Cooperative learning: a pedagogy to improve students' generic skills?

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Abstract

Purpose – The objective of this study is two-fold. First, it provides guidance to educators and trainers on establishing a cooperative learning environment. Second, it examines final-year undergraduate accounting students' opinions on the effectiveness of a cooperative learning environment in delivering generic skills for their future professional accountancy careers. In particular, the study examines relative perceptions of effectiveness between students of differing academic abilities.

Design/methodology/approach – A questionnaire was administered to elicit students' views on whether they believed cooperative learning had enhanced their generic skills development. The data collected were analysed using descriptive statistics and Mann-Whitney U tests of differences.

Findings – Students found the cooperative learning approach beneficial in developing their generic skills. Further, no significant differences were found between the perceptions of the less and more able students.

Research limitations/implications – The study addresses perceptions of the benefits derived from cooperative learning rather than measuring benefits using an objective measure of achievement. Therefore, an interesting extension of this work would be to chart changes in personal development as a consequence of implementing cooperative learning over a number of years.

Practical implications – The findings provide some level of assurance for educators in accounting and other vocational disciplines that students of different academic abilities believe they have enhanced their generic skills as a result of engaging in cooperative learning.

Originality/value – This paper provides guidance to educators on establishing a cooperative learning environment and provides empirical evidence on its contribution to the enhancement of generic skills.

Keywords Team learning, Skills, Vocational training, Accounting, United Kingdom

Paper type Research paper

Introduction

The expansion in UK higher education in the late 1980s and early 1990s has brought the issue of graduate employability to the fore (Holmes, 2000, 2001). Whilst there are numerous interpretations of employability, the debate has been dominated by the skills agenda and the challenges this poses for higher educational institutions in terms of turning out large numbers of graduates with the generic skills deemed necessary for employment (see for example, Association of Graduate Recruiters, 1993, 1995; CVCP, 1998; The Higher Education Academy, 2006a, b; Harvey, 2001; Smith *et al.*, 2000). However, the skills agenda is not without its critics (see for example, Cornford, 2005; Holmes, 2000, 2001; Kearns, 2001). Holmes (2000, 2001) argues that part of the problem with the skills agenda is that it assumes that the term "skills" tends to have the same meaning when used in both an educational and employment context and that skills can

be objectively measured. Further, he suggests that the skills approach is flawed insofar as it fails to provide an adequate understanding of the relationship between tertiary education and graduate employment. Accordingly, Holmes (2001, p. 115) proposes an alternative approach for understanding graduate employability, namely the 'graduate identity' approach which acknowledges that it is not only the awarding of a degree that is important but that the graduate "is successful in gaining affirmation of their (sic) identity as a graduate in relation to the social settings for which this is deemed relevant". In applying the graduate identity approach, "students should seek to articulate what they claim they can do in terms that relate to the practices relevant to the occupational settings they wish to enter" (Holmes, 2001, p. 117). Application of the graduate identity approach in terms of curriculum design and teaching and assessment activities would then depend upon the nature of the degree programme. For example, within a vocational orientated degree programme, with no formal work experience, the educationalist should focus on practices relevant to careers pertinent to the vocation in question.

This study focuses on the employability skills of a vocationally-orientated degree programme, namely accounting. Notwithstanding the wider debate surrounding the issue of graduate employability (Holmes, 2000, 2001), the nature and importance of skills within the field of accounting is well defined reflecting a more orthodox position within the skills agenda. For example, the International Federation of Accountants (IFAC, 2003) has produced a standard dedicated to the skills required of accounting graduates, namely International Education Standard 3 (IES3). IFAC, which operates among its 163 member organisations throughout the world to "protect the public interest by encouraging high quality practices by the world's accountants" (IFAC, 2007), refers to an accountant's skills base as a combination of technical, business management and transferable or generic skills. To this end, those involved in accounting education at tertiary level should be aware of the need to provide education and training which delivers generic skills, i.e. communicative, analytical and other skills, besides technical and theoretical knowledge, to prepare accounting students for a career in their chosen profession (see for example, Paisey and Paisey, 1996; Ballantine and McCourt Larres, 2004).

A learning approach which may provide students with the opportunity to acquire the generic skills which will help them to interact more effectively with colleagues, as well as to deal with the complexities of the modern business world, is cooperative learning. This paper discusses the introduction of cooperative learning into a final-year auditing course which forms part of an undergraduate accounting degree programme. In so doing, the paper provides guidance to educators wishing to implement this pedagogy. In addition, the study reports and evaluates students' opinions of the effectiveness of cooperative learning in enhancing their generic skills. In particular, the study concentrates on the relative perceptions of effectiveness between students of differing academic abilities.

