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Making Bricks from Straw:

Promoting Undergraduate Research with Diminishing Resources

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Abstract

Higher education institutions are increasingly under pressure to increase enrolments at undergraduate and postgraduate level. Developing meaningful research skills in undergraduate students as preparation for postgraduate research becomes increasingly challenging in large undergraduate classes. This study uses an action research framework and questionnaire instrument to report on several changes made to the discipline of Finance fourth-year research project at a South African university, which include conducting first-time research in a group environment and changing the style of the traditional thesis to that of a journal article. Staff and student respondents expressed positive responses regarding the group format, although several challenges were identified, including that of the free-rider issue. Results indicate that undergraduate research projects can be implemented successfully using a group format. Proactively assisting students in managing the group process, and building increased student guidance and scaffolding for deliverables into the course design are recommended in order to mitigate barriers to successful group work.

Key Words: Undergraduate research; action research; group work; research project; free-rider problems; scaffolding; supervision; finance.

1. Introduction

The importance of promoting undergraduate research is widely recognised, and increasing importance is being accorded to integrating research and teaching within higher education (Brewer *et al*., 2012). The growing demands of knowledge economies have placed greater demands on universities to increase their numbers of postgraduate students and to produce undergraduate students that have the ability to engage in research (Manathunga *et al*., 2012). In the United States, the Boyer Commission (Boyer, 1998) recommended that every degree should culminate in a major research project; while in the United Kingdom, the Higher Education Funding Council (HEFCE, 2008) identified students experiencing research and developing research skills as a strategic priority. In the United Kingdom (UK) and other countries, typically

former colonies such as Australia, New Zealand and South Africa, whose educational system is based on the UK model (Manathunga *et al*., 2012), particular emphasis is placed on a final-year capstone research project (Brewer *et al*., 2012). In this tradition the completion of independent research in the form of an extended piece of written work or thesis is seen as evidence of 'graduateness' (Garde-Hansen and Calvert, 2007).

Shaw *et al*. (2013) have argued that "well-developed undergraduate research programmes provide a foundation for [knowledge production]". They also note, however, that requiring all honours students to do a research project results in both time and staffing resources being stretched resulting in a limited research experience for students. Increases in student enrolments pose direct challenges for the delivery of undergraduate research opportunities (Stefani *et al*., 1997). As a result, traditional one-on-one supervision of honours (fourth-year) students by faculty members has increasingly become impractical (Dowd *et al*., 2015). Consequently the question of how to effectively promote undergraduate research in the face of 'massification' in higher education has become an increasingly pressing issue. Some authors, such as Hall and Buzwell (2012) and Akister, Williams and Maynard (2009), have suggested small-group supervision as a potential answer to this challenge. This paper investigates the potential for using a group-format to introduce under-graduate students to independent research. We employ a case study approach, using an action research methodology, to review several practical and pedagogical changes implemented in the format and administration of the Honours research project within the Finance discipline of the School of Accounting, Economics and Finance at the University of KwaZulu-Natal (UKZN) in South Africa.

2. Describing Action Research

Action Research has its roots in the post-positivist tradition of social research and seeks to produce relevant research findings through the merging of research and praxis (Baskerville and Wood-Harper, 1996). Weber (2011) describes it as a process in which people reflect on and seek to improve their own contexts and activities through collaborative self-management and progressive learning by inter-linking their actions and reflection and publically sharing their experience. Action research is consequently a pragmatic attempt to achieve both practical and research goals through action and reflection in order to link both theory and practice (Susman,

1983). It seeks to create knowledge that will be useful to other educators (Somekh and Zeichner, 2009) through critical reflection of actual experience (Weber, 2011). An important characteristic of rigorous action research, therefore, is the sharing of outcomes with the academic community (Baskerville and Wood-Harper, 1996) with sufficient academic rigour which Levin (2012) argues is critical for the academic integrity of action research.

Action research is typically a cyclical process. Baskerville and Wood-Harper (1996), for example, describe an action research cycle as having five phases, namely: diagnosis, action planning, action taking, evaluating and specifying learning. This cycle can continue for several iterations, with unsuccessful interventions being seen as valuable learning outcomes, until participants are satisfied that an appropriate solution has been achieved. Weber (2011) describes this process as a "self-reflective spiral of planning, acting, observing, reflecting, replanning". As Somekh and Zeichner (2009) discuss, this process of working towards a solution results in an impetus for action that through trial and error and critical self-reflection leads to the generation of new practices and new knowledge. A major strength of action research is that this process of combining research and engagement with practical implementation produces research that is socially relevant (Baskerville and Wood-Harper, 1996) and tested in action (Greenwood, 2012). Action research is consequently increasingly being employed in South Africa, especially in education and higher education, but generally with an emphasis on action and less on research (Fletcher and Zuber-Skerritt, 2008).

