Achieving the 21st Century Educational Outcomes through Group Work: A Case of Business Plan Preparation, Presentation and Assessment

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Abstract

The paper is a report on an investigation that was conducted to solicit responses on the student's experiences with group activities as a form of assessment for learning. A mixed research methodology involving the use of both quantitative and qualitative research methods was used. A thirty five (35) item questionnaire was designed and distributed to a sample of 90 students to solicit their responses relating to their learning experiences during a business plan preparation and presentation assessment activity. Observations by the researchers during the activity were also incorporated in the study. The results of the study revealed that students felt that they learnt more from their peers during the preparation and presentation of their business plans. Among the observed actions and behaviours of groups, lack of coordination and role conflicts were among the most dominant challenges. Collaborative team efforts were cited as the main benefit derived from the group activity. The statistical analysis results yielded positive correlations between group behaviour variables and educational outcomes. The study concludes that group communication, group inputs, contributions by group members, collaborative participation and group harmony are useful predictors of positive educational outcomes among students. Suggestions to achieve the most out of group activities both as a teaching and an assessment method are provided.

Keywords: *Assessment, Groups, Business Plan, Presentation*

1. Introduction

Continuous changes in the teaching and learning landscape has seen researchers, scholars, and policy makers attempting to come up with innovative teaching and assessment approaches. In South Africa and elsewhere in the world, continuous changes in socio-economic, technological, political, socio-cultural, and environmental factors as well as globalisation in the past decade have resulted in changing classroom sizes, diverse classes and emerging skills requirements, among other notable changes (Saavedra & Opfer, 2012; Carroll, Fulton & Doerr, 2010; Davies, 2009; Chapman, Meuter, Toy & Wright 2006; Liden, Wayne, Jaworski, & Bennett, 2004; Brown, 2004; Parker 2003, Rust, 2002). As the world changes so is the expectations placed upon education. This is a call for innovative and up to date teaching and assessment approaches that will increase achievement of the intended educational outcomes.

Chapman *et al*. (2006) as well as Liden *et al.* (2004) revealed that employers and professional bodies both consider seriously, the ability to communicate, cooperate, collaborate and compromise with others as critical educational outcomes graduates seeking employment must possess. These skills could be fostered through working in groups. In Jaques (2001)'s conception, a group can be defined in terms of its membership relations which include collective perception, shared needs, shared aims, interdependence, social organisation, interaction and cohesiveness.

Among the merits of group work as noted by Davies (2009) is that it promote the construction of knowledge and enhancement of problem-based learning among students, a competence that is highly valued in the 21st century world.

Bourner, Hughes, and Bourner (2001) as well as Maguire and Edmondson (2001) also pointed out that working in groups is an essential part of an individual's career, and most modern day employers often ask students about their ability, experience and achievements working in group settings.

In light of the merits of group work particularly as aligned to the 21st century working environment, the researcher believes that a lot of educational outcomes could be achieved through effective use of group works both as a teaching method and an assessment method in higher education institutions. Consequently this study is an investigation of the potential of group work, both as an assessment method and teaching method, on achieving positive educational outcomes among students at higher education institutions.

2. Innovative Teaching and Assessment: A Focus on Group Work

There is a wide range of literature that provide a range of ideas and strategies for maximizing the potential of group work and making it an equitable, rewarding and enjoyable learning and teaching experience for students and facilitators respectively (Spiller, 2012; Maiden & Perry, 2011; Exley, 2010; Davies, 2009; Dunn, Morgan & O'Reilly, 2004; Hanrahan & Isaacs, 2001; Springer, Stanne & Donovan, 1999; Cuseo, 1992). The majority of literature (Maiden & Perry, 2011; Davies, 2009) focuses mainly on group work as a form of summative assessment without due consideration of the potential of group work as a form of formative assessment. Taras (2005:468) defined summative assessment as; "*…a judgement which encapsulates all the evidence up to a given point. This point is seen as finality at the point of the judgement".* The difference between summative and formative assessment as indicated by Taras (2005:468) is that formative assessment "*…requires feedback which indicates the existence of a 'gap' between the actual level of the work being assessed and the required standard. It also requires an indication of how the work can be improved to reach the required standard*". In reviewing Tara (2005)'s distinction between formative and summative assessment it can be noted that the distinction lies on the purpose and role of the assessment process and its relations to the teaching methodology. Therefore, group work as a form of formative assessment should be considered seriously by both academics and students alike.