What is cooperative learning?
The terms cooperative learning and group learning are often used interchangeably, yet the former comprises a more robust structure and includes features that are not present in the latter. Simply placing students into groups and requiring them to work together does not necessarily promote cooperative learning (Gillies, 2003). Rather, to be assured

that a cooperative learning environment exists, groups must be structured in such a way that group members understand the need to co-ordinate activities to facilitate one another's learning (Johnson and Johnson, 1990).

A number of essential elements must be present and certain objectives must be realised if the learning environment is to achieve cooperative learning status. These factors include positive interdependence, individual accountability, face-to-face interaction, social and small group skills and group processing (Johnson and Johnson, 1987; Johnson *et al.*, 1991). The instructor can achieve positive interdependence by structuring the group task in such a way that group members are dependent on each other and have a vested interest in working together to successfully complete the task. Individual accountability is attained when the instructor includes a mechanism in the cooperative learning structure for holding group members accountable for mastering the material and completing the group task. This can be achieved by conducting individual tests or requiring students to indicate that they have contributed to a group assignment by signing the group work. The instructor should also encourage face-to-face interaction within the group so that members engage in verbal interchanges. This might be achieved by requiring group members to challenge one another's point-of-view, discuss concepts being learned and share knowledge. The group experience should ensure that students are given the opportunity to achieve or improve social and small group skills such as leadership and oral communication. When compared with simple group learning, cooperative learning places greater emphasis on mastering these skills by incorporating their definition, practice, assessment and refinement into its structure (Johnson *et al.*, 1998). Finally, group processing involves the instructor encouraging students to analyze their own performance as well as that of their team members in terms of how well they are achieving their goals and maintaining effective working relationships. This analysis is facilitated by formative feedback from the instructor and group members.

The above description illustrates the important facilitating role played by the instructor in creating a successful cooperative learning environment. Indeed, this is one of the salient features of cooperative learning which distinguishes it from simple group activity (Cuseo, 1992). The instructor's role is key in three respects, namely group formation, management and assessment. While the current study presents these three aspects of cooperative learning in an academic setting, their relevance is not restricted to academia. In the case of group formation and management, the guidance provided in this study is also applicable when training staff to work effectively in teams within the workplace. With respect to group assessment, it is the authors' contention that students' academic experience of group assessment issues such as dealing with free riding will help enhance their understanding of the need to cooperate with team members in the workplace. A discussion on each of these three aspects of cooperative learning is presented in the following section.

Group formation
The first key issue to address when adopting a cooperative learning approach is group formation, the choice being between self-selection and intentional group formation. Self-selection is attractive to students but does not guarantee the diversity of perspectives and abilities within a group, which are necessary in a cooperative learning environment (Lejk *et al.*, 1999; Stein and Hurd, 2000). Indeed, self-selection may result

in the better students getting together to form groups while the weaker students are left to struggle (Gibbs, 1995). Moreover, self-selection, with friends choosing friends, can lead to a lack of discipline within groups (Lejk *et al.*, 1999). Cuseo (1992) recommends that groups in a cooperative learning environment should be formed by the instructor on the basis of any of the following: namely academic achievement, students' learning styles, personality profiles, ethnic or racial backgrounds, geographical backgrounds, age, class standing, gender or a combination of these criteria. Moreover, intentional group formation is more representative of a real-world situation where individuals usually have little say in selecting the people with whom they work.

Another issue to consider with respect to group formation is group size. Advocates of cooperative learning argue that group size should remain small, ideally three or four members (Gillies, 2003; Oakley *et al.*, 2004), so that there is sufficient diversity of opinion and experiences without the group becoming unwieldy and difficult to manage. Groups composed of five or more members, apart from being more difficult to coordinate, may inhibit the less forthright students from expressing their opinion (Oakley *et al.*, 2004) and give rise to the possibility of "social loafing", a common consequence of group work which is addressed later in the paper.

Group management
Once groups have been formed and group members identified, the next issue to address is group management, including instructor involvement. Group management is essential as "students are not born with the project management, time management, conflict resolution and communication skills required for high performance teamwork" (Oakley *et al.*, 2004, p. 9). In the absence of effective group management dysfunctional groups may emerge and produce a learning environment, which is inferior to that of individualistic learning. To address this potential problem, the instructor should act as a facilitator helping students develop social and small group skills and to deal with any contentious issues that may arise in the course of the group work. He or she should encourage group members to establish a common set of expectations of one another's role before any group work actually begins. These expectations should include group responsibilities, such as preparation for and attendance at group meetings, making sure everyone understands all the materials and communicating frankly but with respect when conflicts arise (Oakley *et al.*, 2004). This memorandum of understanding should be prepared in written form with each group member signing it to indicate acceptance of these expectations and his or her intended compliance. It is important that all of the group members take collective responsibility for the contents of the memorandum of understanding.

