Group Work and Student Outcomes among First Year International Students

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The purpose of the study is to examine the effect of group work on student outcomes. The study explores the incorporation of group work in assessments for first year international students. Group work was primarily used in this study to enhance learning amongst international students in Australia. The study utilized multiple-choice questions answered individually and afterwards in groups which were mostly formed by the students themselves. The results of the study support the existing literature on the potential of group testing to enhance learning in a collaborative environment. The results of the study suggest that group work has a positive effect on students' marks. That is, group members could have a positive impact on assessment marks where the group mark is significantly higher than a student's individual mark for an assessment. The results also suggest that assessed group work has a significant positive effect on a student's final exam mark, which in contrast to group assessment, is a closed-book individual assessment.

Industry groups have put emphasis on teamwork since the 1980s (Seethamraju & Borman 2009). Employers expect current and future employees to have essential and desirable skills such as collaboration and teamwork. Academia's response is group work, hence group assessment has since been part of tertiary education (Ballantine & Larres, 2007; Gaur & Gupta, 2013; Lavy, 2017). The widespread use of group assessment could be attributed to its effectiveness or its ability to lessen the marking load for educators (Caple & Bogle, 2013; Revere, Elden & Bartsch, 2008). Moreover, group assessments "viewed as a learning opportunity is likely to provide greater benefits to the student than one which seeks only to quantify what has been learned previously" (Sainsbury & Walker, 2008, p. 115).

Education is one of the top exports for Australia, and international student numbers continue to increase in the Australian higher education sector. The education sector's contribution is estimated at A$19.9 billion in 2015-2016 (ABS, 2016). Most of the international students studying in Australia and New Zealand are considered to come from a collectivist culture, as opposed to an individualistic culture (Baker & Clark, 2010; Li & Campbell, 2008; Moore & Hampton, 2015; Popov et al., 2012). The tendency to cooperate is higher among students from a collectivist culture (Popov et al., 2012, p. 307). Moreover, the need to adjust in a new environment and the lower level of English proficiency among international students encourage them to rely on each other. This interdependence could extend to university assessments which could pose problems if most assessments are designed to be completed individually. Hence, to make international students realize the difference between group work and an individual assessment, the incorporation of group work in higher education assessments is vital.

Frykedal and Chiriac (2016) noticed that assessed group work is a neglected area of research and provided some suggestions as to the framework that could be used to assist educators in assessing group work. This study attempts to contribute to the literature of assessed group work; however, the focus of the paper is not on learning styles (Cassidy, 2004; Pashler, McDaniel, Rohrer, & Bjork, 2008; Riener & Willingham, 2010) which differentiate between visual, textual, auditory, or physical stimuli, but in the social versus solitary preference in learning. The paper is organized as follows: Section II discusses recent literature relevant to this research. Section III presents the data and methodology used in the study. Section IV outlines the results, and Section V discusses the main findings of the study.

Background

The importance of cooperative learning, collaborative learning, and group learning has been recognized in the literature (Baker & Clark, 2010; Cen, Ruta, Powell, Hirsch & Ng, 2016; Hancock, 2007; Lejk, Wyvill & Farrow, 1997; Lejk, Wyvill & Farrow, 1999; Li & Campbell, 2008; Reiser, 2017; Siegel, Roberts, Freyermuth, Witzig & Izci, 2015; Woody, Woody & Bromley, 2008; Zakaria, Solfitri, Daud & Abidin, 2013), albeit coupled with some inherent problems such as free-riding and/or social loafing (Maiden & Perry, 2011). In addition, Woody et al. (2008) argued that collaborative learning does not necessarily lead to knowledge retention. Nevertheless, the effectiveness and fairness of group assessment in higher education have been discussed in the literature using different perspectives ranging from accounting and finance to the creative arts (Ballantine & Larres, 2007; Gammie & Matson, 2007; Orr, 2010). Attitudes toward group assessment among final year accounting students were assessed using journals or learning logs (Ballantine & Larres, 2007) to record experiences when completing group assessments. Similarly, Gammie and Matson (2007) collected data to understand the mechanics of group and peer assessment, as well as gauge final year accounting and finance students' perceptions on fairness relating to group assessments. Orr (2010) argued that students in the

performing arts – including theatre, dance, and film – understand the importance of group assessments; however, lecturers are encouraged to do more to understand group dynamics.

