An exploratory study into attitudes towards teamwork in the workplace and in the academic environment

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ABSTRACT

Teamwork is becoming an increasingly important skill to have within the workplace. Employers are looking to take on students who can work efficiently and effectively within teams. For this reason, students must partake in teamwork as part of their studies to better prepare them for the workplace. As attitude is an important predictor of behaviour, students who have a positive attitude towards teamwork are more likely to work well within groups. There are many different factors which affect attitudes towards teamwork, and attitudes may also vary depending upon the environment teamwork is being used in.

A questionnaire was administered to students regarding their attitude towards teamwork in university and in the workplace. Results showed that students have a more positive attitude towards teamwork in the workplace than the academic environment. Males have a more positive attitude towards teamwork than females. A conventional content analysis showed that some of the factors that affect attitudes towards teamwork include free-riding and the nature of the task. The research will benefit both instructors of teamwork tasks and future employers. Future research should look into factors such as the length of time a group is maintained for.

KEY WORDS: ATTITUDE TEAMWORK STUDENTS WORKPLACE UNIVERSITY
Introduction

“To remain innovative and competitive, businesses are looking for employees who can work and learn effectively in teams” (Gardner & Korth, 1998, p.1). This has led to increased importance being put upon teamwork skills within education to better prepare students for the workplace. As these are both two very different environments it is important to understand that people may have different attitudes towards teamwork within the different situations.

Phaff and Huddleston (2003) noted that in the business world, having the ability to collaboratively write, create and manage tasks is becoming much more important. This increase in collaborative work means that if students are taught how to work well in groups before they enter the workplace they will encounter less problems working with people they may not know very well. They will also have been given the opportunities to gain the knowledge needed for overcoming any issues that may arise from working as a team. If students leave education with a positive attitude towards teamwork they are more likely to engage well with teamwork in the workplace to successfully achieve set goals.

Tuckman and Jensen (1977) found that as a team develops the members become concerned with resolving interpersonal conflicts and task activities. This is true of both workplace teams and student teams. In order for a team to be successful, it is important that members are able to work well together and get along with each other. If team members have good personal relationships with one another, they may find it easier to resolve problems such as ‘social loafing’ (Mello, 1993). This happens when a member of the group is not putting in the same amount of effort as the other members. They may fail to turn up to meetings and not contribute to the completion of a task. This can cause both students and those in the workplace to have negative experiences of group work.

Some advantages of working within a team are ‘persistence when facing adversity, willingness to perform difficult tasks, ability to translate knowledge from one task to another, greater social skills, and intrinsic motivation’ (Pfaff & Huddleston, 2003). Cooperation has also been seen to have an impact upon self-esteem by increasing it. All of these factors make group work beneficial within education. Creating higher levels of self-esteem in students may also impact their personal lives encouraging them to interact with others and offer their own insight and opinions to different areas of the course they are studying. Once students have left university for the workplace they may feel as if they are able to offer their own ideas and contribute to the business giving the individual a sense of job satisfaction if they know their ideas are valued.

Smith (as cited in Berge, 1998, pp.195-196) stated that ‘the sum of the whole is more than the potential sum of its members’. This suggests that when working in a team the outcome produced is of higher standard than that which could be produced individually. Smith highlights four main types of traditional learning teams; these are ‘pseudo-learning’; ‘traditional classroom’; ‘cooperative’; and ‘high-performance cooperative’. When looking at the environments that group work is used within, there are two main types, which seem most relevant. Within a ‘traditional classroom’ learning team, members are assigned to a group and must accept who they are
working with. They believe their efforts are to be marked individually and that they work solely to gain knowledge from one another. This mentality can cause conflict within the group and problems of social loafing.

The types of learning group normally found within the workplace are high-performance cooperative groups. In cooperative groups, members hold themselves and each other accountable for producing high quality work; they aim to accomplish work that is beyond their own individual achievement. The group look at how well members are working together and how effectively they are achieving their goals. What then makes this a high performance cooperative group is the level of commitment the members have to the groups’ success and to one another. Learning types can be used by instructors to structure teamwork tasks in a way which will improve the individual’s ability to work with others and how well they complete group tasks.

Classroom instructors assign students group work tasks to enhance their content-related learning and teamwork skills (Chapman et al, 2010). These skills can be enhanced and transferred to the workplace. The instructors have a responsibility to teach students teamwork skills and to provide an overall mark which reflects how well the team has worked together and completed the set task. Page and Donelan (as cited in Aggarwal & O’Brien, 2008) believe that instructors should teach students the effects that personality can have on team dynamics. If students are taught how to deal with personality clashes, such as students who may be taking over the work, or those who are not pulling their weight, then they will be able to efficiently and tactfully solve issues without too much inter-group conflict. It has been seen that dominant members of the group prevent others from working to their full potential and inhibit the team from working collaboratively (Johnson & Johnson, 1984-85).