Meeting regularly over an extended period of time provides members with an environment within which face-to-face interaction, social cohesion and group identification can develop (Tuckman and Jensen, 1977). This is a feature of cooperative learning that enhances skills development and distinguishes it from other forms of small group work (Cuseo, 1992). Continuity of group interaction also facilitates group processing as group members are given time to assess their own and other members' performance in terms of achieving goals and maintaining effective working relationships.

Assessing the group task

Another key issue in developing effective co-operative learning is the method of assessment applied to group output. Some proponents of cooperative learning argue that individual accountability can only be achieved when group members are graded on individually completed tasks even though they have worked together as a group (Cuseo, 1992; Cooper *et al.*, 1994; Slavin, 1996). However, others advocate a single group grade as they consider individually completed tasks to be contrary to the ethos of group work in which members collaborate as a unit and should be judged as a unit (Lejk *et al.*, 1999).

While there is no doubt that group grading upholds the group ethos, it can be problematic when members do not contribute equally to the joint task (Cottell and Millis, 1994). Indeed, according to the theory of social loafing, the very nature of working in groups is such that each individual within the group contributes less than he or she would contribute working alone (Latané, 1981). The social loafer may be perfectly willing to contribute to the group but is prevented from doing so because he or she feels increasingly intimidated as group membership grows in size (Latané *et al.*, 1979). However, this phenomenon can be controlled by limiting group size and increasing accountability among group members.

A more opportunistic form of social loafing is free-riding, namely "the problem of the non-performing group member who reaps the benefit of the accomplishment of the remaining group members with little or no cost to him/herself" (Morris and Hayes, 1997, p. 3). However, problems of free-riding may be able to be resolved with exceptional tutor intervention (Mello, 1993). Mello (1993) recommended that students keep notes about the group process and identify instances of non- or unequal contribution to the group assessment. The tutor reserves the right to penalise the free rider by reducing the group mark awarded to him or her. This concept of students reflecting on individual contributions to the cooperative effort can be made more formal by requiring group members to record their experiences and reflections in a learning log. Apart from providing an opportunity to identify free riders, the discipline of maintaining a learning log forces students to take responsibility for their learning (Jensen, 1987). Considering relative contribution, and in particular, reviewing the lack of effort made by free riders may help students confront the type of problem that they may encounter in real-life.

Finally, individual accountability may be achieved by assigning a group grade and identifying students' individual contributions to it through peer assessment. However, while peer assessment may offer benefits such as identifying individual contribution and enhancing critical thinking skills (Boud, 1989), the potential for peer assessed grades to cluster around an average (Hughes and Large, 1993; Freeman, 1995) and for students to feel uncomfortable about criticising their colleagues (Williams, 1992) has led some educators to question its validity (Goldfinch, 1994).

The above discussion has highlighted the important role of the instructor in terms of group formation, group management and assessment. However, whilst the instructor has a pivotal role to play in a cooperative learning environment, he or she should exercise care to ensure that his or her role does not become too influential or authoritarian. After all, cooperative learning is student-centred learning with leadership being one of the key small group skills that it seeks to foster. The presence of a dominant instructor would undermine this objective.

Background to study

Cooperative learning was incorporated into a final year, single semester, auditing course at a British university to improve students' generic skills and thereby equip them for a career in professional accountancy. The auditing course forms part of the accounting degree conferred by the university. This degree, in turn, is accredited by the main UK accountancy bodies. Since, on average, 85 per cent of the accounting graduates from this university embark on a career in accountancy, this degree could be deemed vocational.

Following recommendations in the literature, cooperative group formation was based on ability, with more and less able students represented within each group of four students. The criterion was selected as the authors were keen to discover whether there were any differences between the more able and less able students' experiences of cooperative learning. Students' marks for a pre-requisite accounting course were used to classify them as "more able" (scoring more than 60 per cent) and "less able" (scoring 60 per cent or less) and this criterion was then used to ensure a representation of mixed ability in each group.