Group work is a fraught exercise involving students from similar background not to mention involving multicultural students. Strauss, U-Mackey, and Crothers (2014) described the possible dilemmas to group assessment when students come from different cultures. Moreover, when dealing with different cultures other problems such as free-riding, social loafing, language barriers, and regressive collaboration could manifest (Revere et al., 2008; Sainsbury & Walker, 2008). Arevalillo-Herráez (2014) provided assessment strategies to address social loafing by exploiting existing emotional relationships between team members while Revere et al. (2008) suggested that group examinations could lead to less social loafing and higher perceived levels of learning for students.

Australian and New Zealand researchers have investigated different aspects of group learning from active learning, cooperative learning, group assessment, interaction between domestic and international students, social loafing, and group performance (Baker & Clark, 2010; Caple & Bogle, 2013; Li & Campbell, 2008; Liu & Dall'Alba, 2012; Moore & Hampton, 2015; Sainsbury & Walker, 2008; Seethamraju & Borman, 2009; Strauss et al., 2014; Sweeney, Weaven & Herington, 2008). In this region, classes are increasingly becoming more diverse where domestic students and international students are studying together (Moore & Hampton, 2015; Sweeney et al., 2008). Moore and Hampton (2015) noted that both domestic and international students prefer to engage with students from similar backgrounds for group assessments. The authors also noticed that students with positive attitudes toward multicultural groups tend to perform better in group assessments.

Ladley, Wilkinson, and Young (2015) asserted that group cooperation is prevalent in business and that most successful inventions were products of successful cooperation. Hence, learning how to function in groups could be beneficial to first year international business students and at the same time harness the collectivist culture prevalent in most international students in Australia.

The present study makes a distinction between group work and group assessment: the former can be informal and not assessed while the latter is formal and assessed (Frykedal & Chiriac, 2016; Reiser, 2017; Sainsbury & Walker, 2008). Group work in higher education is a process in which students come together to collaborate and possibly learn from each other. It is considered a sociocultural task in which learning is fundamentally a social process (Sainsbury & Walker, 2008). Frykedal and Chiriac (2016, p. 150) defines it as the "teaching mode above all others that encourages the development of cooperative abilities, shared learning,

and creativity." Generally, assessed group work (i.e., group assessment) ranges from case studies or case presentations to examinations. If group work is not assessed or linked to individual outcomes, then students might refuse to participate, which makes group work a difficult exercise for students. Hence, group testing or group examination might be a useful tool to reduce social loafing and facilitate learning (Almond, 2009; Desrochers, Fink, Thomas, Kimmerling & Tung, 2007; Revere et al., 2008; Scafe, 2011).

Once group assessment has been incorporated in the curriculum, the next step is forming groups. The effectiveness of group assessment might depend on the group itself: that is, its members (Channon, Davis, Goode & May, 2017; Lejk et al., 1999; Moore, 2011; Reinig, Horowitz & Whittenburg, 2012). Lejk et al. (1999) offered no conclusion as to how to form groups but suggested that mixed-ability groups benefited weaker students. Ballantine and Larres (2007, p. 178) also noted while examining final year accounting undergraduate students' attitude towards group assessment, "[L]ess able students felt that the group experience had contributed more to their academic improvement than [it did for] their more able colleagues."

Seethamraju and Borman (2009) identified four factors that could influence group formation, and they are the following: (1) convenience, (2) social cohesion, (3) task management, and (4) technical skills/knowledge. The authors also suggested that groups are formed in higher education either by the lecturer or by the students themselves. The study concluded that students might be best placed to form their own groups since they have taken into consideration factors that could increase the performance of their groups. Similarly, Ballantine and Larres (2007) noted that in higher education groups are formed by student self-selection or by lecturers and that smaller group size (e.g., three or four members) is ideal.