Chapman and Van Auken (2001) say that students have a better experience of assigned team projects when instructors have taught students at the beginning of the course about team processes. It is important that students have a positive attitude towards teamwork as Bacon et al (1999) claims that students’ experiences of teamwork have the possibility to effect a persons’ future preference towards teamwork.

Self managing work teams are now more prevalent within organizations. Members of these teams are given increased control and autonomy over their job tasks (Hackman, 1986; Manz, 1992). If a student is taught the positive results of teamwork they are more likely to have a positive attitude towards teamwork when at work. With teamwork becoming more of a focus within organisations students must be well prepared. Some of the reasons teamwork is used in the workplace are that it improves productivity, quality and morale and reduces costs (Lawler, et al 1992). These benefits are seen in self managing teams who complete their work without an instructor to guide them. If students divide the work themselves or have it divided for them there is the possibility that they will only learn about their own area of specialization (McCorkle et al, 1999). This shows why giving groups autonomy and making sure every member is included is important. When all members are included equally there is the opportunity to learn new skills from one another. Boyer, Weiner, and Diamond (1985) have found that working in a team provides students access to
many different working, writing and learning styles. This allows students to gain a better understanding of specific course concepts and of collaboration in general.

Evaluation of teamwork is an important factor when it comes to students attitudes towards teamwork. Feichtner and Davis (1984) found that not including peer evaluation in the overall grade can adversely affect students’ attitudes towards teamwork. This may be because they feel their efforts cannot be graded properly by someone who hasn’t been involved with the group processes. Feichtner and Davis also found that if team performance does not affect a student’s grade, or affects it only minimally, then students are more likely to report a negative experience of working within a group. If the group processes are not deemed to be important with regards to the final grade there is less motivation within students to get to know other team members and make a team work effectively, resolving inter-group conflicts. If team performance is not considered to be important with regards to the overall task goal then when working collaboratively in the workplace students may not have been taught skills on how to work well with others including things like, sharing the work load and delegating specific tasks to certain members.

Positive experiences of teamwork can reduce the chance of interpersonal conflict within teams and creates a more favourable learning environment; this enables students to focus on the actual task rather than on the group dynamics (Pfaff & Huddleston, 2003). An individual’s attitude towards teamwork can also impact upon GPA (Freeman, 1996). If teamwork is an important part of a student’s chosen course then having a positive attitude towards teamwork should influence their grade. Collaborative learning has also been found to increase individual achievement more than competitive or individual learning (Johnson, Johnson & Smith, 1998). Attitude may also impact upon the scores received in each type of work.

It is important that students and employees are provided with a physical space in which they can work effectively within a team. ‘Many universities now provide physical spaces for students working on collaborative tasks’ (Epsey, 2008). Student’s attitudes improve with the physical ease of communication with other members. This is also an important factor within the workplace as, if teams are given a space in which they can work easily and communicate freely then they can complete the task more effectively and to a better standard.

Beigi and Shirmohammadi (2012) also found that males have a more positive attitude towards teamwork than females. They conducted a study on Iranian students’ attitudes towards teamwork and found that ‘students worry that teamwork evaluation ignores their fair share and that other members poor performance may diminish the performance evaluation of all members’ The main findings of the study indicated that Iranian students perceive the environmental facilities at their universities as non supportive. Physical space at their universities does not facilitate teamwork well and instructors do not allocate time in class to team activities. A supportive environment that facilitates teamwork and provides time and space for group tasks may reinforce positive attitudes towards teamwork.

The fact that males have a more positive attitude towards teamwork may be due to the Islamic regulations within education in Iran. One of the conclusions reached in the study was that there was no significant difference between those who have
received previous teamwork training and those who have not. Taking this into account it is important to see if there is a significant difference between the workplace and the academic environment with regards to previous teamwork training. Developed from the previous literature on attitudes towards teamwork, 11 research questions have arisen. These are:

1. Do students have a more positive attitude towards teamwork in the workplace or in the academic environment?
2. Do students have higher concerns about teamwork evaluation in the workplace or in the academic environment?
3. Do students perceive environmental facilities to be more supportive in the workplace or in the academic environment?
4. Do students consider teamwork to be more important in the workplace or the academic environment?
5. To what extent do demographic characteristics such as gender, degree, and current working status affect attitudes towards teamwork?
6. To what extent does having previous teamwork training affect attitudes towards teamwork in the workplace and in the academic environment?
7. Do students perceive teamwork to be useful or not useful at university?
8. Do students perceive teamwork to be helpful or unhelpful at university?
9. Is there a relationship between the four constructs within the questionnaire for each environment (work and university) i.e. attitude, concerns about teamwork evaluation, perceptions of environmental facilities, importance of teamwork?
10. Can attitude towards teamwork at university be predicted from scores of academic achievement?
11. What factors contribute towards students finding teamwork to be useful at university; unhelpful at university and; useful at work?