3.   The changing context of supervising finance honours students at the University of KwaZulu-Natal, South Africa (2010-2015)

In an attempt to cope with increasing class sizes and to improve the rate of successful completion of Honours studies within the minimum required time, extensive changes have been made to the Finance Honours research project. This major project represents one quarter of the credits necessary for an Honours Degree in Finance at UKZN, and is completed over a full year of study. This research project is done in conjunction with a total of six additional semester-long modules, typically three in each semester. Prior to 2013, the Finance Honours programme had a small number of enrolments, with supervisors on average supervising three to five students each. These students submitted a traditional-style thesis of roughly 12000 words on their own unique

topic. Following moves to increase post-graduate enrolments, in 2013 the Finance Honours programme experienced a marked increase in student numbers, where each supervisor would be taking on between five and eight Honours students each year. To provide additional context, we note that the increasing number of Honours students supervised excludes each supervisor's Masters and Doctoral supervision as well as their increasing teaching loads and other academic commitments.

This growth in Honours supervision numbers necessitating changes to the structure of the research project and how best to make these changes, required substantial consideration. In South Africa, the higher education government policy framework states that at this fourth-year/Honours level (referred to in South Africa as a National Qualification Framework (NQF) Level 8) the "Scope of Knowledge" required is that: "a learner is able to demonstrate knowledge of and engagement in an area at the forefront of a field, discipline or practice; an understanding of the theories, research methodologies, methods and techniques relevant to the field, discipline or practice; and an understanding of how to apply such knowledge in a particular context (South African Qualifications Authority (SAQA), 2012)." At UKZN, the decision was made within the Finance discipline, therefore, that *a complete piece of research* would remain a requirement for the research component, but that group work would be introduced to manage the larger number of enrolments.

This move was defended by the fact that internationally, as well as in South Africa, the ability to work in a team is seen as an important graduate skill (Natoli *et al*., 2014; Bester, 2014; Brooks and Ammons, 2003), and in addition is seen as a means to improve student outcomes (Natoli *et al*., 2014) and has been noted to improve student learning (Dowd *et al*., 2015). Hall and Buzwell (2012) highlight that group work also increases supervisors' productivity through meeting with groups rather than individuals, and through reducing faculty marking commitments. Supervisors can give more detailed feedback and provide more time for meetings when working with groups. Akister, Williams and Maynard (2009:77) investigated the student experience of being supervised in small groups (rather than in the traditional one-to-one structure), and found that, "supervisor led groups may be an effective mode for undergraduate dissertation supervision",

and further that this approach offered several benefits, including greater student engagement, while having no observed negative impact on final grades.

We support this argument and suggest that this may be particularly relevant for students undertaking a research project for the first time, where the well-known power dynamics of the supervisory relationship may be particularly intimidating to young first-time researchers (Sullivan and Ogloff, 1998). Meeting a supervisor as a member of a group may assist students to feel more comfortable and encourage them to engage more freely with their supervisor.

As a consequence of this decision, in 2013 small groups of four to five students were assigned the same thesis topic, but students still handed in individual final projects of roughly 12000 words. In addition, some scaffolding for the research project was introduced with the submission of a group thesis proposal counting 10%, and an individually submitted first draft being worth 15% of the total mark awarded for the research project. A traditional-style dissertation continued to be employed. In addition, a full orientation week was developed aimed at better preparing students for the research project. In previous years, orientation had been a simple meet-and-greet tour of the library with an informal discussion guided by a single staff member; however, in 2013 this was expanded to include workshops on library resources and referencing software, and a formal seminar speaking to the requirements of the year and research project ahead.