The interaction within the group is crucial to its success in terms of assessment completion and quality. There could be instances where only a couple of members would work together to complete an assessment with other members considered as free riders. This creates significant problems within the group, as well as the question of fairness for educators when awarding group marks. Maiden and Perry (2011) explored practical and effective approaches in dealing with free-riding at a UK university. Peer evaluation has been used to prevent free-riding among group members (Lejk et al., 1999; Plastow, Spiliotopoulou & Prior, 2010; Zhang, Johnston & Kilic, 2008). However, Lejk et al. (1999) raised two important issues regarding peer assessment, and they are as follows: (1) group assessment should receive the same mark and (2) students might not be capable of peer evaluation. Moreover, peer evaluation itself seems to be dependent on whether the group is homogenous or not. Strauss et al. (2014) found that Asian students, mainly Chinese students

who are thought to have English as a second language, tend to agree to receive the same group mark for a group assessment. In other words, students coming from similar backgrounds, especially those from a collectivist culture, tend to equally apportion marks among group members, in contrast to students coming from an individualistic culture. Zhang et al. (2008) proposed a generalizability theory framework to evaluate the reliability of peer and self-rating in grading group projects. The authors also noted that a voluntary nature of group formation encourages students' involvement and motivation.

The interaction between domestic part-time graduate business students and international students in the United States (Rafferty, 2013) and an increase in international students in undergraduate courses add an extra dimension to consider in group assessments. Li and Campbell (2008) explored Asian students' attitudes toward, and perceptions of, participating in group work and group assignments. For group learning to be effective, both international and domestic students should be prepared for group work (Baker & Clark, 2010; Li & Campbell, 2008). De Vita (2002) used regression analysis to test if group assessments involving multicultural groups tend to reduce the marks of domestic students. The study provided support to group assessment where the results of the study showed that the average individual mark of both domestic and international students are lower when compared to the average group work marks of the same students for their group project.

Popov et al. (2012) summarized the challenges students encounter in multicultural group work. The combination of students coming from individualist and collectivist cultures could potentially create problems within group assessments. The authors summarized from the literature the different group-level challenges in higher education that affect multicultural student group work. At the group-level, the challenges are classified as group membership and group process. The former consists of differences among group members, such as knowledge, skills, experience, ambition, and culture, notwithstanding age and gender. The latter consists of communication, problem solving skills, conflict management, and leadership. Most of these challenges are present in homogeneous groups but become more problematic in heterogeneous groups that are multicultural. Popov et al. (2012) also highlighted the differences between individuals from a collectivist and high-context culture and those from an individualistic and low-context culture.

The present study utilizes assessed group work in the form of multiple-choice questions to examine its effect on student outcomes for first-year international business students in Australia. Hence, group testing, including multiple-choice questions (Desrochers et al., 2007; Scafe, 2011), are used in first-year economics and statistics units to enhance learning among international students from various cultural backgrounds.

Data and Methodology

The data set includes mostly undergraduate first year international business students from a private tertiary education provider in Australia. A majority of the students are from the Indian subcontinent (65%) and Southeast Asia (24%) with the remaining 11% coming from Central Asia, Eastern and Western Europe, and Central and South America. The gender distribution is biased towards males at 72%. Two first-year units – Business Economics and Business Statistics – were included over a two-year period. There were three main assessments students had to complete in each semester: (a) two short multiple-choice tests (Test 1 and Test 2), (b) a mid-semester test (MST), and (c) final exam (FE).

The sample data includes 475 international students over two years studying two units, with students repeating the units included. Among the students repeating the units, nine out of 32 successfully completed the Economics unit the second time around, and six out of 19 did so in the Statistics unit. For Test 1 (individual) there were 366 students, and for Test 1 (group) there were 344 students, while for Test 2 the numbers were 246 and 228 respectively. In addition, there were 368 students who attempted the mid-semester test and 326 who attempted the final exam. Over the two-year period (i.e. 2012-2013), 415 received a final mark. The data set had missing data, hence for the correlation and regression analyses the sample size was reduced to 191 and comprised of 120 males and 71 females. The distribution was divided equally between those studying economics and statistics (i.e., 96 and 95). There were 117 students from 2012 and 74 from 2013. Out of 191, 59 students studied both units between 2012 and 2013 with only one student repeating and successfully completing the Economics unit the second time around. Three out of four completed the Statistics unit on the second attempt.

The two short multiple-choice tests included an individual test and a group test. For each of the short multiple-choice tests, the individual mark is combined with the group mark. The group test was introduced since collaboration during examinations is considered a useful tool for student learning (Reinig et al., 2012; Sainsbury & Walker, 2008; Scafe, 2011). The two short multiple-choice tests were conducted in week 4 before the mid-semester test and in week 12 before the final exam. The group test had the same questions as the individual test and was administered after the individual test with a five-minute break in between. The correct answers were not provided before the group test.