**Method**

**Design**

A questionnaire was constructed to look at attitudes towards teamwork within both the academic environment and the workplace respectively (Appendix 1). The dependent variables (DVs) are attitude, concerns about teamwork evaluation, perception of environmental facilities and importance of teamwork. The independent variables (IVs) are scores of academic achievement, gender, degree, current working status, previous teamwork training, teamwork to be considered useful and teamwork to be considered helpful. Analysis will incorporate t-tests, analysis of variance (ANOVAs), correlations, regression and content analysis of open-ended questions.

**Rationale**

The use of questionnaires allows collection of a large amount of data which represents the general population within a short time period (Coolican, 2009). Using a survey method allows a large sample to be collected. Launching the questionnaire via an internet platform is time and cost effective and means that the questionnaires can be easily distributed to a wider range of participants. Posting the questionnaire
on social networking sites and forums is a fast and effective way to reach a target audience. Since the participants in this study are students it makes sense to promote the questionnaire online as 95% of teenagers use the internet (Lenhart, 2005). For the questionnaire itself Likert-type scales were used as they are a common method used to measure attitude and provide ‘a range of responses to a given question or statement’ (Cohen et al 2000).

Participants

For the final questionnaire 94 participants were gained via opportunity sampling (M=22, F=72). The questionnaire was created on survey monkey and the link was published on ‘Facebook’, ‘Twitter’ and various threads on ‘The student room’ forum website. Using these social networking sites allowed me to collect participants from my specific target audience. Before completing the questionnaire itself participants were presented with a consent page outlining the objectives of the research (Appendix 2). The consent form was created in line with the British Psychological Society ‘code of ethics and conduct’.

Pilot

Before the questionnaire went live online, a paper version (Appendix 3) was given to 8 female participants via opportunity sampling. When the pilot was administered participants were asked to check for coherence and understanding of the questions. The results of the pilot (Appendix 4) allowed me to make sure all variables which affect attitudes towards teamwork were accounted for and any questions which may have needed rewording could be changed before it was administered on a large scale.

Data collection method

The questionnaire is comprised of items regarding demographics i.e. gender, degree; previous teamwork training; scores of academic achievement (previous grades for group work, individual work and previous year of study). Space is then provided for the answers of open-ended questions regarding if participants find teamwork helpful or unhelpful, useful or not useful and space to give details of any previous teamwork training received if applicable.

There are also questions relating to the workplace about if participants are currently working; how many hours are worked per week; length of time at the current job; type of job; job title and also about any previous teamwork training. The same open-ended questions are asked but this time with regards to the workplace.

The main part of the questionnaire is 14 statements, which are to be answered on a 5 point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). The statements are measuring four different constructs. Six of these will measure attitude, four will measure concerns about teamwork evaluation, and three will measure perceptions of environmental facilities. The final measure will look at if teamwork is important with relevance to the degree course or job.

The questionnaire is based on one developed by Beigi and Shirmohammadi (2012) to look at Iranian students attitudes towards teamwork. I have used the same demographics and the statements to measure attitude, teamwork evaluation and perception of environmental facilities. These measures were submitted to reliability
analysis. Cronbach’s alpha values are; attitudes towards teamwork alpha =0.82; concerns about teamwork evaluation alpha = 0.72; perceptions of environmental facilities for teamwork alpha = 0.77. I have then further developed this questionnaire by adding the item to measure importance of teamwork.

For the second part of the questionnaire, the original 13 item questionnaire has been amended so that it can be applied to the workplace and includes the measure of importance. Appropriate questions had to be added concerning variables within the workplace, by doing this there should be no extraneous variables affecting the validity of results. Once the questionnaire was constructed the pilot study was carried out.

Data analysis method

Once all questionnaires were collected in, the responses were entered into SPSS. First, the four constructs (attitude; concerns about teamwork evaluation; perceptions of environmental facilities; and importance of teamwork) were tested for reliability. This was repeated in relation to each environment separately so a Cronbach’s alpha value was recorded for the items regarding the workplace and the items regarding the academic environment. Then the overall means will be addressed for each construct in relation to the environment type.