Assessment is equally (or even more) important as the process of teaching and learning. In Lambordi (2008)'s view, "*If we want learners to engage with ambiguous and complex problems, including those drawn from real life, then we need new forms of assessment that document the higher-order thinking and problem solving that students demonstrate*". This is to emphasise the importance of innovative teaching and assessment that is in line with the requirements of the 21st century working environment. Assessment defines what students regard as important, how they spend their time, and how they come to see themselves as students and meaningful citizens in a society (Lambordi, 2008). Therefore, a lot of improvement in educational outcomes could be achieved if a carefully informed assessment method is infused into the teaching and learning activities.

Infusing teaching methodologies and assessment methods could have substantial impact on students' performance. Gibbs and Simpson (2004) as well as Gibbs (2010) revealed that the student's achievement is influenced mostly by assessment rather than the teaching itself. Lambordi (2008) also noted that students' engagement with the subject matter is affected by their expectations of what and how their achievement will be evaluated. Therefore a combination of both formative assessment and summative assessment could be used in teaching to achieve the most out of students.

Given the nature of formative assessment and its potential as part of providing constructive feedback to students, it is worth considering serious as part of the teaching methodology. Taras (2005) posit that when formative assessment is considered part of teaching methodology, the teacher is the agent 'doing' something to the learner; therefore a lot of benefit will flow from the teacher to the student as well as among students; leading to a more rewarding teaching and learning experience.

In an argument for group work Boud, Cohen and Sampson (1999) notes that collective learning opportunities are more appropriate for some groups of students than individual competitive methods. In the same vein Bourner *et al*. (2000) as well as Maguire and Edmondson (2001) posit that group work play an important role both as a teaching and assessment method in terms of a student's later employability, as working in groups is an essential part of an individual's career since most potential employers particularly in the 21st century, often consider the graduate's experience working in group settings. Furthermore, collaboration and cooperative learning, very important aspects in the information era in which the importance of networking and interconnectedness are well pronounced, could be fostered through group work (Mahenthiran and Rouse, 2000). In the same line of argument, Palloff & Pratt (2005) argue that collaborative learning, a common feature in group work, increase the potential of development of critical thinking skills, co-creation of knowledge

and meaning, reflection as well as transformative learning. Widespread changes in the educational environment, the working environment and the new skills set demanded by the working world as well as globalisation, calls for innovative and sustainable teaching and assessment methods. In this view, this paper provide a strong argument for group work both as teaching method and an assessment method on its potential to foster the new skills and educational outcomes as demanded by the 21st first century world.

3. Research Methodology

An investigation of the potential of group work, both as an assessment method and teaching method, on achieving positive educational outcomes among students at higher education institutions necessitated a method designed specifically for undertaking such a task. Hence, the study followed a mixed research methodology advocated by Creswell (2010) that involve sound philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. Mixed research methods were credited by Mertens (2013) for their ability to extend understanding of complex social phenomenon, as well as develop effective interventions to address complex social problems.

For the purpose of this study, a class of 90 third year Business Studies students in the School of Education, University of Limpopo, was used as a case study for investigation. The students were given instruction on how to prepare a business plan, thereafter the students were asked to form groups of between five (5) to ten (10) individuals. A detailed business plan preparation and presentation activity was designed and explained to the students. It specified the objectives, the actions to be carried out, the responsibilities of the groups as well as the expectations of the instructor. The instructor requested the students to submit their group meeting schedules and at least two unannounced group visits (unstructured observations) by the instructor were done to observe the group behaviours and activities.