Students were asked to choose from three weighting options (i.e., 75-25, 50-50 and 100-0) where the weight for the individual test is higher than the group test (except for the 50-50 option). Plastow et al. (2010) examined different weighting options to

Table 1
Descriptive Statistics

Variable	Final Exam Mark	Test1_group	Test2_group	Mid-semester Test
Mean	26.29	12.66	9.85	8.13
Median	26.25	13.00	10.00	7.50
Maximum	50.00	19.00	18.00	23.50
Minimum	4.00	0.00	0.00	0.00
Std Deviation	9.67	3.33	3.27	3.74
Observations	326	343	228	368

Note: minimum value zero is when a student received a zero mark or did not attempt the group test. These are raw marks hence, not weighted.

combine the individual mark to the group mark and found that an 80-20 weighting is most effective when combining individual marks to group marks for level 3 students. One week before each test, students were asked to nominate their preferred grade weighting. Students who were absent in week 3 and in week 11 but present during the weeks of the tests (i.e., week 4 and week 12) were assigned a default weighting of 75-25.

The students could organize their groups beforehand (Seethamraju & Borman, 2009; Zhang et al., 2008). However, if their group members were not present during the week of the tests then they were encouraged to join other students/groups to attempt the group test. A group was not allowed to exceed three members (Reiser, 2017) to avoid social loafing or free riding, hence at least two students were needed to form a group. In addition, the present study allowed students to form groups based on friendship/familiarity (Theobald, Eddy, Grunspan, Wiggins, & Crowe, 2017). The individual and group marks obtained from the two short multiple-choice tests were compared (Gaudet, Ramer, Nakonechny, Cragg & Ramer, 2010) to examine the effect of group work on student outcomes.

Hypotheses testing, and regression analyses were utilized to ascertain the effect of group work on the final exam marks. Paired t-tests were utilized to compare the combined marks for Test 1 and Test 2, as well as to compare the individual and group marks for Tests 1 and 2. The group marks for Tests 1 and 2 were compared to the students' individual marks to examine if there were significant differences between the two marks. Moreover, the combined marks (e.g., weighted individual and group) for Tests 1 and 2 were also compared to ascertain if students improved between Week 4 and Week 12. Regression analyses were also used to determine if there is a relationship between group marks and students' individual marks (e.g., final exam).

Results

This paper attempts to examine the effect of group work on first year international students' academic performance on a final exam. A majority of the international students in Australia have different characteristics when compared to domestic students in terms of culture, English ability, and study ethics. Instead of solely assessing students based on individual assessment, assessed group work was introduced to improve student outcomes.

Based on surveyed students' preference, 57% chose the 50-50 option, and 36% preferred 75-25 for Test 1. For Test 2, 55% of the students chose the 50-50 option, and 39% selected 75-25. Less than 10% chose the 100-0 option, that is, 7.2% for Test 1 and 6.5% for Test 2. On the day of the tests, because some students were absent the week before when they were supposed to nominate their preference, 47% of students in Test 1 chose the 50-50 option, and 39% did so for Test 2. Moreover, approximately 5% of the students who attempted the tests chose the 100-0 option. There seemed to be a preference for a more equal distribution of marks in both tests. However, towards the end of the semester, there was a slight change in preference towards the 75-25 option.

Table 1 summarizes the four assessment marks that contributed toward the students' final marks. The maximum (raw) marks for the final exam, Test 1 group marks, Test 2 group marks, and the mid-semester test are 50, 20, 20 and 25 respectively. The individual marks for Test 1 and Test 2, as well as the combined marks for the two tests, are not included in the table. Table 2 shows the correlation coefficients for each of the variables included in the ordinary least squares (OLS) regression model used in the study. As an individual test like the dependent variable, the mid-semester test mark is positively correlated with the final exam mark at around 54%. The final exam mark is also positively correlated with year. This might be capturing the fact that 31% of the students (i.e., 59 out of 191) studied both economics and statistics over the two-year period, and 12% tended to repeat either units. The correlation between the unit and the group mark for Test 1 is also positive, which could suggest that the students found the first group test in economics easier when compared to statistics.