When reflecting on these 2013 changes, staff and students alike appeared happy with these adjustments to the course, and so in 2014 when a further increase in numbers was experienced such that each supervisor was expected to supervise between eight and twelve fourth-year students, it was decided to maintain a similar approach to that of 2013, with two additional changes. Firstly, students were required to submit their final thesis in the form of a journal-style report of roughly 8000 words. This change was implemented for two perceived potential benefits: firstly, supervisors had noted that these first-time researchers tended to battle with reading and understanding the journal article fashion of disseminating empirical research, and so by asking these students to engage in this style of writing it was hoped that their ability to engage with journal articles would be improved, and that some foundations for these students' own future research writing would be laid. Secondly, from a staffing constraints perspective, the

shorter length of the journal style (8000 words rather than 12000) was accepted as a means of truncating the volume of reading, editing and marking undertaken by staff during research project supervision. The second change made to the 2014 programme was that the orientation week was augmented with additional preparatory workshops to further aid in preparing students for conducting research.

At the end of 2014, and given a further anticipated increase in enrolments and the observation by staff that students were already collaborating throughout the research project it was decided that for 2015 the research project would be done entirely in groups. The average group size on the UKZN Westville Campus was six students, while the number on the Pietermaritzburg Campus (with smaller total enrolments) was three per group. In order to address the well-known problems of free-riding in group work, measures were introduced to attempt to address this. Hall and Buzwell (2012) note that strategies to cope with free-riding can be classified as pre-project preparation, during-project peer-monitoring and/or assessments, and post-project peer-assessment; and in implementing such measures in 2015 we introduced interventions at each of these stages. Firstly, the orientation week was expanded to include workshops specifically addressing participating in group work. Secondly, students were asked to assign themselves group roles and to take minutes of their meetings. Finally, these minutes, as evidence of group work, were then combined into an unmarked portfolio and submitted with the first draft of the research project. The central aim of this particular study was to investigate the impact of the changes incorporated into the research project. The purpose of this paper was to better understand how the program was being received by students and staff, as well to interrogate specific changes made to the program with a focus on the move made to a group-work structure.

4. Sample and method of analysis

We adopted an action research framework to interrogate the combined changes made to the research project since 2013, with the objective moving forward of developing a format that can successfully develop undergraduate students' research capability given rising enrolments and constrained resources. The study employed a survey approach distributing separate questionnaires to all staff and students involved in the programme. The population for this study was all students registered for the Finance Honours research project in 2015 comprising 15

students from the Pietermaritzburg Campus and 34 from the Westville Campus of UKZN, South Africa. In Pietermaritzburg, 14 students responded (93% response rate) and 26 students responded in Westville (76% response rate) for an overall response rate of 82%. All seven staff members who supervised these students participated in the survey.

The first questionnaire, administered to staff, contained open-ended questions around aspects of the programme in order to allow staff to express their opinions freely. Given the nature of the questions and the number of respondents, a descriptive analysis of the staff's responses was employed. The second questionnaire was directed at students enrolled for the Finance Honours research project in 2015. The student questionnaire was modelled on that used by Bourner *et al*. (2010) who conducted similar research on undergraduate group project work amongst first-year accounting students. We adapted their instrument, however, to include elements specific to our Honours research project. The questionnaire comprised ranked responses eliciting student perceptions of various elements of the programme combined with open-ended questions allowing additional comments.

The questionnaire responses from staff and students are presented in a combined fashion in the findings section of this paper. The following components of the research project are discussed, namely: General Impressions of the Research Project (Table 1); Skill Development as a Result of the Research Project (Table 2); Orientation Week for the Research Project (Table 3); Research Project Topic Selection (Table 4); the Research Proposal and Proposal Presentation (Table 5); The First Draft of the Research Project (Table 6); the Journal Format of the Research Project (Table 7); Supervision of the Research Project (Table 8); and, Portfolio of Group Work (Table 9). Recommendations arising from these findings are then discussed.

5. Findings

Students overwhelmingly reported that they enjoyed the process of participating in, and completing, a full research project. Overall comments on the module indicated that students felt that it had given them a better understanding of the research process. Pleasingly, 82% indicted that in general they felt better prepared for the working world after doing the project. Staff were equally supportive of the changed format with several responding that the change to group work

and the use of the journal format was essential and helped manage the increased workload predicated by increased enrolment numbers. Some, however, expressed concerns regarding not being able to assess individual performance within the group.

