Predictors of the groupwork experience: generic skill development, peer appraisals, and country of residence

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Humphrey et al. (1997) argued that a range of generic skills are important in enhancing the experience of groupwork for students. These skills include problem solving skills, leadership skills, research skills, study skills, and communication skills. However, little is known about the extent to which the development of such skills impact on the students' experience of groupwork. Students are also rarely given opportunities to develop their performance management skills in group assignments, despite often being expected to evaluate the performance of their peers. Those doing the appraisal may not learn how to provide feedback and justify their evaluations. It also means that those being appraised do not receive feedback regarding their strengths and where improvements are needed. As a consequence, students tend to report negative experiences of groupwork when they have to assess and be assessed by their peers. The current study aims to examine the effects of generic skill development and peer evaluation on the students' evaluation of their group experience, following their participation on a group assignment.

We collected our data from 172 undergraduate and postgraduate Business students from a large metropolitan university. Data were analysed using SmartPLS, a form of structural equation modelling. We found that 'country of residence' has an effect on the development of skills including communication, writing, and leadership, with Australian residents reporting lower levels of generic skill development, compared to those students originating from overseas. Australian students are also more likely to report more negative group experiences. Development of generic skills has a positive relationship with positive group experiences for students. A negative relationship with negative group experiences was also found (at $p < .10$ level). Implications are discussed in relation to the training of the skills needed for students to work more effectively in groups, and to appraise their peers.

Keywords: groupwork; generic skill development; positive and negative group experiences; peer assessment.

Introduction

Groupwork is widely recognised to assist student learning, so that when groups work well, students learn more and produce higher quality learning outcomes (Johnson & Johnson, 1989; Slavin, 1980). In particular, reviews of student feedback demonstrate that many students benefit from learning in groups as long as the groups are well managed and there are clear and fair assessment requirements. Where groupwork is assessed,

students say they want a system that gives them every opportunity to receive a high grade that also reflects the level of contribution made by individual students (James, McInnis, & Devlin, 2002). The most common approach to assessing groupwork is to involve the students in deciding how a single group mark is to be redistributed among the other group members (Goldfinch & Raeside, 1990; Cheng & Warren, 2000). This method, often referred to as peer assessment, is usually conducted following the completion of the task with the marks deriving from these assessments then used to adjust the grades given to each group member (Conway, Kember, Sivan, & Wu, 1993). As a result of these adjustments, some students will receive a final score above or below the group average based on the students' assessment of each others' performance (Li, 2001). Although this is a widely used method, it has in the past lead to considerable dissatisfaction if students feel that marks do not fairly reflect individual contribution (Bacon, Stewart, & Silver, 1999). It has also lead to some students developing an overall negative perception of peer assessment. But what of the student experience of groupwork? When forced to assess and be assessed by peers, do these negative perceptions lead to some students experiencing group assignments negatively?

The teaching and learning literature also highlights an issue arising with the influx of international students to Australian universities. The growing enrolment and importance of international students, particularly those from Asia, into postgraduate and undergraduate programs, has presented academics with students having different learning needs, expectations, and attitudes towards various instructional method. Academics often encounter difficulties in teaching international students, most notably those from Asia-Pacific as a result of the impact of cross-cultural differences on teaching and learning methods (e.g., Dunwoodie & Ainsworth, 1999). The integration of these students in a diverse classroom has also resulted in the experience of groupwork varying considerably. In short, it is clear from subject feedback and Course Experience Questionnaire (CEQ) data that some students report their participation in group assignments to be positive experience (e.g., a reported 'best aspect' on the CEQ). What is less clear, however, is whether these positive group experiences are being reported by local or international students. It is also not clear why some students, even in the same class, perceive the groupwork assignment differently. Group dynamics obviously play some part in the development of this experience. So too may the development of generic skills, but this link has received little empirical attention in the literature to date.

