

# FEAT OR FUTILE: STUDENTS' PERCEPTIONS OF GROUP WORK AT A UNIVERSITY OF TECHNOLOGY IN SOUTH AFRICA

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## ABSTRACT

The increase in student enrolment at tertiary institutions in South Africa over the past few years has necessitated the need for group work without sacrificing the standard and integrity of education. Research has shown that group work offers many advantages to both lecturers and students. Interactive attributes such as teamwork, co-operation skills, leadership qualities, communication skills and confidentiality developed during group work are highly sought-after skills by prospective employers.

This quantitative study aimed to determine whether students are positively or negatively inclined towards group work, as well as other possible factors influencing group work at a university of technology (UoT) in South Africa. A structured, close-ended questionnaire was administered to 309 students enrolled for the Applied Communication Skills course. The data were analysed using statistical methods. The results revealed that listening skills and mutual respect were crucial to develop good interpersonal skills needed for effective group work. When working in groups, students tend towards collectivism and negative aspects of group work, such as social loafing, are often overseen to maintain harmony and avoid direct confrontation with other individuals in the group. It was also found that male students agreed more strongly with negative conflict resolution than female students. Overall, the study showed that despite several negative aspects, students tended to be positively inclined towards group work.

**Keywords:** group work, students, university of technology (UoT), perceptions, conflict

## INTRODUCTION

Several studies have explored group work as a teaching approach in the tertiary classroom and much has been written about the benefits of using group work to promote student collaboration, problem solving, communication and teamwork skills (Burke 2011; Wilson, Brickman, and Brame 2018). Few studies, however, have focused on the perceptions that students have about

group work and whether certain factors influence their perceptions (Payne and Monk-Turner 2006; Chang and Brickman 2018). The rationale behind group work as a learning strategy is that it provides students with opportunities to learn from one another, find solutions to problems, reflect on their learning and develop necessary skills such as teamwork and interpersonal skills required by graduates in the 21<sup>st</sup> century (Burdett 2003). Group work, however, comes with challenges and not all students have positive experiences associated with group work. The complexity of group dynamics, tension about completing tasks against a deadline and achieving the desired grade are some of these challenges that students face when they are forced to work together. One of the biggest pitfalls of group work is that due to the nature of groups, the bulk of work usually falls to one or two individuals and the rest of the group are seen to “piggyback” on these students, resulting in a situation where students are less productive when they perceive their contributions as dispensable, a psychological phenomenon, which is called social loafing (Psychology 2021). In most academic courses, groups are formed randomly, and little consideration is given to putting students with similar personalities, life experience and abilities together, with no guarantee that the group is an effective combination of individuals (Burdett 2003). Chapman and Van Auken (2001, 118) state that merely placing students together in a group does not mean they will “magically learn how to effectively work together”, thus placing the onus on the instructor to give the necessary guidance to ensure that the group functions effectively.

Payne and Monk-Turner (2006) found that there were certain factors that influence students' perceptions about group work, such as race and age. In this study conducted in Australia, it was found that black students were less likely to recommend group projects and that older students (above the age of 25) were more likely to see the benefits from working in a group than younger students. A prevalent issue in this particular study was that “slacking” of group members strongly influenced perceptions about group work, but that it was a factor that could be controlled to a certain extent by using strategies such as grading one another, or the group “divorcing” from members who are not contributing to the project.

In a study conducted in New Zealand among Asian students, Li and Campbell (2008) found that these students valued classroom discussions and interaction with students from diverse cultures and backgrounds. Differences in social, cultural, ethnic and religious backgrounds had an impact on the group dynamics and consequently the product of the group work, but friendships were formed and these relationships remained after the group dissolved. The biggest concern raised was the issue of assessment and not the actual working together with other students. Students felt negative towards the fact that marks were shared, meaning that the marks for each individual were determined by the performance of the group. This

practice was unfair towards hardworking students; “social loafers” were rewarded at the expense of diligent students.

Walker (2001) found that British psychology students, in general, had a positive attitude towards group work and that the benefits of working in a group outweighed the negative aspects. Past experience seemed to be a key factor influencing students' perceptions about group work – students who had negative experiences in previous projects were inclined to feel negative towards group work as opposed to students who had positive past experiences. Clarity about the difference between co-operative learning and collaborative learning was a key factor to the success of the group. When students work co-operatively, roles are assigned and each individual works independently and only at the end of the project, returns to the group to produce the final product. During co-operative learning, students work together and attain knowledge through the struggle to maintain equilibrium and reconcile conflict between new and previously owned beliefs. The group task and the size determine whether the co-operative or collaborative style is more appropriate but being aware of the difference between these two methods of learning and how to combine these methods is crucial for the successful completion of a group task. This is supported by the research of Chapman and Van Auken (2001) who found that the role of the instructor was paramount in shaping the attitudes and beliefs that students have about group work. Instructors have the important task of conveying the value of group work, coaching students about group dynamics and limiting the negative aspects of group projects. Instructors who discussed group logistics and dynamics had a very positive effect on students' attitudes towards group work.

An Ethiopian study conducted by Daba, Ejersa, and Aliyi (2017) found that students with a positive learning perception were more inclined to take responsibility for their learning and that the majority of students felt that they learnt more from group interaction than attending lectures.

The biggest complaint was that all group members receive the same grade, irrespective of the effort they put into the project. Thondlana and Belluigi (2014) did a survey among South African students and found that in general, students had positive attitudes towards group work, but that group work had not achieved its potential, due to certain constraints such as social loafing, a lack of planning, personality clashes, intra-group conflict and logistical issues.

From the literature, it is evident that group work has both positive and negative aspects and that certain factors influence students' perceptions of group work in their educational context. The purpose of this study was to investigate students' perceptions of group work in an Applied Communication Skills course at a university of technology (UoT), where group work is often used as a means to reduce the workload in assessments, but also as a method to teach

students the valuable skills needed in the corporate world and to promote their English communication skills.

## THEORETICAL BACKGROUND

This study is underpinned by the theory of social constructivism. Constructivism as a theory has its psychological roots in the work of Piaget, who asserted that learning is a transformative rather than a cumulative process. Vygotsky postulated the idea that learning is integrally tied to communicative interactions with others, and he emphasised the social aspect of learning, hence, social constructivism. John Dewey, an American philosopher and educator, argued that real-life problem-solving experiences occur in a social context (State University 2021). Group work is very much embedded in social constructivism. Lecturers and fellow students support and contribute to the learning process through the concepts of scaffolding, tutoring and co-operative learning (Amineh and Asl 2015). Meaningful learning happens when students are engaged in social activities and interaction and collaboration takes place.