Table 2
Correlation Matrix (Balanced Sample, List Wise Missing Value Deletion, Sample Size = 191)

	Final Exam Mark	Test1_group	Test2_group	Mid-semester Test	Unit	Year
Final Exam Mark						
Test1_group	-0.0383					
Test2_group	0.0276	-0.1642*				
Mid-semester Test	0.5354*	0.2344*	-0.0880			
Unit	-0.0243	0.6238*	-0.2943*	0.1937*		
Year	0.4125*	-0.1929*	-0.2999*	0.1105	0.0388	

Note: * - significant at 99%

Table 3
Paired Two Sample t-Test for Means of Individual and Group Marks for Tests 1 and 2

	Test 1 Individual	Test 1 Group	Test 2 Individual	Test 2 Group
Mean	10.6327	12.6603	7.7654	9.8496
Variance	12.3870	11.0956	9.3180	10.6636
t-statistics	12.8966		12.2093	
p-value (one-tail)	0.0000		0.0000	
p-value (two-tail)	0.0000		0.0000	
Pearson Corr	0.6399		0.6690	
Observations	343		228	
df	342		227	

Table 4
OLS Regression Results

Variable	Model 1	Model 2	Model 3
Intercept	5.0535** (3.4863)	5.0535** (3.2913)	1.9908 (3.5027)
Test1_group	0.0165 (0.2187)	0.0165 (0.2053)	0.2438 (0.2225)
Test2_group	0.5064* (0.1782)	0.5064* (0.1532)	0.5784* (0.1744)
Mid-semester Test	2.0957* (0.2272)	2.0957* (0.2425)	1.8512* (0.2319)
Unit	-1.8116*** (1.381)	-1.8116** (1.2499)	0.6083 (1.5148)
Year	8.0409* (1.177)	8.0409* (1.2058)	12.5847* (1.7453)
Unit*Year			-7.7364* (2.2448)

Note: * significant at 99%, **significant at 85%, ***significant at 80%
Sample size = 191, 117 from 2012 and 74 from 2013

T-tests and paired t-tests were conducted to examine a series of questions. Firstly, is there a difference between the marks obtained from the two tests, one held in week 4 and the other in week 12? The t-tests results indicate that the difference in the marks is statistically significant at 1%. The mean for Test 1 is higher than the mean for Test 2. This might reflect the difference in the level of difficulty between the two tests. Secondly, is there a difference between the individual mark and the group mark for Tests 1 and 2? The t-tests results also indicate that the marks are statistically significant at 1% where the group marks are higher than the individual marks. This result is similar to Desrochers et al. (2007) where multiple-choice questions were used to compare individual marks to group marks, although the group marks were derived

using two settings (i.e., cooperative test versus competitive test). The authors suggested that students working in groups perform better than those working alone. Scafe (2011) conducted a similar study on MBA students studying statistics by using multiple-choice questions. The results of the t-tests also suggested that the students' individual scores were significantly lower than their group scores. The results from the present study suggest that students benefit from group work where the difference in the means for Test 1 and Test 2 are 2.028 and 2.084 respectively, as shown Table 3.

An ordinary least squares (OLS) regression is also utilized to examine if there is a relationship between the final exam marks and other variables such as the Tests 1 and 2 group marks, the mid-semester test mark, the unit (either economics or statistics), and the year the unit was

Figure 1
Initial OLS model

FE_Mark^ =	5.0535	+ 0.0165*Test1_grp	+ 0.5064*Test2_grp	+ 2.0957*MST
		− 1.8116*Unit	+8.0409*Year	

where: Year = 0, 2012 and =1, 2013, Unit = 0, Statistics and =1, Economics. The coefficients of Test2_grp, MST and Year are significant at 1% while the intercept, coefficients of Test1_grp and Unit are insignificant at 10%.

attempted. Table 4 shows the results from three OLS regression models. Model 1 is the initial OLS model as seen in Figure 1. Heteroscedasticity is suspected at 10% significance level. Hence, model 2 is employed to correct for heteroscedasticity using Huber-White standard errors. There were no changes in the values of the coefficients nor the level of significance.

The OLS regression results explain almost 46% of the variation in the dependent variable, the final exam mark. Overall, the OLS model is statistically significant at 1%. Model 3 includes an interaction term between the variables unit and year, which is statistically significant at 1%. Heteroscedasticity is not present in the model. The results from model 3 are similar to the first two models where there is no statistical difference between Business Economics and Business Statistics at 10%. However, the interaction term between unit and year suggests that among the students enrolled in 2013, studying economics had a negative impact on their final exam marks.