Next, and closely related to above, the literature highlights the importance of students developing a suite of generic skills as part of their university studies. These skills include a number of micro-type social skills such as active listening and verbal communication skills (Morgan, 1997). They also include a number of higher-order skills specifically related to operating in semi-autonomous work configurations, such as self-management work teams (Humphreys, Greenan, & McIlveen, 1997; Lewis, Aldridge, & Swamidass, 1998). These teaming skills cover development in areas such as leadership, role flexibility, conflict resolution, and group decision-making (Holmer, 2001; Kolb, 1999). Students are also expected to have developed these skills as part of their participation in group assignments. Indeed, the development of these skills is often one of the major reasons for why students are set mandatory group assignments in university settings. There are, however, a number of unknowns still associated with the policy of setting mandatory group assignments. Of these, one concerns whether the resultant outcome is the perception of skill development; another concerns the related question of whether the perceived development of generic skills is associated with the student's group experience. Anecdotally, students seem to report favourable group experiences with the development of skills. This link, however, still needs to be established empirically.

Finally, the literature suggests that students should be trained in order to work effectively in groups. Scholars have argued for conducting training in team skills prior to students engaging in group assessment tasks (Chen, Donahue, & Klimoski, 2004). Others argue that training in team skills will better prepare students to conduct peer evaluations in groups. This issue of training has also received little empirical attention in the literature. As such, much is still to be learned about the effect that training may have on the student's ability to appraise their peers; particularly whether prior training results in the further development of skills, a more favourable attitude held towards the evaluation of one's peers, and a more favourable group experience.

From the issues raised above, it is evident that groupwork in university settings is complex. It is also evident that some of these issues appear related to each other. But which ones and how strong are these

relationships? The purpose of this study is to answer these questions by attempting to explore some of the links. As an overview, the links or paths existing between six main variables will be explored in this study, and these links will be examined using path analysis. As shown in Figure 1, these variable are (1) Positive Group Experience, (2) Negative Group Experience, (3) Attitude Towards Peer Assessment, (4) Prior Training, (5) Development of Generic Skills, and (6) Country of Residence. As can also be seen in Figure 1, the proposed paths existing between these six variables are given, and these paths derive from the literature reviewed above.