Following the groups' presentation of their business plans, a self administered questionnaire was issued to all the students who participated in the activity. The predominantly likert scale questionnaire measured the identified group behaviour variables as well as educational outcome variables. The responses were captured and subjected to statistical testing using SPSS 20.0. The statistical tests that were conducted include descriptive statistics, correlation analysis as well as cross sectional ordinary least squares (OLS) regression analysis. For the purpose of the regression analysis the following regression initial model was specified:

$$\mathbf{OutEdu} = \alpha + \sum \beta_1 GcRoleC + \beta_2 GcNonpart + \beta_3 GcLcons + \beta_4 GcDom + \beta_5 GcLComm + \beta_6 GcIconfl + \beta_7 GcIconf + \beta_8 GcAconfl + \beta_9 GcBconfl + \beta_{10} ColAttend + \beta_{11} ColInput + \beta_{12} Colwrk + \beta_{13} ColCoop + \beta_{14} ColContr + \beta_{15} ColExp + \beta_{16} ColFacil + \beta_{17} ColSkill + \beta_{18} Colpart + \beta_{19} ColTeam + \beta_{20} GbBrain + \beta_{21} GbComply + \beta_{22} GbHam + \beta_{23} GdVote + \beta_{24} GdDict + \beta_{25} GdDmT + \beta_{26} GdOther + E.$$

Where:

OutEdu	educational outcome
α	Constant
β	Beta coefficients
GcRoleC	Group role conflict
GcNonpart	Group member non participation
GcLcons	Group lack of consensus
GcDom	Dominant group members
GcLComm	Group communication
GcIconfl	Individual conflict with entire group
GcAconfl	Two member conflict
GcBconfl	Group conflict
ColAttend	Group meeting attendants
ColInput	Group inputs
Colwrk	Group working together
ColCoop	Group cooperation
ColContr	Contribution by group members
ColExp	Group expectations
ColFacil	Role as a facilitator
ColSkill	Collaborative skills
Colpart	Collaborative participation
ColTeam	Team working

GbBrain	Group brainstorming
GbComply	Group member compliance
GbHam	Group harmony
GdVote	Group decisions by voting
GdDict	Dictatorial group decisions
GdDmT	Group decisions by decision making tools
GdOther	Group decision other
E	Error term

Following the results of the regression analysis the regression model will be re-stated.

4. Research Findings And Discussions

4.1 Observation Results

During group meeting visits, the instructor took notes of the most common actions and behaviours displayed by group members during their group meetings. In female dominated groups the instructor observed that role conflicts were common with one or two outspoken members dominating the discussion. Male dominated groups demonstrated lack of coordination and in several instances a lot of time was wasted on digressions and tangents**.** This corroborates with the findings by Craig and Berndahl (1996) who found different influential levels and participation levels in female and male dominated groups.

Other observed problems include floundering, dominating and/or reluctant participants, getting stuck, rushing to work as well as feuds**.** Furthermore, **c**ommon features of group dynamics such as communication, influence, interaction, interdependence, interrelations, psychological significance, shared identity as well as structure were observed.

In the majority of groups the devil's advocacy was dominant. In each of these groups one or two members acted as the devil's advocate by critiquing the way the group identified alternatives and pointing out problems with the alternative selection. Dialectical inquiry in which two different groups were assigned to the same problem and each group was responsible for evaluating alternatives and selecting one of them was observed in only one group.

Other behavioral as well as educational outcomes observed during the observation session were incorporated into the design of the self-administered questionnaire that was used to gather quantitative data, the results of which are presented in the following sections.