Table 1: General impressions of the Research Project

	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	Mean
I enjoyed doing the Research Project	**14**	**20**	5	0	3.231
I feel better prepared for the working world because I did the Research Project	**9**	**23**	5	2	3

In order to analyse the perceived benefits of the research project in more detail than that given by the general statements presented in Table 1, students were asked which skills they specifically felt they had improved on during the course of completing the research project. These results are presented in Table 2, where responses from the questionnaire have been sorted in ascending order as per the mean score, so that the skills which most students indicated they had improved on as a result of the research project are presented first ("researching"), with the last row being the skill which the least number of students indicated had been improved on ("oral presentation"). The fact that 'oral presentation' is seen as being the skill students felt was least developed in the course of the research project is unsurprising given the fact that, for this particular module, there is only a single presentation over the course of the entire year. This ranking is therefore as expected, and provides a pleasing indicator of the integrity of this set of responses.

Table 2: Skill Development as a Result of the Research Project

Because of doing the Research Project I feel that I have improved my skills in the following areas:	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	Mean
Researching	**33**	**5**	0	0	3.868
Analysis of data	**27**	**11**	0	0	3.711
Presenting information in written form	**20**	**17**	1	0	3.5
Problem solving	**19**	**18**	1	0	3.474
Working with others in a group	**21**	**13**	2	2	3.395
Action planning and organising	**19**	**16**	2	1	3.395
Time management	**18**	**11**	8	1	3.211
Oral presentation	**13**	**15**	8	1	3.081

Students reported that they felt that their skills had improved across all categories listed. Action planning and organising, and time management, carried relatively lower mean scores borne out in the qualitative responses to question, "If you were doing the project again in what ways would you do it differently?", where the largest number of responses (eight) indicated that they would manage their time better, while a further three made some reference to planning better. Clearly this is an area requiring greater support going forward.

In Table 2 it can be seen that 'working with others in a group' got ranked as fifth out of eight skills developed, although the majority of respondents (89.5%) reported that that they felt that their skills in working in a group had improved, pointing to the benefit of group work. Given that this research project was completed in groups, the reason for this relatively low ranking was unpacked further in examining the responses to the open-ended question, "What did you like least about the project?" The replies to this were dominated by the group aspect, with by far the greatest number of responses relating to group members or group work. Given the importance placed on developing group skills, the relatively low ranking and score of 3.4 is disappointing and indicates that greater support is required in order to better facilitate developing the skills necessary to optimise the benefits which can be gained from group work.

Contrary to the findings of Seymour *et al*. (2004) who found that students reported the greatest benefits around intrinsic factors, these results show that our students felt that the greatest improvement had occurred in task-orientated skills, specifically research (first), analysis of data (second), presenting information in written form (third) and problem solving (fourth). In addition, the responses to the question, "What did you like best about the project" clearly showed that students appreciated the opportunity to develop these skills. In fact, eight students explicitly listed research as the single thing they enjoyed most. One stated, "[I liked t]he fact that we were testing theory against what happens in the real world."

Table 3: Orientation Week for the Research Project

	4 very useful	3 of some use	2 not very useful	1 not at all useful	Mean
I found the Orientation Week	19	11	1	2	3.424
I found the Finance Honours Student Guide	21	15	2	0	3.5

The orientation week has grown from very simple beginnings to currently include workshops on using the institution's databases and primary referencing software (Endnote); formal orientation seminars on preparation and managing expectations; a guest speaker; and, the provision of an increasingly detailed course guide which includes the research project guidelines, selected guiding rubrics and topic information. Table 3 details responses to questions aimed at determining how the orientation week and course guide is seen by students and staff. The use of pre-project support in the form of an orientation week was viewed by the majority (90.9%) of the respondents as being either a very useful (57.6%) or a useful (33.3%) component of the research project. Through the associated open-ended questions students specifically identified task-orientated aspects of the course guide (such as the assessment rubric and list of deadlines) as being the most helpful. Staff responses indicated that the course guide was considered "essential" and it was suggested that it could include even more detail, especially with regards to providing more detailed guidelines to journal style.

Table 4: Research Project Topic Selection

	4 Strongly agree	3 Agree	2 Disagree	1 Strongly disagree	Mean
Having to choose from a list of pre-set topics was better than having to find my own topic.	25	10	3	1	3.513
Having done the project if I could go back I would choose a different topic.	5	4	14	15	1.974
I would prefer to just be allocated to a topic rather than having to choose one.	1	1	13	23	1.474
I had enough information to help me make a good topic choice.	10	16	10	2	2.895

The majority (89.7%) of the class appreciated being able to choose a topic from a list rather than having to formulate a topic themselves. Students were also clear that they did not want to be assigned topics, preferring the autonomy of choosing; although some indicated that they would prefer to know which supervisor 'belonged' to which topic before choosing.