For groups to function effectively, one must consider the group dynamics, which are involved. As mentioned earlier, merely putting students together in a group does not guarantee that the group will function effectively (Chapman and Van Auken 2001). During the first stage, the group begins relationships in a state of *Dependency and Inclusion*, in which the members are usually anxious, uncertain and polite towards one another (Wheelan, in Sweet and Michealsen 2007). The second stage is *Counter-dependency and Flight* and in this stage, conflict arises as individual roles are defined, and it leads to a power struggle. This is followed by the third stage, *Trust and Structure*, where most of the conflict has been resolved and the group focuses on goals, procedures, roles and dividing the work among members. Communication is vital in this stage. In stage four, which is called *Work*, group members comfortably share information and the individual members have settled into their respective roles. *Termination*, the fifth and last stage, is characterised by a loss of group stability, which creates anxiety and could lead to conflict. Studies that have mapped group development onto a stage model show that very few groups reach the optimum stage of *Work* (Sweet and Michealsen 2007). This suggests that groups need time to develop, and that group work cannot be a rushed process.

When dealing with group work, it is important to be mindful of the difference between the collectivist and individualist dimensions in society (Hofstede and Hofstede 2005, 75). In a collectivist society, the interest of the group prevails over the interest of an individual, whereas in an individualist society, the interests of the individual prevail over the interest of the group. The orientation towards either collectivist or individualist influences the interaction between

group members. More individualistic group members may tend to dislike group work and prefer to actually work on their own and being forced to complete a group task may lead to a sense of negativity towards the group. In a collectivistic group, the goal would be to maintain harmony and cohesion and group members may find it difficult to confront students who are not contributing towards the group goal.

## **METHODOLOGY**

This article aims to investigate how first- and second-year students at a UoT, perceive group work. A five-point interval scale was used to obtain the quantitative data.

### **Research design**

In this empirical study, a quantitative method was used. The goal in this descriptive study was to investigate possible associations between the dependent variables (group dynamics, group goal achievements, negative conflict resolution and positive conflict resolution; aspects marring effective groups and aspects enhancing effective groups) and the independent variables (biographic and demographic in Section A of the questionnaire). Only significant associations found between the mentioned variables will be discussed in this article.

Quantitative methodology is prevalingly used as a research framework in the social sciences. It refers to a set of strategies, techniques and assumptions used to study psychological, social and economic processes through the exploration of numeric patterns.

### **Participants**

The population of the quantitative study consisted of 152 first-year, and 157 second-year students enrolled for Applied Communication Skills. Simple random sampling was used in the quantitative study. The students involved represented all the faculties of the UoT, namely Human Sciences, Applied and Computer sciences, Management Sciences and Engineering and Technology.

### **Information gathering**

According to Roopa and Rani (2012, 273), questionnaires are frequently used in quantitative marketing research and social research. A questionnaire is a series of questions asked to individuals to obtain statistically useful information about a given topic. When properly constructed and responsibly administered, questionnaires become a vital instrument by which statements can be made about specific groups or people or entire populations. They are a valuable method of collecting a wide range of information from many individuals, often referred to as respondents.

Adequate questionnaire construction is critical to the success of a survey.

Information was collected by the researchers through a self-administered structured questionnaire, given to a total of 309 students, including both first- and second-year Applied Communication Skills students at a UoT.

## Instruments

In the quantitative phase of the study, data were collected through a structured questionnaire, which was administered to 309 first- and second-year students enrolled for Applied Communication Skills at a UoT.

**Table 1:** Example of a five-point Likert scale question in the questionnaire

<b>SECTION B: GROUP DYNAMICS</b>					
<i>Group work – work done by a group of people working together, for example students working together in a classroom.</i>					
<i>Biased – influence in an unfair way; prevents objective consideration of an issue/situation.</i>					
<b>Circle the correct numeric response to each question</b>					
Survey Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree					
	<b>Strongly disagree</b>	<b>Somewhat disagree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat agree</b>	<b>Strongly agree</b>
1. Once the group was formed, team members met to create coherence.	1	2	3	4	5
2. The strong points of each member were established.	1	2	3	4	5
3. The weak points of each member were established.	1	2	3	4	5
4. Specific roles were assigned to group members e.g., group leader.	1	2	3	4	5
5. The above activities influenced group work in a positive way.	1	2	3	4	5

The questionnaires were completed during scheduled time slots in lecturers' venues over a period of two weeks. The questionnaires consisted of a Section A: Demographic information; Section B: Group dynamics; Section C: Goals/Achievements; Section D: Conflict; and Section E: Reflection. Section B comprised of 19, Section C of 16, Section D of 14 and Section E of 30 five-point Likert scale questions ranging from strongly disagree to strongly agree, which asked students to indicate the extent to which the statements applied to them, as shown in Table 1. Questions focused on students' opinions of different aspects of group work in general.

Due to the multilingual student population at this UoT, the mother tongues of most students are different. All questions were, therefore, designed to accommodate students who

are instructed through the medium of English at this UoT.

### **Analysis of results**

In the quantitative design, data were gathered by means of a five-point Likert scale questionnaire. The sample consisted of 49.2 per cent first-year students and 50.8 per cent of second-year students. The combined group comprised of 81.9 per cent age group 18–22 years old and 18.1 per cent age group 23+ years old. As there was only one respondent in the more than 28 years of age, this respondent was placed with the second group of 23–27 years of age, which was named 23+ years.

In terms of the gender distribution, the sample comprised of 57.5 per cent male students and 42.5 per cent female students. According to the results, the African home language group was in the vast majority with 68.6 per cent opposed to all other learners referred to as a second group named “other”, consisting of 31.4 per cent. According to the demographic information, English L2 was the language of most students, namely 88.3 per cent. The remaining languages made up 11.7 per cent.

From the sample of students, 60.2 per cent, rated their English proficiency as average to poor and 39.8 per cent as good. Pertaining to students' written language proficiency, 46.6 per cent rated this as average to poor and 53.4 per cent as good. Furthermore, the largest portion (41.3%) attended township secondary schools and about a fifth (22.4%) attended city model C schools, while 10.9 per cent attended rural model C and 25.4 per cent attended rural schools. The highest percentage attended township schools, which tend to be under-resourced.