4.2 Quantitative Data Results

4.2.1 Response rate

Ninety (90) questionnaires were issued to a sample consisting of third year students majoring in Business Management. The questionnaire was divided into subcategories, namely, collaboration variables, group challenges variables, and outcome variables. Out of the ninety questionnaires, five (5) questionnaires were rendered unusable due to missing key information and spoiled responses. Consequently, eighty five (85) usable questionnaires were considered for data analysis. This implies that an effective response rate of 94% was achieved.

4.2.2 Reliability of the instrument

The reliability of the measuring instrument was tested using the Cronbach's Alpha coefficient. The three categories on the instrument, that is, collaboration variables, group challenges and outcome variables yield coefficients of 0.649, 0.720 and 0.919 respectively. Overall, the instrument yield a coefficient of 0.797, hence based on Bryman and Bell (2011)'s argument that any coefficient above 0.70 implies reliability of the instrument, the reliability of the instrument can be assumed.

4.2.3 Demographic Statistics

The demographics statistics of the respondents and groups are presented in Table 2.

Table 1: Demographic Statistics

Variable		Frequencies (%) N=85
Gender	Male	43.5
	Female	56.5
Age	15-20 years	5.9
	21-25 years	78.8
	26-30 years	8.2
	31-35 years	7.1
	36+	5.9
Group Composition: Number of Male participants	0-2	25.9
	3-4	25.9
	5-6	27.1
	7-8	16.5
	9-10	4.7
Group Composition: Number of Female participants	0-2	1.2
	3-4	25.9
	5-6	36.5
	7-8	35.3
	9-10	1.2

4.2.4 Correlations- Educational Outcomes Vs Group Behaviour Variables

The results of the correlation analysis are presented in Table 3. For the sake of brevity and relevance only correlations between group variables and educational outcomes were extracted and presented here.

Table 3: Correlations- Educational Outcomes Vs Group Behaviour Variables

		OutListSkil	OutBrain	OutCoop	OutCreat	OutDiverse	OutLead	OutEDu	OutInd	OutIdeaCom	OutOpres	OutLitSear	OutMon	OutPart
ColAttend	Pearson Correlation	.118	.402**	.336**	.122	.107	.146	.055	.094	.387**	.437**	.398**	.379**	.288**
	Sig. (2-tailed)	.283	.000	.002	.268	.332	.182	.618	.390	.000	.000	.000	.000	.007
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
ColInput	Pearson Correlation	.340**	.396**	.377**	.091	.123	.051	.005	.057	.167	.360**	.121	.157	.088
	Sig. (2-tailed)	.001	.000	.000	.410	.262	.640	.966	.603	.126	.001	.271	.151	.422
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
ColCoop	Pearson Correlation	.303**	.333**	.204	.019	.295**	.167	.176	.063	.015	.198	.222*	.088	.218*
	Sig. (2-tailed)	.005	.002	.061	.863	.006	.127	.108	.566	.889	.069	.041	.423	.045
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
ColContr	Pearson Correlation	.191	.389**	.339**	.336**	.121	.323**	.143	.104	.165	.296**	.320**	.200	.171
	Sig. (2-tailed)	.080	.000	.002	.002	.268	.003	.191	.343	.130	.006	.003	.067	.118
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
Colpart	Pearson Correlation	-.390**	-.291**	-.160	-.204	-.281**	-.145	-.293**	.070	-.074	-.074	.049	.229*	-.140
	Sig. (2-tailed)	.000	.007	.144	.061	.009	.184	.007	.524	.504	.504	.656	.035	.200
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
ColTeam	Pearson Correlation	.403	0.000	.518	.141	.075	.616*	.543	.431*	.004	.079	.089	.141	.011
	Sig. (2-tailed)	.022	1.000	.003	.199	.493	.001	.001	.033	.971	.475	.417	.198	.919
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
GbLead	Pearson Correlation	.220*	.350**	.335**	.239*	.177	.016	.268*	.104	-.109	.013	-.236*	.021	-.143
	Sig. (2-tailed)	.043	.001	.002	.027	.106	.885	.013	.344	.321	.909	.029	.848	.191
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
GbComply	Pearson Correlation	.299**	.094	-.063	-.153	.008	-.047	-.021	-.021	-.291**	-.052	-.361**	-.271*	-.275*
	Sig. (2-tailed)	.005	.393	.566	.162	.940	.668	.846	.846	.007	.634	.001	.012	.011
	N	85	85	85	85	85	85	85	85	85	85	85	85	85