Staff supported this approach of students choosing pre-set topics, and topics being made available during the orientation week prior to the terms commencement. Staff members noted that this approach allows for both student benefit (in that students may get started on their research immediately) and staff benefit (a reduced staff workload due to a fewer number of topics; staff are better positioned to develop workable topics; and, that it helps to ensure that supervisors work with topics that they are knowledgeable about). One staff member suggested that assigning topics to students could help to achieve a more evenly balanced level of ability across the topic groups. Another felt that students do not give topic selection enough thought.

Importantly, one of the primary goals of the adjustments made to the Finance Honours year research project has been to ensure that students engage in a complete piece of research, including data collection and empirical analysis. However, it is noted that presenting pre-set topic choices does mean that students consequently miss out on the process of defining a research problem.

One of the first deliverables of the research project is the submission and presentation of a research proposal. The presentation is made to a panel of supervisors, emulating the typical research experience at Masters and Doctoral level where thesis proposals are presented to a committee for approval. The responses from students regarding questions related to this component of the course are captured in Table 5. Students felt the proposal presentation was beneficial; that this hand-in being for marks helped them to take it seriously; and, that the feedback they received was helpful, as observed in these comments: "[It] makes completion of the dissertation much easier"; "Presenting the research proposal provided us with a better understanding of the research topic"; and, "very insightful experience and the questioning session from supervisors enables one to see how the literature could be perceived differently."

Table 5: The Research Proposal and Proposal Presentation

	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	Mean
Submitting the Research Proposal helped in the successful completion of the final project.	15	21	2	1	3.282
Having to present our Research Proposal encouraged us to take it more seriously.	18	18	3	0	3.385
I feel that I learnt valuable skills from having to present our Research Proposal.	15	20	3	1	3.256
The fact that the Research Proposal was for marks encouraged us to take it more seriously.	22	16	1	0	3.538
The feedback we received when we presented our Research Proposal was helpful.	15	12	10	2	3.026
The feedback we received when our Research Proposal was marked was helpful.	21	14	2	2	3.385

The proposal was described by staff as being both "critical" and "essential" as, "it forces students to work because they have a deadline". Two staff members suggested including some form of peer assessment in the mark awarded for this component; and one felt that students should be given more time to complete the proposal and that marks should include the actual presentations rather than just the written submission. Another staff member suggested trying to involve the class in the presentation process, possibly having them act as reviewers for each other's work; this suggestion being motivated by the fact that Master's and Doctoral research typically contains a publication requirement, and so some experience with the process behind a review may be helpful in developing these students' research capabilities.

A few months following the proposal submissions, students were required to submit a first draft of their complete research project to their supervisor. Responses to questions directed to this element of the programme are captured in Table 6. Students considered the first draft to be helpful but several commented that they wanted more time between it and the final submission. Interestingly, the class was fairly evenly divided (23 for; 15 against) between the desirability of submitting more project components although several strongly agreed with the idea, for example, "breaking up the first draft into smaller components could be very helpful as after each milestone you would get feedback and know if each component was properly done". Similarly, the class was fairly evenly divided (17 for, 19 against) regarding the desirability of presenting their preliminary research results prior to submission.

Staff supported the submission of a first draft, with two suggesting that students should also submit a literature review, while one also suggested submission of a data and methodology section. Both of these suggestions speak to the need for greater scaffolding for deadlines within the year-long project. Two staff commented that there should be a mark awarded for individual effort. Finally, one staff member suggested requiring a report on the adjustments made in response to the first draft comments received to be submitted with the final submission.

Table 6: The First Draft of the Research Project

	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	Mean
Submitting the First Draft helped in the successful completion of the final Project.	**19**	**19**	0	1	3.436
It would have been helpful to have more deadlines for submitting components of the project before the final submission.	**12**	**11**	15	0	2.921
We had sufficient time to complete the first draft.	**10**	**24**	3	2	3.077
The fact that the First Draft was for marks encouraged us to take it more seriously.	**16**	**23**	0	0	3.41
The feedback we received when our First Draft was marked was helpful.	**19**	**13**	4	3	3.231
It would have been helpful to present our preliminary results before final submission.	4	13	**16**	**3**	2.5

Apart from the move to a group format, one of the primary changes made to the research project itself was to move away from the traditional thesis style of presenting a research project, and instead move towards asking students to write up their findings in the form of a journal article. These responses are captured in Table 7.