### **Data analysis**

In the quantitative survey, factor analysis was used to determine the factors present in the perception of students regarding group work. Descriptive statistical analysis was employed for the data available. Conclusions were drawn from the student responses of those who participated in the survey and the Statistical Package for the Social Sciences (SPSS 24.0) and STATISTICA were used to process the raw data.

## **RESULTS AND DISCUSSION**

The main objective of this study was to ascertain what students' perception of group work is. Another aim was to consider other possible factors influencing group work and to pose some solutions to the challenges of group work at a UoT in South Africa.

### **Factor analytic procedure Section B**

There were 19 items in Section B of the questionnaire and each item had to be answered

according to a five-point interval scale where 1 was for strongly disagree and 5 represented strongly agree. A factor analytic procedure PFA with varimax rotation was performed. The anti-image correlation matrix contained four items with MSA values less than 0.60 and these were removed. However, there were also five other items which had extremely low communality values ( $<0.20$ ) and they were also removed from the PAF procedure. The remaining 10 items had a KMO of 0.731 and explained 58.97 per cent of the variance present. A second-order factor analytic procedure using PAF and varimax rotation resulted in one factor only, which explained 49.71 per cent of the variance present. It had a Cronbach reliability coefficient of 0.710 and was named group dynamics. The items in the factor, the standard deviation and the factor loadings on the first-order factors are given in Table 2

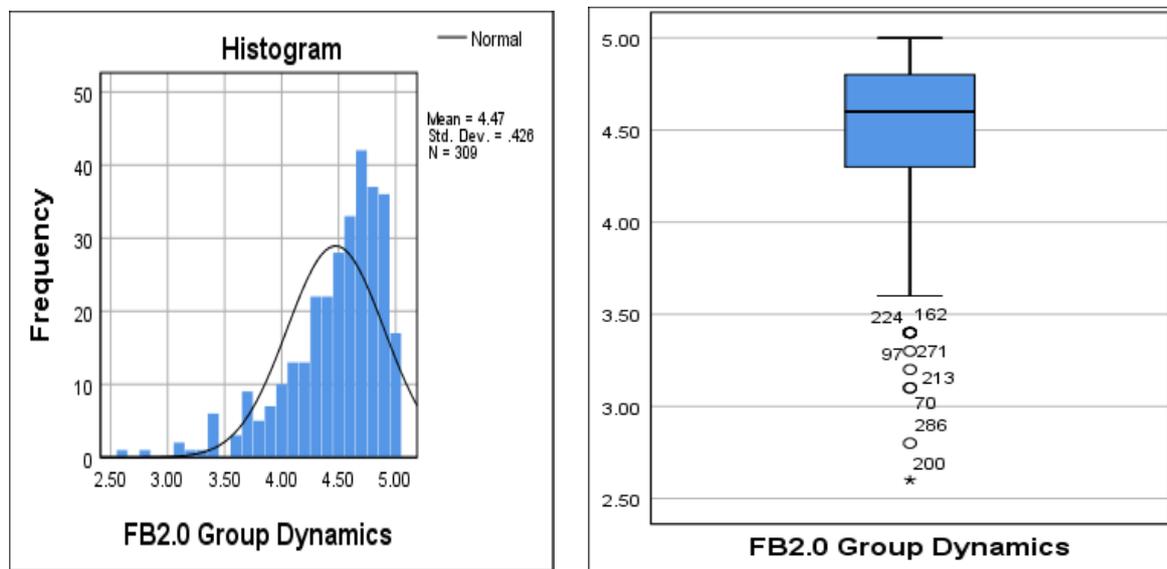
**Table 2:** The means, standard deviation and factor loadings of the items in the group dynamics factor

Item	Description	Mean	Std. Deviation	Loading	Factor
B5	The above activities influenced group work in a positive way.	4.17	1.042	0.810	FB1.1
B2	The strong points of each member were established.	4.03	1.006	0.578	FB1.1
B4	Specific roles were assigned to group members e.g., group leader.	4.30	1.070	0.498	FB1.1
B1	Once the group was formed, team members met to create coherence.	4.04	0.956	0.486	FB1.1
B13	Creating trust among group members is important.	4.57	0.781	0.708	FB1.2
B12	It is important to allow for adequate time to get to know each group member.	4.28	0.897	0.670	FB1.2
B11	Responsibilities within the group should be divided fairly.	4.72	0.672	0.685	FB1.3
B17	Contributions from each group member is important.	4.80	0.580	0.509	FB1.3
B8	It is important to listen to others in the group.	4.90	0.391	0.745	FB1.4
B7	It is important to show respect for other members in the group.	4.94	0.336	0.525	F1.4
Average		4.47	0.773	0.621	

The items with the highest mean scores were B8 (It is important to listen to others in the group) with a mean of 4.90 and B7 (It is important to show respect for other members in the group) with a mean of 4.94. The items both belong to FB1.4 and they probably relate to the establishment of a climate that would facilitate open participative communication. Participants could be said to have tended towards strong agreement on these items. The item with the highest factor loading was B5 and it relates to the coherence, the establishment of strong points of each member of the group and assigning specific roles to each group member. According to Field (2018, 784) the factor loading is an indication of the relative contribution that an item makes to the factor. The other item that had a high loading was B8, which is related to listening to the opinions of others in the group. However, listening should also be accompanied with the willingness to challenge your own thinking and should enhance an attitude of I may be wrong, and the other person correct as such thinking enhances change in a dynamic way. The overall

mean of 4.47 indicates that the respondents somewhat or partially agree with the items in the factor. However, it should be kept in mind that numerous items had low correlation with other items and that the standard deviation in some of the items was relatively large. In addition, 47.3 per cent of the items were removed from the factor analytic procedure; hence, many of the items involved in the group dynamics factor needed to be revised. Students usually wish to work with students whom they know or who belong to the same faculty and often the burden of group work is not shared equally as many students ride on the back of the students who achieve the best examination marks. This is borne out by the low group average of item B15 (Random group allocation may work best) of 3.42, indicating partial disagreement with respect to random group allocation. Random group allocation is probably the fairest way of assigning students to groups, but this seems to be a concept far removed from what students regard as fair when it comes to completing group assignments.

The data distribution of the items in the group dynamics factor is given in Figure 1.