GbCreat	Pearson Correlation	.079	.312**	.220*	.644**	.417**	.274*	.267*	.092	.404**	.207	.372**	.257*	.448**
	Sig. (2-tailed)	.470	.004	.043	.000	.000	.011	.014	.402	.000	.057	.000	.017	.000
	N	85	85	85	85	85	85	85	85	85	85	85	85	85
GbHam	Pearson Correlation	.010	.022	.087	-.003	-.065	-.102	-.139	-.320**	.190	-.045	.020	-.238*	.055
	Sig. (2-tailed)	.927	.840	.426	.976	.554	.354	.206	.003	.082	.679	.856	.028	.614
	N	85	85	85	85	85	85	85	85	85	85	85	85	85

4.2.4.1 Group meeting attendants

From Table 3 it can be noted that group meeting attendants has statistically significant positive correlations with five (5) educational outcome variables namely ability to communicate ideas (OutideaCom) (r=0.387, sig.=0.000); ability to present information logically and eloquently (OutOpres) (r=0.437, sig.=0.000); ability to conduct a literature search (OutLitSear) (r=0.398, sig.=0.000); ability to monitor others (OutMon) (r=0.379, sig.=0.000) and ability to participate in group discussions (OutPart) (r=0.288, sig.=0.007). The finding pointed at the relationship between attendance and academic achievement, this resonate with several studies (for example, Balfanz & Byrnes, 2012; Barge, 2011; Gottfried, 2010; Douglas, 2010; Caviglia-Harris, 2006; Moore, 2005; Roby, 2004) that attendance is positively related to educational achievement. Consequently, students can benefit from group meeting attendants in terms of improved communication skills, presentation skills, control and leadership skills as well as ability to engage in meaningful debates, skills that are of great value for future employability.

4.2.4.2 Collaborative group inputs

Collaborative group input yield statistically significant positive correlations with improved listening skills (OutListSkil) (r=0.340, sig. =0.001); ability to brainstorm ideas (OutBrain) (r=0.396, sig. =0.000); ability to present information logically and eloquently (OutOpres) (r=0.360, sig. =0.001). Group work provides students with comfortable platforms to make their inputs to group discussions and an opportunity to listen to their peers' inputs. Students also feel more comfortable contributing ideas to peers whom they are familiar with, who they also believe are at their knowledge level, unlike to the instructor. Group dynamics and the pressure to make an input to group discussion increases the students listening skills, brainstorming capabilities and ability to present their ideas orally, hence the positive correlations between collaborative group inputs, listening skills, brainstorming ideas and presentation skills.

4.2.4.3 Collaborative group cooperation

Collaborative group cooperation showed statistically significant positive correlations with improved listening skills (OutListSkil) (r=0.303, sig. =0.005); ability to brainstorm ideas (OutBrain) (r=0.333, sig. =0.003); ability to work effectively in a diverse group (OutDiverse) (r=0.295, sig. =0.006); and the ability to participate in group discussions (OutPart) (r=0.218, sig. =0.045). Cooperation with group members may increase an individual's attention levels leading to improved listening skills; this is confirmed by the positive correlation between cooperation and listening skills. Similarly the pressure to participate in group discussions, which if not may give an impression of lack of cooperation, may force individuals to come up with ideas during brainstorming sessions and this, enhances their brainstorming skills. Furthermore, a sense of belonging and harmony with a group consisting of individuals with diverse backgrounds and characteristics may lead to increased capabilities to embrace diversity as well as the ability to participate in meaningful debates. David and Robin (2004) asset that group dynamics provide the participants with the reflexive and communicative tools needed to form a productive group and increase output.