Students generally enjoyed the journal article-style format of the research project and most felt that it had helped develop their ability to read published journal articles; however, for many keeping to the shorter length had been challenging. Staff members were positive regarding the use of the journal style, observing: "[it] forces them to write concisely and often they find a shorter target more manageable"; and "students need this [skill] for post-university life". They also felt that this style is easier to mark, although one staff member expressed concern that the shorter length could reduce the scope for students to demonstrate their effort while another

expressed concern that students are unfamiliar with this style of writing and "not ready" for it. Staff felt that more detailed journal-style guidelines were needed.

Table 7: The Journal Format of the Research Project

	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	Mean
I enjoyed writing the Research Project as a journal article.	**8**	**23**	7	1	2.974
I found it a challenge to stick to the required word length.	**11**	**9**	17	2	2.744
Using the journal format helped me in reading published journal articles.	**8**	**21**	8	2	2.897

On the matter of supervision, results captured in Table 8, students generally found their supervisors to be useful and reported that they had frequent meetings which they initiated. Despite this generally positive response, a majority of students indicated that they would have preferred more meetings with their supervisor. This finding speaks to a deeper issue, as staff at the institution at which this study was undertaken are available for a set number of consultation periods every week (which are published – usually online on Moodle – and posted on their office doors), and so if students are reporting that they are initiating meetings it raises a question as to why they did not then consult more frequently when such consulting time is readily and easily available to them.

It is interesting to note that staff reported a different picture indicating that they felt that they were the ones who often had to initiate meetings with their groups. Some supervisors reported meeting once a month with their groups, while others met weekly. Staff reported several problems with students not being punctual, group members not arriving for meetings, and not being able to get students to treat their work with the appropriate dedication. Staff also noted that sometimes feedback had to be given several times before suggested changes were incorporated. One staff member noted with some frustration that, "they should be able to work independently at this level but I have never had a group that could!" Exploring how the supervision process can be structured to better address the issues arising from working with first-time researchers is an important issue moving forward.

Table 8: Supervision of the Research Project

	4 very useful	3 of some use	2 not very useful	1 not at all useful	Mean
How helpful did you find your supervisor?	**18**	**12**	5	4	3.128
	4 Once a week	3 Every 2 weeks	2 Once a month	1 < once a month	Mean
Leading up to the proposal presentation how often did you meet with your supervisor?	**9**	**15**	14	1	2.821
After the proposal presentation how often did you meet with your supervisor?	**5**	**18**	15	1	2.692
	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	Mean
I would have liked more frequent consultations with my supervisor.	**14**	**13**	10	1	3.053

Unsurprisingly, given that these students are first-time researchers, students' responses to the open-ended questions relating to supervision raised familiar issues in the supervisory relationship, with students desiring more explicit direction and complaining of negative feedback with one student noting that supervisors, "[should] be more supportive in terms of giving confidence and not just criticise". Although preparing for feedback is covered during the orientation week, some student responses indicate that staff could do more to reassure students concerning this style of detailed constructive criticism. Staff suggestions for improving the supervisor-student interaction included creating a set of agreed upon supervision guidelines, running cohort sessions to identify and address issues early on in the process, and for supervisors to keep a record of their group meetings to ensure accountability and consistency.

Finally, students were asked to comment on their experiences of submitting an unmarked portfolio of evidence regarding their group meetings, group roles and member contributions. These results are presented in Table 9, where it can clearly be seen that students were ambivalent regarding this component, with one respondent noting that "we did it because we had to, not because we found it helpful". There were some positives taken from this aspect, namely, that groups treat meetings formally and keep appropriate records as seen in comments that the portfolio of evidence had "helped [us] keep up with all meetings" and "ensured there was progress being made". In examining Table 9, however, it can be seen that the split between

those that agree and disagree with the statements given is roughly equal, with no clear consensus that the portfolios of evidence of group work was helpful.