**Figure 1:** A histogram and boxplot showing the data distribution of the items in the group dynamics factor

Both graphs indicate a negatively skew data distribution. Hence, non-parametric statistical tests should be used when analysing groups for possible significant differences. The boxplot shows some outliers, but if they were removed it would just serve to increase the mean score even further.

### Factor analytic procedure Section C

Section C of the questionnaire contained 16 items concerned with the goal achievement of the groups. The items were operationalised using a five-point interval scale where one was for strongly disagree and five was recorded for strongly agree. The initial PFA with varimax

rotation indicated that Item C12 (Each member's score can depend on the work of the work of the other group members) showed a low communality value and was removed from the procedure. The remaining 15 items had a KMO of 0.850 and Bartlett's sphericity probability value of  $p=0.000$ , indicating that a more parsimonious solution of the 15 items was possible. Four first-order factors resulted, which explained 58.08 per cent of the variance present. These four first-order factors were then subjected to a second-order factor analysis again using PFA with varimax rotation resulting in one second-order factor, which explained 54.15 per cent of the variance present. It was named group goal achievement (FC2.0) and had a Cronbach reliability of 0.846. The items in the factor, the standard deviation and the factor loadings on the first-order factors are given in Table 3

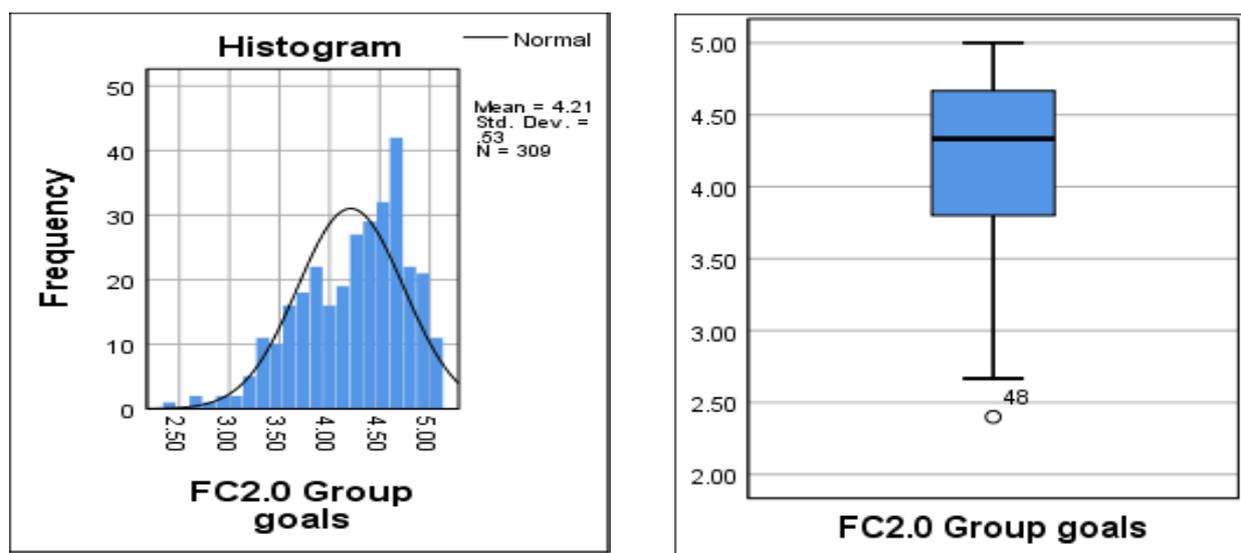
**Table 3:** The means, standard deviation and factor loadings of the items in the group goal achievement factor (FC2.0)

Item	Description	Mean	Std. Deviation	Loading	Factor
C13	The members of the group trusted each other throughout the group activity.	4.02	1.076	0.695	FC1.1
C10	Every group member contributed equally during the activity.	3.69	1.358	0.609	FC1.1
C8	I appreciated all the contributions of the rest of the group members.	4.37	0.936	0.572	FC1.1
C9	I was proud of the final product we submitted.	4.31	0.930	0.564	FC1.1
C14	The activity was successfully completed.	4.52	0.758	0.535	FC1.1
C11	The roles in the group fitted each member's strengths.	3.72	1.013	0.494	FC1.1
C6	I executed my task successfully.	4.41	0.787	0.732	FC1.2
C5	I felt positive that I will be able to execute the task assigned to me successfully.	4.28	0.816	0.615	FC1.2
C7	I was recognised for a job well done after submission.	4.13	0.960	0.400	FC1.2
C4	I was excited about the group activity after the rules/goals were set.	3.90	1.038	0.352	FC1.2
C2	The group goals were discussed and set by the group.	4.13	1.036	0.730	FC1.3
C3	I know what was expected of me as a member of the group.	4.52	0.775	0.547	FC1.3
C1	I know what the group goals were/entailed.	4.17	0.866	0.537	FC1.3
C15	The completed task was submitted on time as requested per instructions.	4.57	0.768	0.846	FC1.4
C16	Well organised group activities blend complementary strengths.	4.41	0.807	0.446	FC1.4
Average		4.21	0.929	0.578	

The data in Table 3 show that the respondents partially agreed (4.21) with the items in the factor. Item C15 (The completed task was submitted on time as requested per instructions) had the highest mean of 4.57 indicating partial agreement tending to agreement with this item. Item C10 (Every group member contributed equally during the activity) had the lowest mean score of 3.69, showing partial disagreement among respondents. The researchers from past experience are aware that these items represent one of the largest problems associated with group work, namely that some group members always contribute more than expected whilst

others are engaged with the phenomenon of social loafing or free riding. Students are usually loath to confront the persons who are not contributing towards the group goal achievement, possibly for fear that such confrontation will have a negative impact on interpersonal relationships in the group. This, in turn, could be related to popularity, as no person wishes to be unpopular within a group. The use of the word popularity brings with it a strong contextual emphasis.