Related t-tests were used to answer the first four research questions. Two separate mixed 2x2 ANOVAs were conducted to answer research questions 5 and 6. Cross tabulation was also carried out on the variable of previous teamwork training to see if there was an equal ratio of those who had received teamwork training and those who had not in relation to each environment. Research questions 7 and 8 were addressed using related t-tests to look for a significant difference between the means. A correlation analysis was used for question 9 to see how well the four constructs of the questionnaire interact with one another. A multiple regression was conducted to look at research question 10 and finally a content analysis was conducted on question 11.

Because of the limited range of responses gained it was not significant to look at attitudes towards teamwork in relation to age, number of hours worked per week, length of time at current job, job title and type of work. A conventional content analysis was carried out on three of the open-ended response questions. Only three were analysed as the other three did not receive a significant number of responses to justify analysis.

Results

The following research questions (RQ) will be explored:

1. Do students have a more positive attitude towards teamwork in the workplace or in the academic environment?
2. Do students have higher concerns about teamwork evaluation in the workplace or in the academic environment?
3. Do students perceive environmental facilities to be more supportive in the workplace or in the academic environment?
4. Do students consider teamwork to be more important in the workplace or the academic environment?
5. To what extent do demographic characteristics such as gender, degree, and current working status affect attitudes towards teamwork?
6. To what extent does having previous teamwork training affect attitudes towards teamwork in the workplace and in the academic environment?
7. Do students perceive teamwork to be useful or not useful at university?
8. Do students perceive teamwork to be helpful or unhelpful at university?
9. Is there a relationship between the four constructs within the questionnaire for each environment (work and university) i.e. attitude, concerns about teamwork evaluation, perceptions of environmental facilities, importance of teamwork?
10. Can attitude towards teamwork at university be predicted from scores of academic achievement?
11. What factors contribute towards students finding teamwork useful at university; unhelpful at university and; useful at work?

**Preparation of the data**
The data was collected and entered in SPSS. Some responses were incomplete so these were removed. Titles of each item were shortened (Appendix 5) and the relevant items were reversed scored (Appendix 6). The participant marked their answer to the relevant statements on a 5 point Likert scale with 1 being strongly disagree and 5 being strongly agree. All scores have been rounded to 2 decimal places. Although the data I shall be collecting is recorded at the ordinal level I shall be carrying out parametric tests upon my data. This is because parametric tests are considered strong enough to hold up against violation of the inferential data assumption (Conover, 1981). Labovitz (1970) argued that ordinal data could be treated as interval data and it can be analysed with the use of parametric statistical tests. The raw data set and all SPSS outputs for each statistical test can be found in the Appendix (7).

**Reliability analysis**
The four constructs within the questionnaire were subject to reliability analysis. Cronbach’s alpha coefficients of above 0.7 are accepted as satisfactory internal reliability (Nunnally, 1978; Pallant, 2007).
Table 1
Cronbach’s Alpha (internal consistency) for the four constructs of an attitude questionnaire with relation to university (N=94)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of items in variable score</th>
<th>Cronbach’s alpha</th>
<th>95% Confidence Interval for alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Attitudes</td>
<td>6</td>
<td>.77*</td>
<td>.69</td>
</tr>
<tr>
<td>Concerns about teamwork evaluation</td>
<td>4</td>
<td>.64</td>
<td>.50</td>
</tr>
<tr>
<td>Perception of environmental facilities</td>
<td>3</td>
<td>.58</td>
<td>.41</td>
</tr>
</tbody>
</table>

Note: *F test with true value = 0.7, *p < .05

Table 1 shows that the only significantly reliable (i.e. significantly above .7) construct for the questionnaire relating to university is attitude. Removing items from the analysis does not improve the reliability score (Appendix 7).

The four subscales measuring attitude, concerns about evaluation of teamwork, perception of environmental facilities and importance of teamwork were tested together for an overall reliability score for the questionnaire related to the university environment. Following internal consistency analysis, Cronbach’s alpha for the 14 item questionnaire was .75, 95% CI [.67, .82]. Alpha is not significantly above 0.7, *p = .11.