The results also suggest that students learn to adapt with group tests. On one hand, the first group test, Test1_grp, is not significant in contrast to the second test, Test2_grp. On the other hand, since 12% of the students tended to repeat either units and 31% studied both, there is a significant difference between the years the group tests were first introduced when compared to the subsequent year.

In sum, the study found that group work does affect student marks. Firstly, students' group marks are significantly higher than their individual marks. This result is similar to the findings in the literature (Desrochers et al., 2007; Plastow et al., 2010; Scafe 2011). One anonymous referee pointed out that a high performing student would easily identify the correct answers in a multiple-choice test. However, in this study, there were instances where the individual mark is higher than the group mark (i.e., 55 out of 343 for Test 1 and 24 out of 228 for Test 2). This suggests that some discussion among group members persuaded the high performing members to change their answers.

Secondly, there is a significant difference between the tests conducted in Week 4 and Week 12 when the individual and group marks are combined, although the mean mark of Test 2 is lower than the mean mark for Test 1. This could indicate the difference in the level of difficulty between the two tests. Lastly, the regression results confirm that the final exam mark could be explained by the Test 2 group mark and the mid-semester test mark, as well as the year the unit was attempted.

Discussion and Conclusion

This study uses data from a private tertiary education provider in Australia. The study examines the impact of group work on academic performance on a final exam among first-year international students enrolled in either Bachelor of Accounting or Bachelor of Business degree programs over a two-year period in two core units: Business Economics and Business Statistics. In acknowledgement of the cultural diversity present among international students, a group test was introduced. The group test could serve various purposes to first year students. First, it could be used as a tool to encourage more interaction among students: that is, it encourages them to interact with other students from other cultures. Secondly, since most international students in Australia come from collectivist cultures, there is a natural tendency to cooperate (Popov et al., 2012). Group work could be a complementary tool in accommodating students' preference for cooperation. Moreover, a majority of Australian working environments expect employees to work as a team. Hence, learning how to function in groups is a very important skill to have for any student (Almond, 2009; Caple & Bogle, 2013). Last, due to the varying cultures of first year international students, group work could be used to create an inclusive learning environment.

Potentially, group work could have either a positive or a negative impact on students' academic performance (Lejk et al., 1999; Moore & Hampton, 2015). Sainsbury and Walker (2008) discussed regressive collaboration where a dominant member of a group creates confusion instead of conceptual clarification. On one hand, if a student is grouped with a high performing group, the student could benefit from this scenario by receiving a higher mark and/or learning better study techniques. The opposite could also be true: that is, the student could continue to rely on other group members and in return not perform as well during final examinations. On the other hand, if a student is grouped with a low performing group, the student is disadvantaged in terms of a lower group mark

contributing to his/her final mark and the inability to improve on study techniques. However, a generally good student in a bad group could still have a better outcome than a generally poor student in a good group.

The regression results indicate that the second group test is statistically significant, which could suggest that first year international students benefit from group work and it also positively affects their final exam scores. Hence, group work does not have to be confined to case studies or projects such as oral presentations and report submissions. The incorporation of group work using multiple-choice questions in tertiary education might be another useful tool in assisting first year international students in their transition period (Desrochers et al., 2007; Hancock, 2007; Scafe, 2011). It allows students to evaluate their individual answers, discuss with their group members the best answer, and learn from the process. Moreover, it could harness their tendency to collaborate, which is an essential skill in paid employment.

The main purpose of the group work in this study was to enhance learning among first year international students in Australia and to make them realize the difference between group and individual assessments. The students were briefed regarding the group work requirement. They were given a chance to organize their groups. They were also given a choice to determine the weighting applied on their group marks and individual marks. The results of the study support the existing literature on the potential of group testing to enhance learning in a collaborative environment. The results also suggest that collaborative learning could be achieved in a multicultural group setting.

The present study does not consider attendance, gender, ability, attitude, etc. which are variables that have been mentioned in the literature to predict student outcomes (Latif & Miles, 2013; Moore, 2011; Stenberg, Varua & Yong, 2012). The weighting preferences of the students can be further explored to gain an insight on students' reliance on group work. Hence, more data is needed to include relevant variables mentioned above and to extend the OLS model presented in this study.

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