Hofstede (1991) made use of dimensions to distinguish between groups in society. An individualist society is where the interests of the individual prevails over the interests of the group and a collective society, where the interest of the group prevails (Hofstede 1991, 50). Individual contexts stress individual achievement, self-reliance and autonomy whilst collectivism emphasises the value of cohesion, respect for others and a sensitivity for the needs of others. Thus, although a group is composed of individuals, it can be argued that group work is heavily weighted in favour of collectivistic values; hence, popularity within a group could be associated with the individual who best serves the group needs. In a collectivistic group, this



**Figure 2:** A histogram and boxplot showing the data distribution of the items in the group goal achievement factor

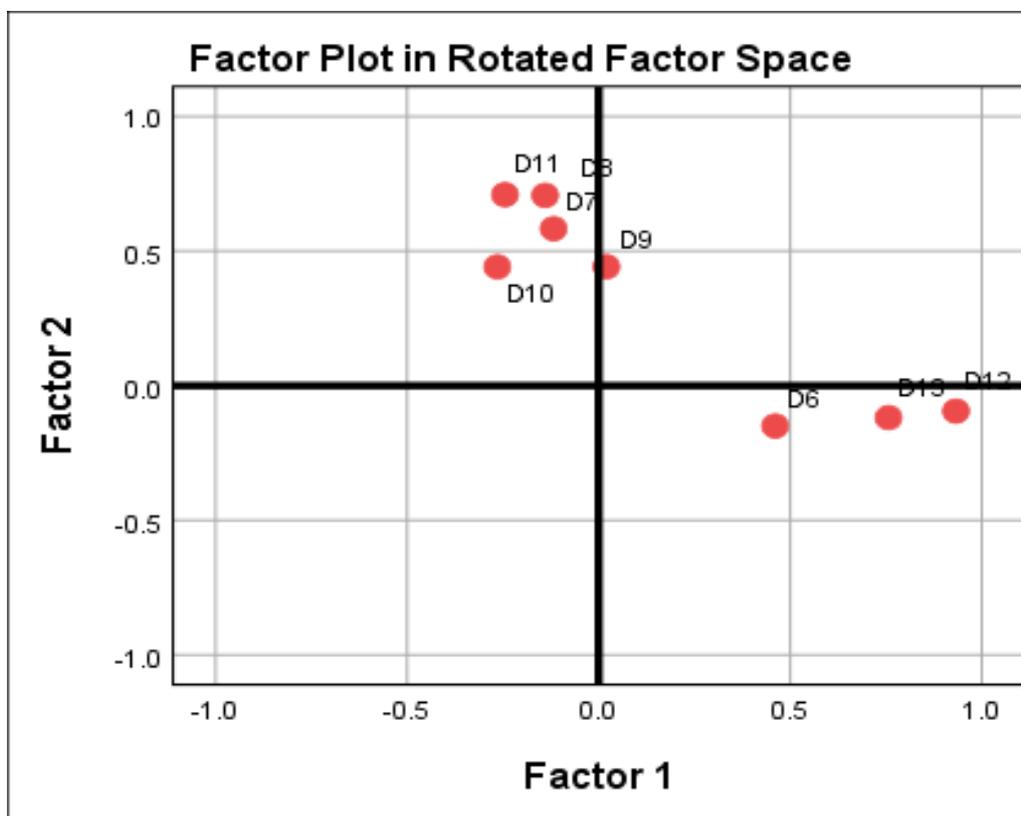
could involve the maintenance of harmony and direct confrontation of another person is considered rude and undesirable (Hofstede 1991, 58). The distribution of the data in the group goal achievement is given in Figure 2.

The distribution of the data, as shown in Figure 2, is negatively skewed and non-parametric statistical tests should be utilised when group analysis is done.

#### **Factor analytic procedure Section D**

Section D of the questionnaire probed the perceptions of students regarding conflict in groups.

It contained 14 items that were operationalised using the same five-point interval scale as before. The initial PFA with varimax rotation indicated that items D1 to D4 had low MSA values ( $<0.50$ ) and that they should be removed from the analysis. In addition, items D5 and D14 had low communalities with the other items and should also be removed from the attempts to achieve a more parsimonious grouping of items. The resulting PFA with varimax rotation had a KMO value of 0.743 and a significant Bartlett's sphericity value ( $p=0.000$ ). Two first-order factors resulted, which explained 56.68 per cent of the variance present. The first factor FD1.1 was named negative conflict resolution and it had a Cronbach reliability of 0.753. The second factor was named positive conflict resolution and had a Cronbach reliability of 0.721. Conflict resolution in this sample of data thus consisted of two first-order factors, which are orthogonal or independent of one another. The loadings on the different factors are demonstrated by the SPSS loading plots graph in Figure 3.



**Figure 3:** The independence of the two factors associated with group conflict resolution

The mean scores, the standard deviation and the loadings on the first-order factors in conflict resolution are given in Table 4.

**Table 4:** The means, standard deviation and factor loadings of the items in the negative conflict resolution (FD1.1) and positive conflict resolution (FD1.2) factors

Item	Description	Mean	Std. Deviation	Loading	Factor
D6	Members of the group found it difficult to solve conflict in the group.	1.94	1.146	0.932	FD1.1
D12	I failed to complete my task successfully after the conflict was solved.	1.58	1.021	0.757	FD1.1
D13	The group failed to complete their task successfully after the conflict was solved.	1.63	1.096	0.461	FD1.1
Average FD1.1		1.72	1.088	0.717	
D8	All group members worked in coherence after the conflict was solved.	4.06	1.029	0.709	FD1.2
D11	The group managed to complete their task successfully after the conflict within the group has been solved.	4.27	0.931	0.707	FD1.2
D7	Conflict was easily unravelled / solved by the group members.	3.81	1.195	0.583	FD1.2
D9	Some of the group members worked in coherence after unravelling and solving the conflict.	3.68	1.043	0.443	FD1.2
D19	I managed to complete my task successfully after the conflict within the group has been solved.	3.84	1.091	0.441	FD1.2
Average FD1.2		3.93	1.088	0.577	

Of note in Table 4 is that item D11 (The group managed to complete their task successfully after the conflict within the group has been solved) had the highest mean score of 4.27, indicating partial agreement with the item. One would, however, have expected a higher mean score for this item, as successful conflict resolution is an aid to completing a task. The lowest mean score of 3.68 for item D9 of 3.38 indicates a neutral response to members working coherently after conflict resolution. This could indicate that the conflict was in fact not totally resolved, leaving some members of the group dissatisfied.

With respect to negative conflict resolution, it is important to remember that a low score indicates stronger disagreement with the items; hence, item D12 (I failed to complete my task successfully after the conflict was solved) with a mean score of 1.58 showed the strongest disagreement with the item and task completion after conflict resolution was not jeopardised. The item with the highest factor loading of 0.932 (Members of the group found it difficult to solve conflict in the group) and, as such, it is the item that makes the largest relative contribution to the factor. The mean score of 1.94 indicates disagreement with the item and it appears as if respondents did not find it difficult to resolve conflict in the group. This could again indicate a collectivistic culture in the group and the “intense and continuous social contact in a cohesive group results in harmony being a key virtue – direct confrontation of another person is considered to be undesirable” (Hofstede 1991, 58).