4.2.4.4 Collaborative acceptance of contributions

Collaborative acceptance of contributions showed statistically significant positive correlations with ability to brainstorm ideas (OutBrain) (r=0.389, sig. =0.000); ability to work with cooperative learning groups (OutCoop) (r=0.339, sig. = 0.002); creativity (OutCreat) (r=336, sig. = 0.002); leadership (OutLead) (r=0.323, sig. =0.003); ability to communicate ideas (OutideaCom) (r=0.296, sig. =0.006); and ability to conduct a literature search (OutLitSear) (r=0.320, sig.=0.003). This finding may be interpreted to mean that individual's ability to brainstorm ideas, ability to work in cooperative learning groups, creativity and communication of ideas may be enhanced if individual's contributions are accepted and valued by

their peers.

4.2.4.5 Collaborative role as a facilitator

Collaborative role as a facilitator showed statistically significant positive correlations with ability to brainstorm ideas (OutBrain) (r=0.314, sig. =0.003) as well as leadership (OutLead) (r=0.348, sig. =0.001). Acting in the capacity of a facilitator comes with responsibilities some of which requires an individual to act swiftly and take the lead and make decisions, hence enhancing the individual's brainstorming and leadership skills.

4.2.4.6 Deliberate non-participation

Deliberate non-participation by group members showed statistically significant negative correlations with ability to brainstorm ideas (OutBrain) (r= -0.291, sig. =0.007); ability to work effectively in a diverse group(OutDiverse) (r= -0.281, sig. =0.009); overall improvement in grades (OutEdu) (r= -293, sig. = 0.007) as well as ability to monitor others (OutMon) (r= -0.229, sig.=0.035). however no correlation was observed between deliberate non participation and improved listening skills (OutListSkil) (r= .090, sig. = .000).

4.2.4.7 Collaborative team work

Collaborative team work showed statistically significant positive correlations with with improved listening skills (OutListSkil) (r=0.403, sig. =0.022); ability to work with cooperative learning groups (OutCoop) (r=0.518, sig. = 0.003); leadership (OutLead) (r=0.616, sig. =0.001); overall improvement in grades (OutEdu) (r= 0.543, sig. = 0.001); ability to complete independent projects (OutInd) (r=0.431, sig. =0.033); ability to participate in group discussions (OutPart) (r=0.279, sig.=0.010).

4.2.4.8 Group behaviour- leadership

Group leadership showed statistically significant positive correlations with listening skills (OutListSkil) (r= -0.220, sig. =0.043); ability to brainstorm ideas (OutBrain) (r= -0.350, sig. =0.001) as well as overall improvement in grades (OutEdu) (r= 268, sig. = 0.013). A statistically significant negative correlation between group leadership and ability to conduct a literature search (OutLitSear)) (r= -0.236, sig.=0.029) is observed. This supports the charismatic, transaction and transformative leadership theories (Rafferty, and Griffin, 2004) which put listening, inspirational communication, intellectual stimulation, brainstorming and problem solving skills at the heart of leadership.

4.2.4.9 Group behaviour-Compliance

Group compliance showed a statistically significant positive correlation with listening skills (OutListSkil) (r= 0.299, sig. =0.005). Statistically significant negative correlations were observed between group compliance and ability to communicate ideas (OutideaCom) (r= -0.291, sig. =0.007); ability to conduct a literature search (OutLitSear) (r= -0.361, sig. =0.001); ability to monitor others (OutMon) (r= -0.271, sig. =0.012) as well as ability to participate in group discussions (OutPart) (r= -0.275, sig. =0.011).