Table 2
Cronbach’s Alpha (internal consistency) for the four constructs of an attitude questionnaire with relation to the workplace (N = 94)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of items in variable score</th>
<th>Cronbach’s alpha</th>
<th>95% Confidence Interval for alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Attitudes</td>
<td>6</td>
<td>.83*</td>
<td>.77</td>
</tr>
<tr>
<td>Concerns about teamwork evaluation</td>
<td>4</td>
<td>.71</td>
<td>.61</td>
</tr>
<tr>
<td>Perception of environmental facilities</td>
<td>3</td>
<td>.60</td>
<td>.44</td>
</tr>
</tbody>
</table>

Note: *F test with true value = 0.7, *p < .001
Table 2 shows that the only significantly reliable construct for the questionnaire relating to the workplace is attitude. Again removing items from the analysis did not improve the reliability score (Appendix 7).

The four subscales measuring attitude, concerns about evaluation of teamwork, perception of environmental facilities and importance of teamwork were tested together for an overall reliability score for the questionnaire related to the work environment. Following internal consistency analysis, Cronbach’s alpha for the 14 item questionnaire was .81, 95% CI [.75, .86]. Alpha is significantly above 0.7, \( p < .001 \)

Histograms were produced to look for the normal distribution of data relating to attitudes towards teamwork at university and attitudes towards teamwork at work respectively (Appendix 7). Data for both attitudes towards teamwork at university and attitudes towards teamwork in the workplace is relatively normally distributed.

Descriptive statistics

Table 3

Descriptive statistics for each of the four constructs within the questionnaire and the questionnaire as a whole in relation to university (N = 94)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>2.84</td>
<td>.66</td>
</tr>
<tr>
<td>Concerns about teamwork evaluation</td>
<td>2.58</td>
<td>.61</td>
</tr>
<tr>
<td>Perceptions of environmental facilities</td>
<td>3.31</td>
<td>.72</td>
</tr>
<tr>
<td>Importance</td>
<td>3.23</td>
<td>1.13</td>
</tr>
</tbody>
</table>

The mean scores from Table 3 and Table 4 (below) show us that students are more positive about all aspects of teamwork when in the workplace then when in the academic environment.

Table 4

Descriptive statistics for each of the four constructs within the questionnaire and the questionnaire as a whole with relation to the workplace (N = 94)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>3.65</td>
<td>.61</td>
</tr>
<tr>
<td>Concerns about teamwork evaluation</td>
<td>3.00</td>
<td>.67</td>
</tr>
<tr>
<td>Perceptions of environmental facilities</td>
<td>3.79</td>
<td>.69</td>
</tr>
<tr>
<td>Importance</td>
<td>3.86</td>
<td>.92</td>
</tr>
</tbody>
</table>
Research questions (RQ)

RQ1
Participants had a better attitude towards teamwork in the workplace \((M = 3.65, SD = .61)\) than in the academic environment \((M = 2.84, SD = .66)\). A significant difference was observed between the two means, \(t(93) = 9.73, p < .001\).

RQ2
Participants had a higher concerns about teamwork evaluation in the workplace \((M = 3.00, SD = .67)\) than in the academic environment \((M = 2.58, SD = .61)\). A significant difference was observed between the two means, \(t(93) = 5.10, p < .001\).

RQ3
Participants perceived facilities for group work to be more supportive in the workplace \((M = 3.80, SD = .69)\) than in the academic environment \((M = 3.31, SD = .72)\). A significant difference was observed between the two means, \(t(93) = 4.84, p < .001\).

RQ4
Participants believe teamwork to be more important in the workplace \((M= 3.86, SD= .92)\) than in the academic environment \((M= 3.23, SD= 1.13)\). A significant difference was observed between the two means, \(t(93) = 4.13, p < .001\).

RQ5
As attitude is the overarching construct within the questionnaire and the only reliable measure, a series of 2x2 mixed ANOVAs were performed to see if the demographics of gender, degree and current working status have an effect upon students’ attitudes towards teamwork at university and in the workplace.

Gender and environment
The results indicated a significant main effect for ‘environment’: Overall attitudes towards teamwork are more positive in the workplace than in the academic environment, \(F(1,92) = 55.33, p < .001\). A significant main effect was also observed for gender in that males had a better attitudes towards group work than females in both environments, \(F(1,92) = 5.55, p < .05\). No significant interaction was observed between the two, \(F(1,92) = 2.68, p > .05\).
When looking to see if degree and current working status (working or not working) had an effect on students attitudes towards teamwork the only significant main effect observed was that of the environment. In both cases, students had a better attitude towards teamwork in the workplace than they did in the academic environment. The mean for attitude at university is 2.84 with the mean for the workplace being 3.65. No significant interaction was seen between degree and attitudes towards teamwork, $F(1,92) = 2.13, p = .15$ or between current working status and attitudes towards teamwork, $F(1,92) = .31, p = .58$.