### Factor analytic procedure Section E

Section E of the questionnaire contained 29 items that allowed students to reflect on the perceptions they had about a group of people working together. The items were operationalised

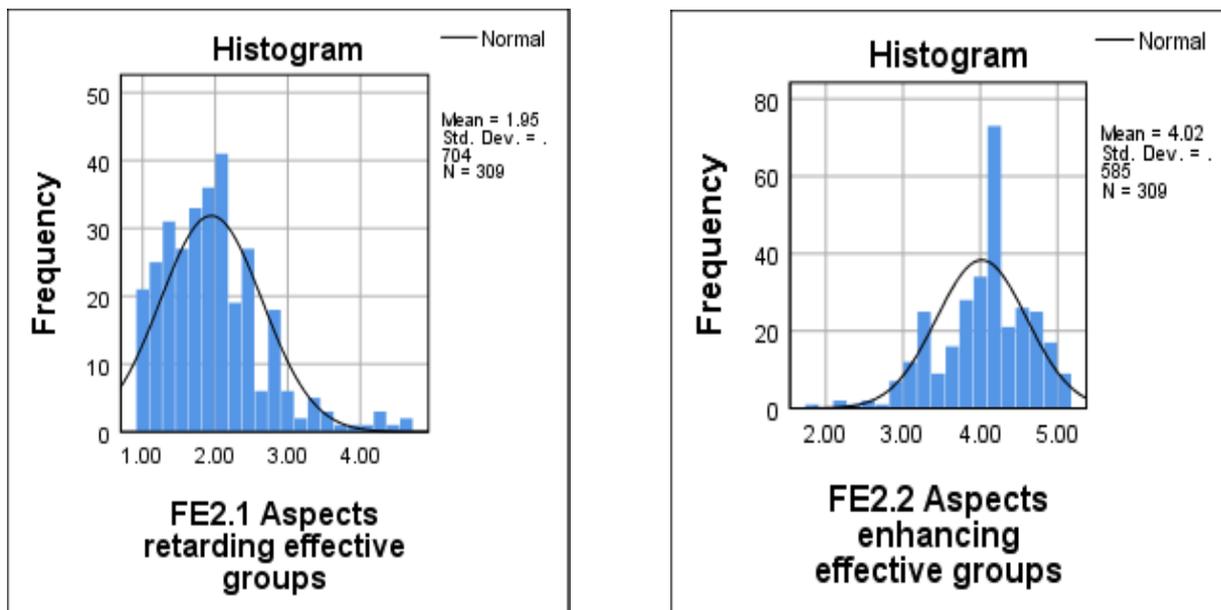
using a five-point interval scale where 1 was for strongly disagree with the item and 5 was for strongly agree with the item provided. Both PFA and PCA (Principal Component Analysis) were performed on the 29 items to get them to cluster into factors and for a more parsimonious solution. The PCA gave a more easily interpretable solution and with varimax rotation it reduced the 29 items to seven first-order factors explaining 59.53 per cent of the variance present. However, item B 29 had a low measure of sampling adequacy (MSA) and was removed. The procedure was repeated and together with low communalities a further six items were removed from the PCA with varimax rotation. The 22 items resulted in seven first-order factors, which were then subjected to a second-order factor analytic procedure. Two second-order factors were formed, explaining 51.3 per cent of the variance present. The first factor contained 11 items and was named Aspects retarding effective groups (FE2.1) and it had a Cronbach reliability of 0.810. The second factor was named Aspects enhancing effective groups (FE2.2) and it had a Cronbach reliability of 0.784. The items in these two factors, their mean scores, standard deviations and loading on their first-order counterparts are given in Table 5.

**Table 5:** The means, standard deviations and factor loadings of the items in the factors aspects retarding effective groups (FE2.1) and aspects enhancing effective groups (FE2.2)

Item	Description	Mean	Std. Deviation	Loading	Factor
E12	Group work does not develop and stimulate critical thinking skills	1.70	1.116	0.794	FE1.1
E14	Group work does not develop and improve decision making skills	1.64	1.100	0.768	FE1.1
E18	Group work does not stimulate the creation of new ideas	1.59	0.965	0.750	FE1.1
E10	Group work does not encourage active learning	1.74	1.091	0.624	FE1.1
E19	I switch off during group work activities	2.02	1.231	0.484	FE1.1
E16	Group work is not a good platform for the shy member(s) to gain confidence	1.88	1.199	0.436	FE1.1
E2	I was biased towards group work due to past experiences of group work	2.53	1.445	0.888	FE1.3
E1	I was biased towards group work when the assignment was handed out	2.44	1.430	0.861	FE1.3
E4	I became biased towards group work after my first experience of it on tertiary level	2.54	1.383	0.541	FE1.3
E21	I am too lazy to participate during group work	1.50	0.986	0.547	FE1.5
E24	I am too busy to take part in group activities	1.81	1.105	0.542	FE1.5
Average		1.95	1.186	0.658	-
E6	I did not find group work frustrating	3.38	1.521	0.826	FE1.4
E23	I enjoy group work activities	4.00	0.924	0.548	FE1.4
E9	Group work encourages active learning	4.41	0.865	0.737	FE1.2
E7	Group work is an effective way of achieving goals	4.05	1.021	0.674	FE1.2
E8	Group work foster creativity	4.15	1.017	0.672	FE1.2
E11	Group work stimulates and develops critical thinking skills	4.36	0.843	0.659	FE1.2
E13	Group work develops and improves decision making skills	4.44	0.769	0.618	FE1.2
E15	Group work creates a good platform for the shy	4.26	1.028	0.478	FE1.2

Item	Description	Mean	Std. Deviation	Loading	Factor
	member(s) to gain confidence				
E26	Group work encourages healthy risk-taking	3.77	1.127	0.533	FE1.7
E28	Working in a group leads to accountability	4.05	0.900	0.505	FE1.7
E27	Group work can be a stress reliever	3.35	1.206	0.680	FE1.6
E20	I prefer that the rest of the group members do the work	2.42	1.670	0.522	FE1.6
Average		3.88	1.074	0.621	

The first part of Table 5 indicates the first-order factors involved with FE2.1 and are FE1.1, FE1.5 and FE1.3. These items are all negatively worded and relate to aspects that would retard or impede group work. The items with the lowest mean score and strongest disagreement are in item E21 (I am too lazy to participate during group work), that had a mean of 1.95, indicating disagreement with the item. No person is likely to admit they are lazy. A question like this, which makes a person feel guilty, should be avoided, as respondents tend not to tell the truth for such items.