Table 9: Portfolio of Group Work

	4 Strongly Agree	3 Agree	2 Disagree	1 Strongly Disagree	Mean
I found the Portfolio of Group Work helpful.	5	4	**5**	**8**	3
Knowing that we would have to complete a Portfolio of Group Work helped the group to set regular meetings.	**11**	**12**	10	8	3
Knowing that we would have to complete a Portfolio of Group Work helped ensure group members attended meetings.	4	5	**6**	**4**	3

The student's responses were echoed by staff, with six of the seven faculty members indicating that they did not feel that the portfolio of group work in its current form was a useful group management mechanism, primarily because students were noted as not taking this process seriously, arguably because there was no mark-related consequence of submitting a poor-quality portfolio. It is clear that in furthering our action research goal of establishing an 'ideal' structure for our Honours year Finance research project that further consideration needs to be given to how best to approach group management and mitigating negative group experiences.

6. Recommendations

Both students and staff were generally positive regarding the use of a journal article format although challenges regarding complying with the shorter format were identified. It is intended to continue using the journal article format while providing more extensive guidelines to assist students to adjust to the requirements of this format. Similarly, both staff and students were positive in their assessment of the structured approach to the research project, indicating that they would like to see even greater scaffolding, and so an additional stage (that of the submission of a literature review between the proposal and first draft stages) will be introduced. Clearly, providing interim deadlines for the submission of various elements of the research project is seen as helpful by students undertaking a research project for the first time and could be developed further. A tension between more submissions and the students' workload and ability to manage their time adequately, as well as increasing the assessment load of staff must be recognised,

however. Finding the right balance between increased scaffolding and the capacity constraints of students and staff will need to be carefully monitored.

The most dramatic change introduced to the Honours research project format was having students conduct the research in groups. Overall the indications are that this change has been successful, with staff reporting the positive impact it has made on their supervision and assessment workloads, while student feedback was largely positive regarding the overall research project experience, indicating that they found it worthwhile and enjoyable and reporting that they believed that it had developed a range of important skill sets. Despite these positive responses the student feedback also clearly demonstrated substantial problems associated with the use of group work, with some students enjoying the group aspect while others found it a challenge, especially dealing with non-performing members. It follows that the key aspect to be considered in future years is how to better manage the research groups in order to minimise free-riding.

There is a wide range of literature on this topic of free-riding, however, there appears to be no single acknowledged best practice for controlling this issue. Brooks and Ammons (2003) found that evaluations early on and at multiple points throughout a group project decreased free-rider issues resulting in a more positive experience of the project for group members. Natoli *et al.* (2014) found that a supportive group work environment (using increased guidance, team building, regular opportunities to discuss group issues, and independent peer-reviews) was more beneficial than one that did not offer any support. Adding more structured deadlines to the module, providing more support to managing the group process, and the inclusion of peer assessment are potential solutions to be explored. Maiden and Perry (2011: 460) suggest that, "it is the attempt to address free-riding that is significant rather than the particular method chosen". Clearly, further research on managing the free-rider issue in this particular context is needed and it is important that the success of future initiatives be carefully monitored.

Bourner *et al*. (2001:31) highlighted the importance of research in this area being done, noting that this is, "an area for fruitful sharing of experience and ideas by those with experience of group project work with students." Our findings presented here respond to Bourner *et al*.'s call, and contributes to the literature by offering our findings of our staff and students experiences of

group work: that group work can be successfully used as a basis for meaningful research to be undertaken and that particular care be given to consideration of how free-rider issues may be minimised.

Our results further highlight the importance of the supervisor's role in facilitating the process, and greater attention needs to be given in the next academic year to establishing some consensus on the number of meetings, depth and frequency of feedback, and the supervisor's role in monitoring students' individual contributions to the group process.

7. Conclusion

The conflicting demands on universities to accommodate more students and to produce graduates able to engage in knowledge production poses a challenge requiring university programmes to promote research components in their undergraduate degrees. We have reported the results of action research implemented to review initiatives within one academic programme to maintain an Honours (fourth-year) research component in the face of rapidly expanding class sizes. Specific responses investigated include the shift to a group format, increased scaffolding and the use of a journal article format for submissions.

Our findings indicate that having undergraduate students conduct substantial research projects in a group is a viable approach to promoting research in the face of increased student numbers and this approach supports arguments in the literature for the benefits of group work. Our findings also highlight the challenges of group work, in particular the free-rider problem and the critical importance of appropriately managing the group process to achieve the desired outcomes. Further research on how best to achieve this is required.

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