**RQ6**
From looking at the cross-tabulation below in Table 5 it is apparent that only a small number of participants have received any form of previous teamwork training. For this reason it is not significant to conduct an ANOVA.
Table 5
Cross tabulation for previous teamwork training in the workplace and previous teamwork training at university.

<table>
<thead>
<tr>
<th>Previous teamwork training workplace</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous teamwork training university</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
<td>69</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>76</td>
<td>94</td>
</tr>
</tbody>
</table>

Table 5 shows the distribution of responses to the question relating to previous teamwork training.

**RQ7**
More participants believed teamwork to be useful at university ($M = 2.97$, $SD = .64$) than to not be useful ($M = 2.72$, $SD = .66$). A significant difference was observed between the two means, $t(92) = 1.80$, $p = .04$.

More participants believed teamwork to be useful at work ($M = 3.81$, $SD = .55$) than to not be useful at work ($M = 3.46$, $SD = .64$). A significant difference was observed between the two means, $t(92) = 2.86$, $p = .002$.

**RQ8**
More participants believed teamwork to be helpful at university ($M = 3.02$, $SD = .63$) than to be unhelpful ($M = 2.63$, $SD = .65$). A significant difference was observed between the two means, $t(92) = 2.93$, $p = .002$.

More participants believed teamwork to be helpful at work ($M = 3.67$, $SD = .61$) than to be unhelpful ($M = 3.56$, $SD = .68$). No significant difference was observed between the two means, $t(92) = .57$, $p = .29$. 
Table 6
Pearson Correlation Matrix among Variables Related to Completing a 14 item questionnaire in relation to teamwork at university (N = 94)

<table>
<thead>
<tr>
<th></th>
<th>Attitudes</th>
<th>Concerns about evaluation</th>
<th>Perceptions of environmental facilities</th>
<th>Importance of teamwork</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td></td>
<td>.32**</td>
<td>.12</td>
<td>.19</td>
</tr>
<tr>
<td>Concerns about evaluation</td>
<td>.21*</td>
<td></td>
<td></td>
<td>.19</td>
</tr>
<tr>
<td>Perceptions of environmental facilities</td>
<td></td>
<td>.32**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p<.05  **p<.01.

Table 6 shows significant positive correlations between attitude and concerns about teamwork evaluation, concerns about teamwork evaluation and perceptions of environmental facilities and perceptions of environmental facilities and importance of teamwork.

Table 7
Pearson Correlation Matrix among Variables Related to Completing a questionnaire in relation to teamwork in the workplace (N = 94)

<table>
<thead>
<tr>
<th></th>
<th>Attitudes</th>
<th>Concerns about evaluation</th>
<th>Perceptions of environmental facilities</th>
<th>Importance of teamwork</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td></td>
<td>.33**</td>
<td>.31**</td>
<td>.33**</td>
</tr>
<tr>
<td>Concerns about evaluation</td>
<td>.29**</td>
<td></td>
<td></td>
<td>.13</td>
</tr>
<tr>
<td>Perceptions of environmental facilities</td>
<td></td>
<td></td>
<td>.42*</td>
<td></td>
</tr>
</tbody>
</table>

Note: *p<.001  **p<.01
Table 7 shows that attitude correlates positively with the other three constructs within the questionnaire. Concerns about teamwork evaluation positively correlate with perceptions of environmental facilities and perceptions of environmental facilities correlates positively with importance of teamwork.

RQ10
A multiple regression was carried out on variables measuring scores of academic achievement to see if they can predict attitude towards teamwork at university.

Table 8
Descriptive statistics for the three measures of academic achievement.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last score on group work</td>
<td>94</td>
<td>68.73</td>
<td>8.19</td>
</tr>
<tr>
<td>Last score on individual work</td>
<td>94</td>
<td>69.20</td>
<td>8.85</td>
</tr>
<tr>
<td>Grade for previous year of study</td>
<td>88</td>
<td>65.92</td>
<td>5.28</td>
</tr>
</tbody>
</table>

The above table shows the variation among the means. Table 9 shows that it is important to keep scores of academic achievement as separate measures as they all measure different aspects of academic achievement.

Table 9
Pearson Correlation Matrix for scores of academic achievement

<table>
<thead>
<tr>
<th></th>
<th>Last piece of group work (N=94)</th>
<th>Last piece of individual work (N=94)</th>
<th>Previous year of study (N=88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last piece of group work</td>
<td>.26*</td>
<td>.35**</td>
<td></td>
</tr>
<tr>
<td>Last piece of individual work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade for previous year of study</td>
<td></td>
<td></td>
<td>.54***</td>
</tr>
</tbody>
</table>

Note *p<.05**p<.01***p<.001

Table 9 also shows us that a significant positive correlation was observed between all aspects of academic achievement.