4.2.4.10 Group Behaviour-Creativity

Group creativity showed statistically significant positive correlations with ability to brainstorm ideas (OutBrain) (r=0.312, sig. =0.004); ability to work with cooperative learning groups (OutCoop) (r=0.220, sig. = 0.043); creativity (OutCreat) (r=644, sig. = 0.000); ability to work effectively in a diverse group (OutDiverse) (r=0.417, sig. =0.000); leadership (OutLead) (r=0.274, sig. =0.011); overall improvement in grades (OutEdu) (r= 267, sig. = 0.014); ability to communicate ideas (OutideaCom) (r=0.404, sig. =0.000); ability to conduct a literature search (OutLitSear) (r= -0.372, sig. =0.000); ability to monitor others (OutMon) (r=0.257, sig.=0.017) as well as ability to participate in group discussions (OutPart) (r=0.448, sig.=0.000).

4.2.4.11 Group Behaviour-Harmony

Group harmony showed statistically significant negative correlations with ability to complete independent projects (OutInd) (r= -0.320, sig. =0.003) as well as ability to monitor others (OutMon) (r= -0.238, sig. =0.028). this may be explained by the idea that complete group harmony is often characterised by minimum deliberation, and lacks brainstorming and constructive criticism, which are sometimes essential if a focal group is to be successful and complete independent projects.

4.2.5 Regression: Overal Education Improvement And Group Work Variables

Ordinary least squares regression (OLS) of the group work variables was used to determine the magnitude and direction of effects of these variables on the educational outcome variable. The no intercept regression model was used in this analysis because all predictors have no possibility of being equal to zero so much that the intercept would not have any meaningful interpretation. The results of that analysis are shown in Table 4. The model indicates that 54.6% (R-Square=0.546) variation in educational outcomes is explained by the predictor variables. The Durbin-Watson statistic indicates that the assumption of independent error is tenable since for these data the figure is 1.830 and is close to 2 (Durbin & Watson, 1951). No incidences of multicollinearity are observed in the model since none of the variance inflation factors (VIF) are close to or greater than 5. The analysis of variance table shows that the variables in the model have a statistically significant effect on educational outcomes (F=2.838; Sig. =0.001).

Table 4: Regression Results

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.739[a]	.546	.354	.839	.546	2.838	25	59	.001	1.830

a. Predictors: (Constant), GdOther, GcBconfl, GcNonpart, ColInput, GdDmT, GbBrain, GbComply, ColExp, GcLcons, ColTeam, ColContr, GdVote, Colpart, ColFacil, GcIconfl, GcDom, GdDict, GcRoleC, GbHam, ColCoop, Colwrk, GcAconfl, GcLComm, ColAttend, ColSkill

b. Dependent Variable: OutEDu

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.999	25	2.000	2.838	.001[b]
	Residual	41.577	59	.705		
	Total	91.576	84			

a. Dependent Variable: OutEDu

b. Predictors: (Constant), GdOther, GcBconfl, GcNonpart, ColInput, GdDmT, GbBrain, GbComply, ColExp, GcLcons, ColTeam, ColContr, GdVote, Colpart, ColFacil, GcIconfl, GcDom, GdDict, GcRoleC, GbHam, ColCoop, Colwrk, GcAconfl, GcLComm, ColAttend, ColSkill

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5.770	1.403		4.112	.000		
	GcRoleC	.211	.117	.250	1.808	.076	.401	2.492
	GcNonpart	-.013	.109	-.018	-.116	.908	.318	3.143
	GcLcons	-.035	.135	-.036	-.258	.797	.396	2.524
	GcDom	.201	.122	.213	1.647	.105	.461	2.170
	GcLComm	.309	.136	.361	2.273	.027	.305	3.276
	GcIconfl	-.131	.125	-.145	-1.046	.300	.402	2.485
	GcAconfl	-.151	.119	-.191	-1.268	.210	.340	2.943
	GcBconfl	.125	.149	.156	.839	.405	.223	4.475