**Figure 4:** Histograms showing the data distribution in the retarding and enhancing group work factors

The second factor, which contains items that are the converse of items in the first factor, had more realistic answers provided. The overall mean of FE2.2 (Aspects which enhance or foster effective groups) was 3.88, which indicates partial agreement by respondents.

What is obvious is that effective group work has two poles associated with it and while the positive aspects enhance group work, the negative aspects can retard effective group work.

The data distribution of the two factors in Figure 4 shows the bipolar nature of effective group work.

The aspects retarding group work factor (FE2.1) had a positively skew distribution as the majority of respondents disagreed with the items, while the enhancing factor (FE2.2) had a negatively skew distribution as the majority of respondents agreed with the items in the factor or at least partially agreed with them. A possible explanation could again be that a group could consist of students who ascribe to the features of a collectivistic or individualistic orientation. According to Hofstede (1991, 58), “speaking one’s mind is a virtue and telling the truth about how one feels is a characteristic of a sincere and honest person”, which is likely of a person from an individualistic background. Persons from a collectivistic orientation believe that harmony is a virtue and direct confrontation is undesirable (Hofstede 1991, 58).

### **TESTING FOR SIGNIFICANT DIFFERENCES BETWEEN THE INDEPENDENT GROUPS WITH RESPECT TO THE DEPENDENT VARIABLES IN GROUP WORK**

The dependent variables, as obtained from factor analysis of the questionnaire, were group dynamics (FB2.0), group goal achievements (FC2.0), negative conflict resolution (FD1.1) and positive conflict resolution (FD1.2), aspects retarding effective groups (FE2.1) and aspects enhancing effective groups (FE2.2). All these dependent variables had skewed data distributions and, hence, non-parametric tests were used to investigate possible associations between the dependent variables and the independent groups in Section A of the questionnaire. Only those variables where significant associations were found will be discussed.

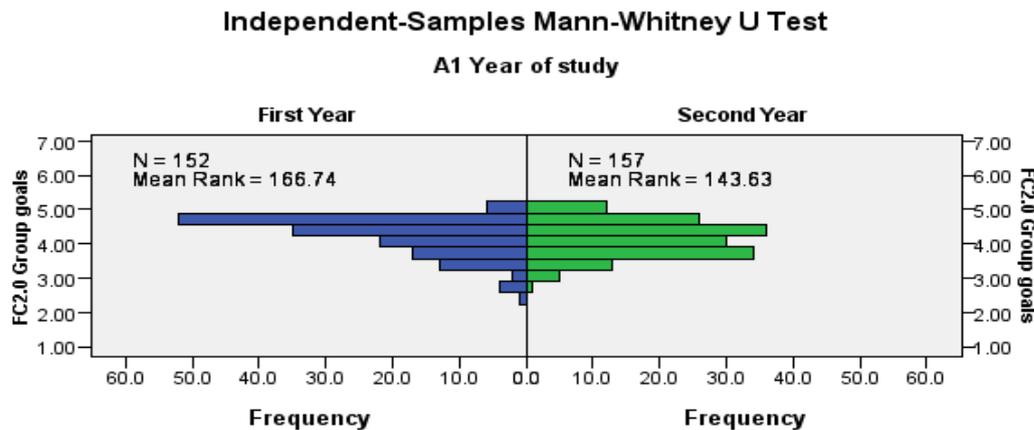
#### **Associations between group goal achievement (FC2.0) and year of study (A1)**

The Mann-Whitney U-test indicated that the mean ranks of the scores obtained on the group goal achievements factor were significantly different from one another. The results of the Mann-Whitney U-test indicate that the mean ranks across the two years of study are not the same and, hence, the null hypothesis can be rejected. Figure 5 shows that the first year of study group had a statistically significantly higher mean rank than did the second year of study group. First-year students in the sample thus agree statistically significantly more strongly than do the second year of study group. It is possible that second-year students are more realistic in their realisation of goals and their expectations are possibly more realistic. The results of this test can be summarised as follows:

$$(\bar{R}_{First\ year} = 166.74; \bar{R}_{Second\ year} = 143.63; z = -2.275; p = 0.23; r = 0.13)$$

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of FC2.0 Group goals is the same across categories of A1 Year of study.	Independent-Samples Mann-Whitney U Test	.023	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.



<b>Total N</b>	309
<b>Mann-Whitney U</b>	10,147.500
<b>Wilcoxon W</b>	22,550.500
<b>Test Statistic</b>	10,147.500
<b>Standard Error</b>	784.290
<b>Standardized Test Statistic</b>	-2.275
<b>Asymptotic Sig. (2-sided test)</b>	.023