A series of correlations were performed to look at attitude in relation to scores of academic achievement.

No significant relationship was observed between previous score for group work and attitudes towards teamwork in university, $r(94) = .15$, $p = .17$.
A significant negative correlation was observed between previous scores on individual work and attitudes towards teamwork at university, $r(94) = -0.36$, $p < 0.001$.

A significant negative correlation was observed between previous grade for year of study and attitudes towards teamwork in university, $r(88) = -0.22$, $p = 0.04$.

There was no significant correlation observed between attitudes towards teamwork in the workplace and academic achievement with scores ranging from $r(94) = -0.09$, $p = 0.40$ to $r(94) = 0.00$, $p = 0.98$.

Previous score on individual work was the highest correlating factor of academic achievement with attitude. The negative correlation makes sense in that those with a more negative attitude towards teamwork will perform better in individual work.

A multiple linear regression was conducted on variables of academic achievement in relation to attitudes towards teamwork in the academic environment. As previous score on group work does not significantly correlate with attitude it was not included in the regression.

Table 10
Summary of Regression Analysis for Variables Predicting Attitude ($N = 88$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$t$</th>
<th>Sig.($p$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant (intercept)</td>
<td>4.92</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last score on individual work</td>
<td>-0.03</td>
<td>-0.33</td>
<td>-2.75</td>
<td>0.007</td>
</tr>
<tr>
<td>Grade for previous year of study</td>
<td>-0.01</td>
<td>-0.04</td>
<td>-0.31</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.125$.

The regression model for prediction of attitude in relation to academic achievement is shown in Table 10. Previous scores on group work and previous scores on individual work are significant predictors of attitude. An effect size is a standardized, objective measure of the magnitude of an observed effect (Field, 2005a; 2005b). Based on the categorizations by Cohen (1992, 1988) the regression model has a medium effect as $R=0.35$ and so accounts for 12.5% of the variance in attitude. The overall model is statistically significant, $F(2,85) = 6.08$, $p = 0.003$.

There was no regression conducted to look at attitude in the workplace as it is unrelated to scores of academic achievement.

RQ 11
Qualitative content analysis is ‘the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns’ (Hsieh & Shannon, 2005). Using the method of conventional content
analysis allows for direct information to be gained from a text without imposing preconceived categories or theoretical perspectives. Categories must first be developed to organize the meaning units. ‘A category is a group of words with similar meaning or connotations’ (Weber, 1990, p.37). Krippendorff (1980) stresses the fact that categories must be exhaustive and mutually exclusive. Context analysis requires interpretation and so if another researcher was to analyse the results they may uncover different codes to the ones suggested here.

Three separate conventional content analyses were carried out upon open-ended question responses from the questionnaire in the study relating to attitudes towards teamwork. The first content analysis carried out was on responses to the question relating to details of when teamwork has proven to be useful at university (N=43). The question developed based upon responses is, what factors contribute to students finding teamwork to be useful at university? The responses were read over to gain an overall understanding of what students believed to contribute to the usefulness of teamwork. They were organised into meaning units so that any responses that seem to relate to the same central meaning were together (Appendix 8).

The responses were then read over again and this time, abstraction was used to uncover any preliminary codes. These were given to different factors which contribute towards what students believe make teamwork useful. The responses were read back over and any which did not fit into these codes were given new codes. From these codes, five final factors were extracted which appear to contribute towards students finding teamwork to be useful in the academic environment, these are; type of activity; skill development; contribution towards grade; task and benefits; and forming friendships. Both manifest and latent content was analysed to interpret meanings from the text. Manifest content refers to the visible, obvious components of the text whereas the latent content refers to the interpretation of the underlying meaning of the text (Downe-Wamboldt, 1992; Kondracki et al, 2002).

A final content analysis was carried out on responses to the question regarding details of when students have believed teamwork to be helpful in the workplace (N=49). The question developed is, what factors contribute towards students finding teamwork to be useful in the workplace? From the analysis three factors emerged; type of task completed; task and efficiency and; skill development (Appendix 10).

Discussion

Overall, it is clear to see that students have a more positive attitude towards teamwork when they are in the workplace than when they are in university. This may be because, as the results show, teamwork is more important in the workplace and so having a positive attitude is beneficial to happiness in the job role. In order to
succeed in the current business setting, Chapman et al (2010) noted the importance of students having positive attitudes, beliefs and behaviours for working in a team.