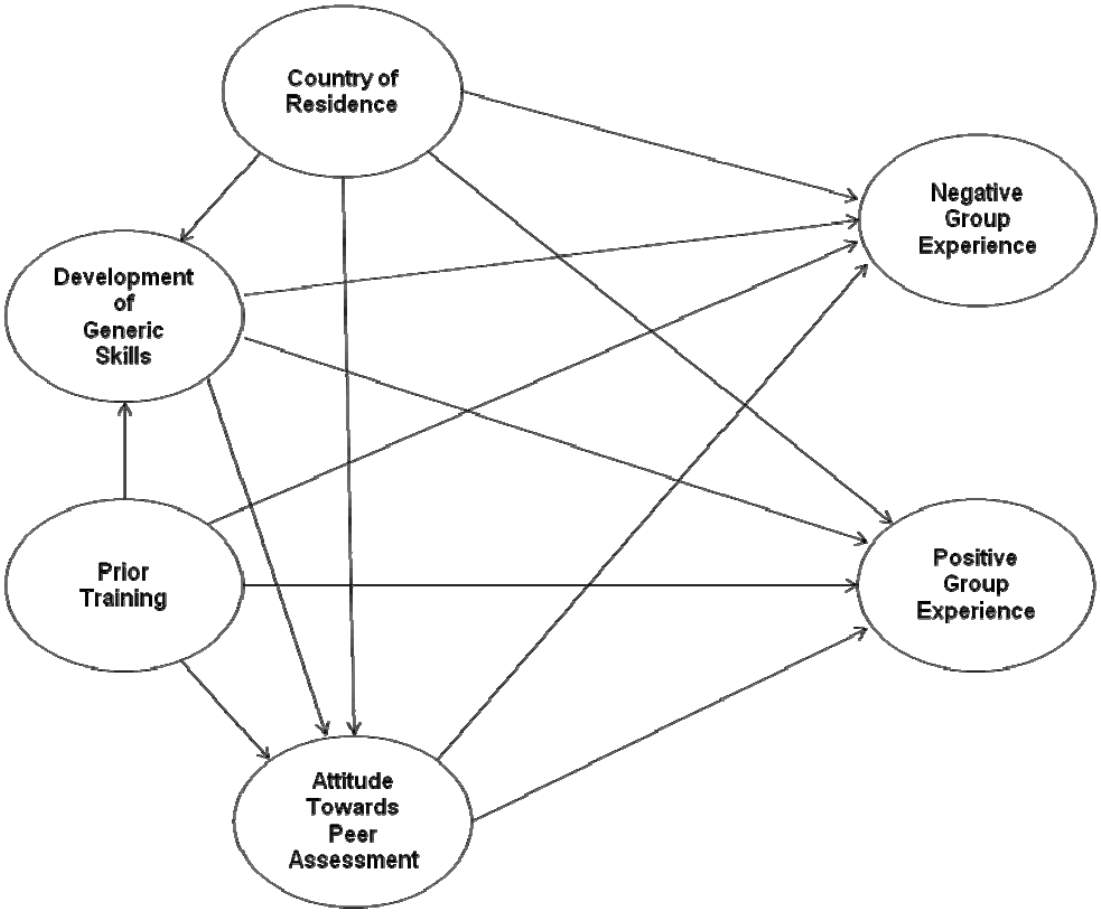

Figure 1. Proposed path model

Methods

To explore our path model, we collected our data from 172 undergraduate and postgraduate Business students from a large metropolitan university in Australia (53% women, 90% studying full-time). A self complete questionnaire was distributed by two of the authors during class time. Students were reassured that the data were anonymous and confidential. Data were analysed using *SmartPLS* (Ringle, Wende, & Will, 2005), a form of structural equation modelling. SmartPLS, a latent path model, is a technique used for estimating path coefficients in causal models, with the software allowing for the estimation of multiple paths.

Model estimation

In Partial Least Squares (PLS), the path coefficients are standardized regression coefficients; the loadings are similar to factor loadings. The significance of each variable to another is then determined according to the bootstrap procedure. PLS differs from LISREL, as it is suitable for the analysis of small samples, whereas the latter requires substantially larger samples. Another advantage of using PLS over LISREL is that PLS does not require multivariate normal data (see discussion in Lee & Tsang, 2001). Furthermore, PLS is

considered to be appropriate in building causal modelling for future testing purposes. Our sample size of 172 cases is within the range considered to be suitable for PLS analysis; that is between 30 and 100 cases (Chin & Newstead, 1999, p. 314).

Following Ringle et al. (2005), we assessed the significance of the PLS parameter estimates by using the Bootstrap option incorporated within the SmartPLS software. The bootstrapping procedure is carried out to provide extra confidence that the results are not sample specific by using repeated random samples drawn from the data. In this instance, the bootstraping procedure was repeated until it reached 500 bootstrap samples. Furthermore, comparison of these reliabilities with the inter-construct correlations display adequate discriminant validity as the square root of the average variance extracted for each construct is much larger than its correlation with any other construct.

Measures

To examine the proposed model shown in Figure 1, we adopted the following scales from the literature:

Country of residence. Students were asked to self report their country of residence, where '1' = Australia and '0' = other country. Of the 164 students who completed this item, 42% reported Australia as their country of residence.

Prior training. To examine the effect of prior training on the skills required for effective groupwork, we asked the respondents to indicate if they had received any training to work in groups. This is consistent with the literature (e.g., McGraw & Tidwell, 2001), with students responses to this dichotomous item coded '1' = yes and '0' = no.