ColAttend	.049	.120	.062	.405	.687	.328	3.047
ColInput	.470	.148	.533	3.165	.002	.272	3.683
Colwrk	-.167	.162	-.150	-1.030	.307	.363	2.755
ColCoop	.154	.151	.150	1.025	.310	.358	2.792
ColContr	.560	.154	.436	3.646	.001	.537	1.861
ColExp	-.259	.168	-.186	-1.547	.127	.531	1.885
ColFacil	-.275	.145	-.283	-1.895	.063	.344	2.904
ColSkill	.165	.209	.126	.786	.435	.298	3.358
Colpart	.488	.105	.614	4.668	.000	.444	2.250
ColTeam	.030	.112	.032	.272	.787	.572	1.748
GbBrain	.069	.085	.096	.815	.418	.554	1.804
GbComply	-.092	.083	-.143	-1.109	.272	.462	2.166
GbHam	.226	.071	.425	3.197	.002	.435	2.301
GdVote	.096	.095	.120	1.012	.316	.543	1.842
GdDict	-.151	.133	-.169	-1.139	.259	.350	2.858
GdDmT	.059	.082	.093	.719	.475	.464	2.157
GdOther	-.110	.109	-.134	-1.004	.319	.433	2.307

a. Dependent Variable: OutEDu

From the regression results presented in Table 3, it can be noted that not all variables have a statistically significant effect on the educational outcome (OutEdu). Statistically significant effects are observed on group communication (GcLComm) (t=2.273, sig. = .027); Group inputs (ColInput) (t=3.165, sig. = .002); Contribution by group members (ColContr) (t=3.646, Sig. = .001); Collaborative participation (Colpart) (t=4.668, sig. =0.000); and Group harmony (GbHam) (t=3.197, sig. =0.002). The regression equation on this study can be re-stated as:

$$OutEdu = \alpha + \beta_1 GcLComm + \beta_2 ColInput + \beta_3 ColContr + \beta_4 Colpart + \beta_5 GbHam + E.$$

Therefore after removing all the insignificant variables the estimated parsimonious model becomes:

$$OutEdu = 5.770 + 0.309\ GcLComm + 0.470ColInput + 0.560ColContr + 0.488Colpart + 0.226\ GbHam + 1.403.$$

The five variables GcLComm, ColInput, ColContr, Colpart and GbHam yield positive coefficients meaning that they all have positive effects on educational outcome. The results therefore supports the promotion of focal groups as a teaching and learning, and assessment tool in the 21st century. As the regression and correlation results indicate, educational outcomes in the form of improved grades, communication skills and leadership skills are achieved when students work together in a focal group in the process of teaching and learning. The results also support Carroll (2010) who asserts that collaborative learning and knowledge construction are at the core of the 21st century competencies. Focal groups thus provide a leeway for students to transform their personal knowledge into a collectively built, widely shared, and cohesive professional knowledge base to create intergenerational learning teams that provide opportunities for collaboration among students (Carroll, 2010). Therefore, at the α=0.05 level of significance, there exist enough evidence to conclude that group communication, group inputs, contributions by group members, collaborative participation and group harmony are useful predictors of positive educational outcomes among students.

5. Conclusion

The findings of this study provide a comprehensive indication of the importance of group work both as a teaching and an assessment method on attempts to achieve the 21st century educational outcomes. The positive correlations between group work variables and educations outcomes corroborate with Spiller (2012)'s argument that group work is the optimum teaching and assessment method to foster educational outcomes such as team work, project management, and the development of problem-solving abilities, the nurturing of communication attributes such as facilitation, feedback, negotiation and conflict management skills as well as strategic and critical thinking. This is confirmed by the findings in this study that 21st century educational outcomes are a function of group communication, group inputs, and contributions

by group members, collaborative participation and group harmony. It should therefore be emphasised that group work in teaching and assessment should be thoroughly embraced to draw from it, the 21st century skills that are needed in all the graduates if they are to function effectively in the world were the role of team work and interconnectedness is widespread.

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