One of the main issues that arose from the content analysis was that of social loafing. Pfaff and Huddleston (2003) noted that among other issues such as project grade and time in class, the presence of a free-rider could influence attitudes towards teamwork. This problem seemed less common in the workplace, which may be explained by the type of task people were required to perform in groups. Solutions to the problems faced by the presence of a free-rider were addressed by Joyce, (1999) and Johnson and Johnson (1984-85). They suggested that assigning roles to team members, basing the overall grade on the lowest individual score and dividing resources among members could solve the problems groups face when a member is not pulling their weight. Positive experiences of teamwork may reduce the possibility of interpersonal conflicts between members. This means students can focus on the task and not on interpersonal dynamics (Pfaff & Huddleston, 2003).

Concerns about teamwork evaluation were higher in the workplace than in the academic environment. This could be because teamwork is viewed as being more important in the workplace than it is in the academic environment. Previous research has also noted that evaluation of teamwork has an effect upon students’ attitudes towards teamwork (Chapman & Van Auken, 2001; Pfaff & Huddleston, 2003). There is a significant relationship between concerns about teamwork evaluation and perceptions of environmental facilities in the workplace and in the academic environment. There is also a significant relationship between perceptions of environmental facilities and importance of teamwork.

Providing an environment for students to complete teamwork in is important to help improve students’ attitudes towards teamwork. Lizzio et al (2010) found that students’ perceptions of university learning environments are a strong predictor of learning outcome. By having good facilities for completing teamwork, the outcome of the task will be better, therefore improving attitude if the outcome is positive. At Stanford University, there are three public GroupSpace installations in which students have access to enhanced teaching and study facilities, which enable collaborative learning and teamwork (Holeton, 2006). Providing students with positive spaces to partake in teamwork like this encourages the development of teamwork skills. Development of teamwork skills is vitally important in the current job market, as recruiters have begun to actively seek out students who are able to demonstrate their ability to work well within a group (Fisher, 2007; Kennedy & Dull, 2007; Vance, 2007). If students perceive their environmental facilities as being supportive for teamwork, they will have a more positive experience of working within a team as it diminishes problems associated with not having a space to meet and work in.

Students perceived teamwork as being useful in both the workplace and the academic environment. To gain the full benefits from working within a team students should be equipped with the correct skills for working well within teams. From the research, it is evident that not many students have received any form of previous teamwork training in the workplace or in the academic environment. Groups trained in teamwork skills perform better than those with little or no training do (Chen et al, 2004; Kennedy & Dull, 2007; Kozlowski & Ilgen, 2006; Prichard et al 2006). 'Prior team-skills training has produced superior collaborative group work compared with
that of students merely placed in unfacilitated groups’ (Prichard et al., 2006). The benefits of previous teamwork training and frequently assigning students’ group work tasks are evident. In relation to attitude students who reported a high frequency of teamwork tools being used within their classes, had more positive attitudes towards teamwork experiences (Chapman & Van Auken, 2011). Concerning future research, it is recommended that, within the sample of participants, there is an equal ratio between the amount of people who have received previous teamwork training and those who have not received previous teamwork training in order to look at the relationship between previous teamwork training and attitude.

One of the variables not explored within the study was the length of time that the groups had existed. This can have an effect on attitude towards teamwork depending on how well the team interact. Feichtner and Davis (1984) suggested that student teams should not be frequently dissolved and reformed but instead, maintained across projects and across time. Using this method would mean that students become used to working with one another and the group dynamics would evolve over time. However, in contrast to this Salas et al. (1999) found that long duration of teamwork decreased the quality of the teamwork and the effectiveness of the team. This could be due to factors such as intergroup conflicts and social-loafing. Future research should look at the length of time a group is maintained for with relation to attitudes towards teamwork.

When looking into the effect of peer evaluation on attitude it is important to note that most peer evaluations are conducted at the end of the project. Chapman et al. (2010) have developed an evaluation form to administer to groups for completion throughout the duration of the team project. The teamwork evaluation form (TEF) is used to discuss, diagnose and improve issues relating to teamwork throughout the project. By allowing completion while the teamwork task is taking place, it means that instructors and students can diagnose and solve any group problems that may arise. Administering the TEF may improve attitudes towards teamwork as issues that may be causing negative attitudes can be remedied.

As attitude is a key determinant of behaviour (Ajzen & Fishbein, 1997; Fazio, 1990) it is important for students to leave education with positive attitudes towards teamwork in order for them to thrive in the business world.

REFERENCES