Development of generic skills. Following Humphreys et al. (1997) we used 11 items to measure students' perceived development of a number of generic skills through their participation in a group assignment (e.g., problem solving skills, leadership skills, research skills, study skills, communication skills, time management skills, peer assessment skills, and self-assessment skills). Each item was rated on a 5-point Likert-type scale with the anchors of 1 = *Not at all* and 5 = *Considerably*. This construct, a reflective construct in PLS, has a composite reliability coefficient of .92, with higher scores reflecting higher levels of perceived skill development.

Attitude towards peer assessment. We used two items to operationalise the attitude students hold towards peer assessment. These items, both adapted from Humphreys et al. (1997), were 'I felt uncomfortable about assessing other groups' and 'I resented being assessed by other students.' Both items were rated on a 5-point Likert-type scale with the anchors of 1 = *Strongly disagree* and 5 = *Strongly agree.* This two-item construct, a reflective construct in PLS, has a composite reliability coefficient of .82, with higher scores representing higher levels of a *negative* attitude towards peer assessment.

Positive and negative group experiences. The literature on groupwork shows that students have both positive and negative group experiences. To operationalise the positive group experience, we adapted five items from Humphreys et al. (1997). These items, including 'I learned more through interaction with others' and 'The groupwork sessions helped me to learn,' were rated on a 5-point with the anchors of 1 = *Strongly disagree* and 5 = *Strongly agree.* This five-item construct, a reflective construct in PLS, has a composite reliability coefficient of .89, with higher scores representing a more positive groupwork experience.

To operationalise the negative group experience, we adapted four items from Humphreys et al. (1997), including 'I would have learned more working alone on this project' and 'The groupwork assignment in this subject limited my potential.' This construct was also rated on a 5-point Likert-type scale (with the anchors of 1 = *Strongly disagree* and 5 = *Strongly agree*), and was, again, treated as a reflective construct in PLS. The composite reliability coefficient of this construct was .89, with higher scores representing a more negative groupwork experience.

Findings

PLS analysis showed five significant paths. As shown in Figure 2, we found that 'Country of Residence' has a negative and statistically significant path to 'Generic Skill Development' (path coefficient = −.286, *t* statistic = 2.924, $p < .01$). There is a positive and significant path leading from 'Country of Residence' to the 'Negative Group Experience' construct (path coefficient = .187, *t* statistic = 1.963, $p < .05$). The path from 'Attitude Towards Peer Assessment' to 'Negative Group Experience' is positive and statistically significant (path coefficient = .370, *t* statistic = 3.714, $p < .001$). The path from 'Development of Generic Skills' to 'Negative Group Experience' is negative and statistically significant (path coefficient = −.221, *t* statistic = 2.110, $p < .05$), and positive to 'Positive Group Experience' (path coefficient = .640 *t* statistic = 6.238, $p < .001$). There are no training effects in the model. Overall, the model explains 24.1 percent of the 'Negative Group Experience' and 47.1 percent of the 'Positive Group Experience.'