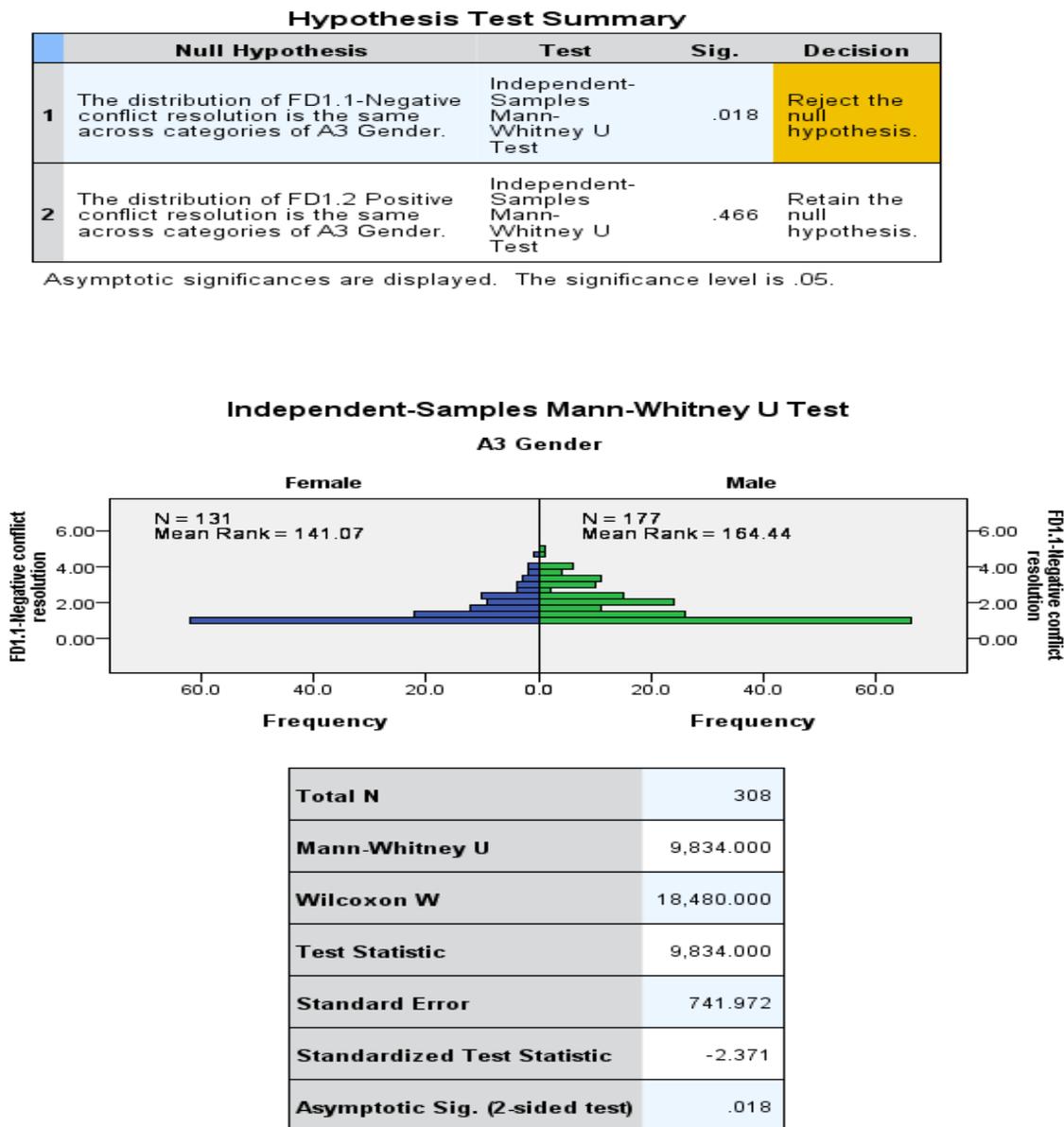
**Figure 5:** The SPSS output for the Mann-Whitney U-test for the year of study groups regarding goal achievement (as in IBM SPSS 24)

### Association between negative conflict resolution (FD1.1) and Gender (A3)

The Mann-Whitney U-test indicated that male students had a statistically significantly higher mean rank than did the female students regarding the factor negative conflict resolution (FD1.). Male students thus agreed more strongly with negative conflict resolution than did female students. It should be noted that both groups disagreed with the items in the factor, but male students disagreed significantly less strongly with the factor than did female students. The results of the Mann-Whitney U-test can be summarised as follows:

$$(\bar{R}_M = 164.44; \bar{R}_F = 141.07; z = -2.371; p = 0.018; r = 0.14)$$

The SPSS 24.0 output for this Mann-Whitney U-test is shown in Figure 6. The difference between males and females with respect to the negative conflict resolution possibly lies in the more competitive role that society assigns to the role of gender, namely masculine role is associated with assertiveness and competition whereas females are seen as more caring and co-operative (Hofstede 1991, 82). Female students thus disagree with negative conflict resolution more strongly than male students do.



**Figure 6:** The SPSS output for the Mann-Whitney U-test for the gender groups with respect to negative conflict resolution

## CONCLUSION

In this study, the objective was to ascertain whether students studying at a UoT were positively or negatively inclined towards group work and to determine which factors influenced their attitudes towards group work. The researchers, who are lecturers at this UoT, often experience that students would prefer not to do group work, but due to the nature of their courses and the fact that the institution relies heavily upon the principles of social constructivism, they are forced to complete certain assessments in a group format.

The results showed that listening skills and mutual respect were crucial factors influencing the success of the group. Students place high value on being heard and being able to voice their opinions in a group. Putting students together randomly is viewed as a fair practice by lecturers, but students feel the opposite and prefer to form their own groups, and this could set the tone for working with the group for the remainder of the task. Social loafing is an issue and students tend to feel negative towards members who piggyback on others and share in the marks. It would be useful to investigate the influence of social loafing, as it is possible that the responsibility of doing the assignment is diffused over more students when the size of the group increases. Interestingly though, the results revealed that sharing the marks with loafers does not necessarily lead to conflict, as students would rather not confront loafers because of the potential harmful impact on the interpersonal relationships in the group. Negative feelings remain unresolved, but a higher value is placed on maintaining the harmony in the group than risking a direct confrontation. This could be due to the collectivistic nature of groups and the students enrolled at this UoT and could also provide an explanation to the open expression of dislike when group work is mentioned, a phenomenon called “group hate” (Burke 2011, 87). When conflict does occur openly, the male students tend to rely more on negative conflict resolution. Upon reflecting about group work, the second-year students were more realistic with regards to their expectations about group work and this could be ascribed due to their past experiences with group work in their respective courses.

In light of the findings from this study, it is clear that students value the positive aspects of group work such as sharing the workload, communicating their ideas and the interpersonal relationships, which are formed in a group, but that the negative aspects such as social loafing and unresolved conflict hinder effective group work. It could be beneficial to investigate different ways of combining students into groups and the possible impact thereof on the result and to orientate lecturers in ways to handle group work more effectively by:

- explaining how groups function and guiding students in assigning roles and duties

- finding alternative ways of assessing students during group work and awarding marks based on individual contribution to the group task as opposed to a final mark shared by all the group members
- using a combination of co-operative and collaborative learning methods to complete group tasks
- coaching students about the value of group work and helping them navigate through the group dynamics.

If the experience of working together in a group could be more efficacious and rewarding, more positive results could be achieved, and social loafing could be reduced. Although lecturers use group work as a means to teach valuable skills and to alleviate the burden of marking individual assignments, more can be done to guide students to manage their groups more successfully.

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