Applying the guidelines established by Oakley *et al.* (2004), the instructor of the auditing class identified the following roles for each group and asked the members to nominate a representative to each role:

- *Facilitator* – structures and assists group discussions, summarises, draw conclusions and identifies further work to be carried out;
- *Coordinator* – keeps the group members "on task" and makes sure that everyone is involved;
- *Recorder* – maintains a record of proceedings; and
- *Monitor* – ensures that all members of the group understand the materials covered.

To ensure continuity of group interaction throughout the period of group formation, the group members were asked to agree an outline schedule of dates and times when it would be convenient for them to meet. In addition, prior to the commencement of the group work, groups were also required to derive a common set of expectations or guidelines for effective group functioning, which together formed a memorandum of understanding. It was recommended that group members should not devise unrealistic expectations such as "never missing a meeting", so that they were not put under undue pressure and would not become discouraged (Oakley *et al.*, 2004).

The auditing instructor devised a learning task, which involved students working in cooperative learning groups to research and write an essay of between 2,500 and 3,000 words on the subject of UK regulatory bodies' reaction to major corporate scandals such as Enron and WorldCom. The potential mark for this work was 25 per cent of the final mark for the course. Since the group members would be cooperating as a unit in researching the topic, it was decided that they should also be judged as a unit with each group's essay being jointly prepared and summatively assessed. This approach concurs with the view that preparing individual pieces from group work is contrary to the cooperative ethos (Lejk *et al.*, 1999).

The instructor addressed the problem of potential free riding on a number of levels. First, the nature of free riding was discussed openly in class where it was deemed

unethical. It was also made clear that the instructor reserved the right to award no mark to a student identified as a free rider. Second, students were encouraged to report any instances of free riding directly to the instructor who would investigate the allegation in confidence. Third, students were asked to maintain a learning log, which would provide the opportunity for them to reflect on their individual contributions to the cooperative effort as well as allowing them to identify instances of free riding. This learning log was submitted in a sealed envelop ahead of the assignment being marked to provide the instructor with an opportunity to investigate allegations of free riding.

Methodology
Data were collected by administering a questionnaire during the final week of the auditing course, just ahead of the assignment submission date. The questionnaire was designed to elicit students' views on the extent to which they felt cooperative learning had enhanced their generic skills development. To achieve this they were asked to apply a five-point Likert scale, ranging from (5) representing "strongly agree" through to (1) representing "strongly disagree" to a series of statements designed to determine their perceived level of skills enhancement. Prior to distribution, students were informed of the purpose of the study and were assured that the results would be used for research purposes only. Usable responses were obtained from all of the 51 students present. This represented 86 per cent of the students enrolled for the course. A Chi-square test was carried out to test for self-selection bias between students who were present at the lecture and those who were not. The statistical significance of the difference in the discrete variable (gender), between the two groups, was tested. No significant difference was found. The hypothesis that the two groups have been drawn from the same population cannot be rejected ($\alpha = 0.05$).

The data collected were classified according to "more able" students and "less able" students. This reflected the criterion used to form the cooperative learning groups and enabled the researchers to determine the appropriateness of using mixed ability groups in an accounting context. These data were analysed using descriptive statistics and Mann-Whitney U (M-W U) tests (Table I).

Discussion of results
Table I sets out the students' mean responses and the Mann-Whitney U test statistics of their attitudes to cooperative learning, classified according to academic ability. The mean responses regarding students' attitudes (for both the more and less able students) towards cooperative learning enhancing their generic skills are well above average (i.e. 2.5). These responses are encouraging as they would appear to demonstrate that students found the cooperative learning approach beneficial in terms of developing a number of skills which are viewed as necessary for a successful career in accountancy. It is reassuring that students, for whom graduation is imminent, found the cooperative learning experience beneficial in terms of developing skills which will equip them for the workplace and lifelong learning. When the responses for the two groups are compared, the less able students returned higher means than their more able colleagues in all of the skills bar one, i.e. leadership skills. These differences might reflect some measure of satisfaction on the part of the less able students in benefiting from the input of their more able colleagues. With respect to leadership skills, this finding may reflect

Skills development	Mean responses[a]		M − W U test statistics Corrected for ties	
	More able[b]	Less able[c]	Z	M − W sig. (p)
Verbal communication skills	4.15	4.33	− 1.077	0.282
Building and maintaining trust with my colleagues	3.89	4.21	− 1.813	0.070
Leadership skills	4.19	4.08	− 0.524	0.601
Negotiating/persuasion skills	3.93	4.00	− 0.108	0.914
Listening skills	4.07	4.25	− 0.697	0.486
Tolerance of alternative points-of-view	4.19	4.21	− 0.055	0.956
Questioning skills	4.00	4.13	− 0.460	0.646
Conflic-resolution skills	3.59	4.04	− 1.669	0.095
Ability to get along with other people	4.15	4.38	− 1.219	0.223
Ability to debate issues critically	3.96	4.21	− 1.082	0.279
Managing groups	4.11	4.25	− 0.422	0.673
Team building skills	4.07	4.38	− 1.054	0.292