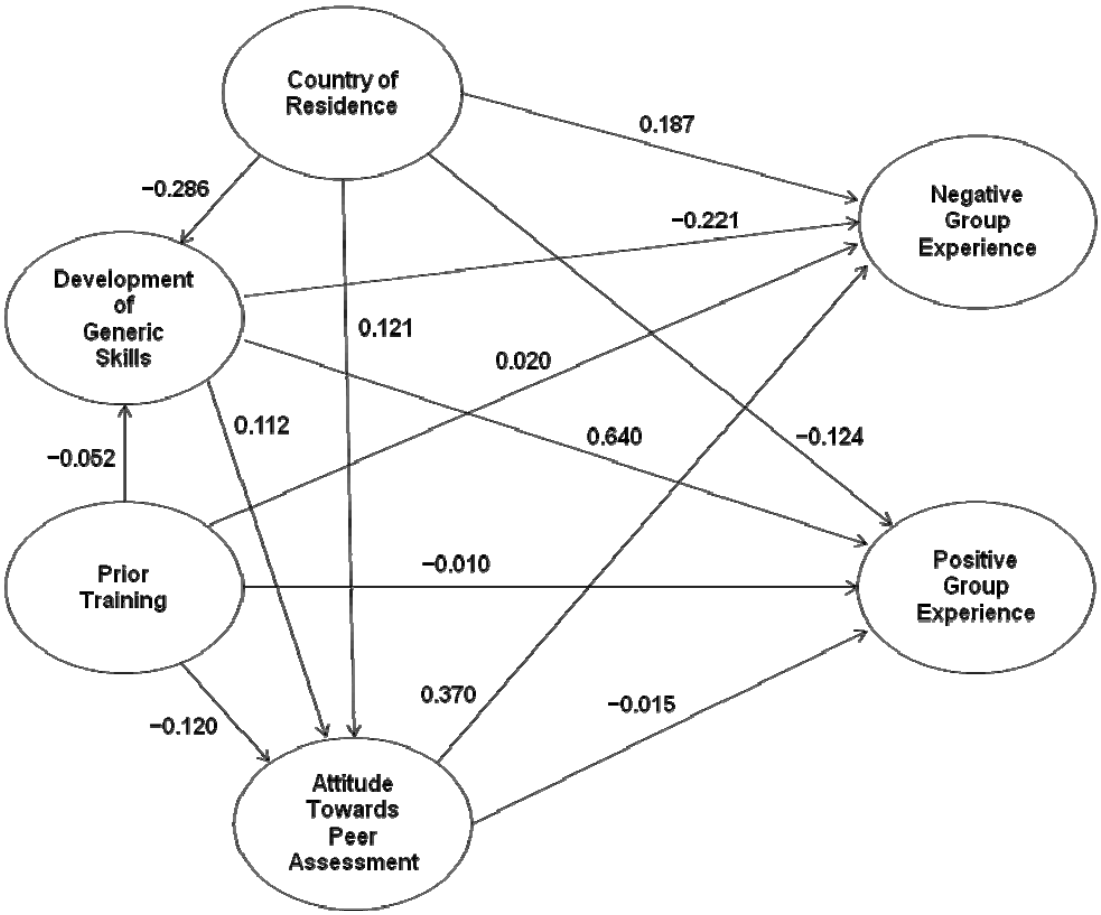

Figure 2. Path model with coefficients

Discussion and implications

The main aim of the current study is to examine some of the paths leading to the positive and negative group experience. Data collected from 172 Business students, who have recently completed a major group assignment, showed that students' country of residence (Australia versus outside of Australia) related significantly to their perceived level of generic skill development. We found that those students who reported their residency as Australia reported lower levels of perceived skill development. We also found that these Australian-resident students reported more negative group experiences. Non-Australian students (or international students), in contrast, reported lower levels of negative group experiences. This finding is consistent with the International Management literature where Asian students (the majority non-Australian in this sample) were from a collective background, and are comfortable with working in groups (e.g., Hofstede, 1984). These non-Australian residents also reported higher levels in the development of their generic skills through their participation in their group assignment.

Consistent with the literature, we found that students, who viewed peer assessment negatively, had a tendency to report more negative group experiences. A major limitation in allocating marks among individual students based on student's perceptions of their contribution to the final product is that in the classroom context, it does not reflect authentic group assessment processes and procedures currently in use in business and industry. The two items used to operationalise peer evaluation attitudes in the current study reflect students' unease in assessing and allocating marks to other students. This finding suggests that academics interesting in implementing a peer and self evaluation technique should consider how this technique has a negative impact on students' motivation to work in groups. One of the ways of solving this issue is to conduct appropriate training similar to performance management techniques used in industry.

