [38].

From the point of view of the student, it is clear from results that this promoted reflection on learning, it helps students to become aware of their metacognitive processes [61-62], increased students' sense of responsibility for their own learning, and helped improve their learning outcomes [36, 39]. For others, IGCRA also enabled them to maintain dialogues on best learning practices between their fellow students and the teacher [38].

Overall, the use of the IGCRA technique encouraged more reflective teaching and learning in this first year accounting course, and hinted at benefits for both students and teachers. A number of themes have emerged from this study that suggest a way forward in refining IGCRA in a manner that maintains its strengths while minimising the at-times valid concerns of the students.

1. Students' lack of metacognitive knowledge on how to reflect on learning and teaching. It was obvious in this study that many students lacked metaknowledge. Indeed, this was a new experience for many of them. This is an issue that cannot be addressed, for example, in a first-year accountancy course; but rather, need to be embraced by university authorities on a larger scale at first-year level.

2. The importance of clear guidelines on how to use IGCRA. In the final student questionnaire, some students reported that they found the student booklet helpful (54%), while a large minority (30%) found it to be limiting. This suggests students should be given the freedom to choose their own reflecting system if they wish. In addition, it was observed that it is important to provide students with clear guidelines in each stage of the process, to organise them into small groups, and to give them a time limit to help them to focus on the task of writing the group report.

3. The time factor. Many students maintained that one of the main disadvantages of writing the individual reports was that it was time consuming. The results of this study indicate that the resentment towards the time required is closely related to the sense on the part of students that this is 'time wasted' as it does not contribute towards their final marks. Incorporating the writing of individual reports into final assessment may be a means to address this issue.

4. Assessment issues. Following up on the above point, further research should examine the possibility of incorporating the use of IGCRA as part of student assessment. As Poyatos Matas [38] notes "in order to have a place in the classroom its educational value needs to be acknowledged by being made into an assessment item of the subject" (p.14). Indeed, researchers have found that the extent of a student's perception of the assessment will determine his/her learning, or at least the degree to which they devote intellectual and time resources towards a particular element of a course [29, 63-64]. Inclusion in the assessment component of the course may also enhance student involvement in IGCRA.

5. Dealing constructively with inappropriate commentary. Some students reported that some of the comments made by a small group of students were not respectful to the teacher or constructive at all. As one student remarked: "*People got to say what they thought, although some people abused this system by using inappropriate commentary*." (S11-I1-2001).

However, it was found that the best way to deal with inappropriate commentary was by the teacher acknowledging this feedback in classroom negotiations but requesting suggestions from the authors. In the second classroom negotiation, these types of comments were dramatically reduced.

6. The format of the individual reports. Some of the students (24%) reported that they did not know how to use the IGCRA technique to reflect on learning and teaching. Fifty-four percent mentioned that this type of task

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could become boring and repetitive after a few sessions. Perhaps for these students the individual report are not an effective tool to encourage reflection, since to keep such reports requires a positive approach towards writing as a basis for reflection. As Armstrong and Conrad [63] point out:

> "*Many of us are reluctant writers and even more reluctant meditators. But the only way to benefit from experience is to reflect on it, and that requires regular and systematic recording of events*".

As a result, the authors intend to develop a shorter version of individual student report and a website version of the technique to support students who choose to study on-line. This will provide students with an opportunity to select from a variety of reflecting tools (ie. diary, report, brief report, etc). For students increasingly engaged with on-line protocols, and with universities worldwide shifting administration to the internet, such a transformation could provide a neat fit between student and university expectation.

At the moment most course and teacher performance are evaluated on student summative evaluations conducted at the end of the teaching program. This data is collected mainly to assess the quality of the course or teaching [23]. This data can only potentially help future students of the course, as by the time that the teacher gains the feedback, the students that gave it are gone. Thus, if we want to obtain student feedback that can influence teaching as it is taking place, it is necessary to obtain formative student evaluative data, which will allow the teacher to make changes to enhance learning, while this is taking place during the teaching period [23]. Classroom Assessment Techniques offer a real opportunity to complement end-of -semester student surveys. However, we need to know more about what options are available, and there is a growing need in the literature for comparative studies enabling the assessment of different CATS in terms of their ultimate impact on educational goals.

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