Notes: [a] 5 = strongly agree through to 1 = strongly disagree; [b] Where more able is defined as scoring more than 60 in the accounting examination which is a prerequisite for the auditing module, $n = 27$; [c] Where less able is defined as scoring 60 or less in the accounting examination which is a prerequisite for auditing module, $n = 24$

Table I.
Descriptive statistics of and M-W U tests of differences in attitudes to cooperative learning between more able and less able accounting students

the fact that the more able students' were better placed to take the lead in discussions given their relative proficiency.

These responses were further analysed to determine if the differences in students' attitudes to skills development between the two groups were significant. This was achieved by carrying out a Mann-Whitney (M-W U) test. The results set out in Table I indicate that the differences between the two groups were not significant at the 1 per cent level with respect to any of the skills identified. It would appear that both the less and more able students are equally positive that their generic skills have improved as a consequence of working in a cooperative learning environment.

It is difficult to compare the findings of the current study with those reported in other studies in the accounting literature because of differences in questionnaire design and the level at which the studies are undertaken. Notwithstanding these differences, there are some similarities between the responses given in the current study and those cited in the accounting literature, particularly those related to teamwork. For example, both Berry (1993) and Bourner *et al.* (2001), found that the group work experience was perceived as beneficial by students and it helped them to develop a range of skills across their degree and at first-year level respectively while Tanner and Lindquist (1998) reported positive student attitudes to working in groups within a cooperative learning environment in an intermediate accounting course.

Overall, the responses concerning skills development provide some level of assurance that students, irrespective of their ability, have enhanced their skills development as a result of engaging in cooperative learning. These responses would tend to suggest that the interaction of the groups was generally successful and contributed to the effectiveness of the overall project.

Conclusion

The growing demand among national and international professional accountancy bodies for accounting graduates who possess certain generic skills has led accounting educators to reflect on learning models that best meet this requirement. This paper reports on one such model, namely cooperative learning. It provides evidence that final-year undergraduate students believe cooperative learning to be effective in delivering generic skills within an accounting degree programme. Further, this perceived benefit does not differ significantly between students of differing ability.

Despite the difficulties associated with defining generic skills (see for example, Holmes, 2000, 2001), the orthodox approach adopted in this paper regarding the skills agenda reflects the fact that as a vocational subject, the nature and importance of skills within the field of accounting are well defined (IFAC, 2003). As a result, this goes some way to addressing the criticisms of the skills agenda approach with respect to the framing and classification of generic skills (Cornford, 2005). Therefore, the findings reported here are likely to be applicable to educationalists involved in delivering other vocational degree programmes, such as business studies and computer science, where there is agreement regarding the framing and classification of generic skills within that particular discipline. Moreover, given that the importance of generic skills as an object of public policy has been embraced in a number of countries other than the UK (see for example, Australian Education Council Review, 1991; Hayward and Fernandez, 2004; Stasz *et al.*, 1996; OECD, 2001), these findings should serve to provide insights for educationalists within a number of countries wishing to implement a cooperative learning environment.

However, whilst the results are encouraging, two points should be borne in mind. First, the study reports students' perceptions of the benefits derived from cooperative learning rather than measuring benefits using an objective measure of achievement. Second, there may be some problems associated with group work. For example, a common problem with group work is that members may experience difficulties preparing for or attending group sessions because of other responsibilities. This often arises as a consequence of students taking on part-time employment to help finance their university education, or family commitments, especially among mature students. Further, conflicts often arise as a result of differing work ethics among individuals within the group. With respect to educators implementing a cooperative learning environment, the administrative and opportunity cost implications, in terms of group formation and management, cannot be ignored. Furthermore, the administrative burden placed on the instructor in a cooperative learning environment will inevitably be greatest when larger class sizes are involved. However, notwithstanding the administrative and cost implications of adopting cooperative learning, it is encouraging to note that students in a vocation degree, namely accounting, irrespective of their academic ability, believe that their generic skills have improved as a consequence of its implementation. This focus on cooperative learning is particularly significant in that it reflects the international consensus among "employers, committees considering the future of higher education and the majority of researchers analyzing the connections between higher education and work" that graduates are expected to possess the generic skills which enable them to work in groups (Teichler, 1999).

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Further reading

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