Strategies that rely on the reallocation of marks may minimise student complaints, but they do nothing to indicate whether students possess the qualities sought by employers. Although students are given the opportunity to develop a number of work-based transferable skills through their participation in group assignments, they are currently given few chances to develop the performance management skills they are likely to use in the workplace. Performance management is a broad term covering a range of practices related to the evaluation of performance goals. It is primarily one where employees are expected to be appraised by their superiors and peers on criteria such as their ability to meet goals and performance targets. It is also one where employees are often expected to play the role of the appraiser, and provide feedback on the performance of their peers and superiors (e.g., through 360 degree feedback sessions).

Despite being a widespread practice in industry, students are rarely given opportunities to develop their performance management skills at university. Although students obviously manage each other's performance (e.g., through persuasion or peer-pressure), and give some feedback (e.g., giving praise, disagreeing), these are not formalised activities. Further, although students are often expected to evaluate the performance of their peers, this is often a quantitative process performed by students anonymously with no feedback given back to the appraisee. This means that those doing the appraisal do not learn how to provide feedback and justify their evaluations. It also means that those being appraised do not receive feedback regarding their strengths and where improvements are needed. Although mark allocation schemes serve an important administrative function, albeit poorly most of the time, they currently do not have authenticity of performance management, which would ensure its relevance to the workplace. This means that students learn little from the process which would enable them to demonstrate that they possess the work-ready capabilities valued by employers.

Research into groupwork effectiveness (e.g., Teo, 2004; Teo, Paul, & Douglas, 2006) has shown that peer evaluation is an important factor in achieving groupwork effectiveness. However, in this research by Teo and colleagues, students were not properly trained to conduct self and peer evaluations, unlike organisational settings, where HR departments provide training to supervisors and employees in conducting performance appraisal in order to enhance the validity and reliability of the performance management process (e.g., De Cieri & Kramar, 2005). Future research should identify the most appropriate mechanism for conducting self and peer evaluations in the classroom context, especially if the call is for students to complete authentic assessment tasks during their tertiary studies. For instance, according to the literature on performance management (e.g., De Cieri & Kramar, 2005, p, 328), an organisational-based performance management model must achieve the link between organisational strategy, individual attributes (e.g., skills and abilities), situational constraints (e.g., organisational culture), and individual behaviours to achieve the desired objective outcomes. To what extent these various features are considered to be suitable and appropriate in the classroom context must be explored and evaluated.

There may be some common features existing between the organisational and classroom context. For instance, the implementation of performance management requires appraisees and appraisors to possess the appropriate skills and abilities in conducting performance appraisal. These skills and abilities are common for both organisational and classroom contexts. For instance, communication skills and ability to conduct a fair and equitable performance appraisal are deemed to be important for group assignments (Teo et al., 2006). These two specific skill sets have also been shown to be critical for effective performance appraisal in an organisational context (De Cieri & Kramar, 2005, p. 328).

Our study has another implication in relation to the development of group skills in designing group assignments. Contrary to the literature on the skills essential in effective groupwork (e.g., Humphreys et al.,

1997), and the importance of conducting team skills training prior to students engaging in group assessments (Chen et al., 2004), we did not find any support for the relationships between prior training in team skills and students' attitudes towards peer assessments. This finding implies that academics may need to consider the delivery of specific skill-based learning outcomes in the design of their group assignments. Students have to see the relevance of what they learn in group assignments, particularly how this learning relates to their participation in bona fide work teams.

Our findings should be interpreted with care. In future, there should be a time lag in collecting the data for independent and dependent variables. This would reduce the potential of common method bias. Sample size is another potential issue of concern. Although the sample size is more than sufficient for testing the proposed path model, future studies should consider increasing the sample size in order to enhance the generalisability of the findings. The study should also be replicated in another institution that has different diversity levels in their classes. Classroom diversity may have an influence on how students work in diverse teams.

In conclusion, the current study sheds more light on some of the key variables contributing to students' positive and negative experiences of groupwork. We found that Australian students (or those with Australia as their country of residence) are more critical in their reporting of their improvement in generic skills after the completion of a group assignment. We also found a strong relationship existing between the development of generic skills and a more positive group experience by students in this sample.

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