Collaborative Learning in Small Group Discussions and Its Impact on Resilience Quotient and Academic Performance

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Abstract - This paper is a quasi-experimental investigation on the impact of Collaborative Learning (CL) in Small Group Discussions (SGD) on the development of the eight components of Resilience Quotient (RQ) and the Academic Performance (AP) of students in Maritime English classes. Using different statistical tools such as *mean* and *standard deviation* and *t-test for dependent and independent means*, the study revealed that students who have a higher academic performance tend to also have a higher RQ. Evidence also showed that a high level of RQ could enhance academic performance and that RQ could be developed through constant exposure to small group discussions at a certain period of time. Evidence in the study also showed that too much dependence on the teacher as the main source of learning in the traditional approach could lead to some regression or decline on the students' personal vision thereby lowering their level of resilience. There was also some evidence that

the improvement in the level of RQ can also be a teacher factor. Moreover, it was noticed that working in small groups could give students the opportunity to affirm their personal beliefs and individual capabilities in accomplishing their tasks in the teaching and learning process.

Keywords - collaborative learning, small group discussion, Resilience Quotient, academic performance

INTRODUCTION

Pedagogical institutions point to a high degree of academic performance as the ultimate goal of education. Over the years, continuous experiments on the use of different teaching strategies have been explored, but as there is no prescriptive method tailored to different groups of students, teachers and those in the academe continue to investigate on what conditions could work best to enhance their students' academic performance.

Corollary to this notion, research experiments have revealed strong evidence connecting resilience and academic success. Resilience is believed to be a key component of social emotional learning and as being a critical facet of education. This term refers to one's ability to succeed in school despite adverse conditions such as poverty or abuse. Resilience includes components such as confidence, a sense of well-being, motivation, an ability to set goals, relationships/connections, and stress management. Research shows that resilience can significantly affect school and life outcomes for youth, including academic success, even for students who are faced with great adversity. Furthermore, these skills can be learned, measured, and have lasting effects on academic performance.

Waxman and Huang (1997) found out that students who ranked in the 90th percentile on the standardized tests in mathematics were highly resilient, reporting significantly higher levels of task orientation and satisfaction, social self-concept, achievement motivation, and academic self-concept than their counterparts who ranked below the

10th percentile. In another study by Scales et al. (2003), it was found out that higher levels of resiliency traits are strongly correlated with higher grade point averages (GPAs) among middle and high school students. Moreover, in a study on probable candidates for drop outs, Reyes and Jason (1993) discovered that low risk students reported strong resiliency, an attribute that the high risk students were significantly lacking. Hanson and Austin (2003), in their own investigation, gathered that nearly every measure of resilience was positively related to concurrent test scores. The highest increases in test scores occurred in schools where the students reported high levels of resilience.

Considering that resilience is a significant factor in enhancing academic performance, several proponents like Scales (2003), Waxman and Huang (1997), Reyes and Jason (1993), and Hanson and Austin (2003) believe that this ability can be learned, measured, and have lasting effects on academic performance. Supporting this notion, Rutter (1990) tries to propose a connection between collaborative learning and resilience. He claims that students learn best when they are actively involved in the process of learning. In addition, researches made by Beckman (1990); Chickering and Gamson (1991); Cooper and Associates (1990); Goodsell, et al. (1992); Johnson and Johnson (1989); Johnson, Johnson, and Smith (1991); McKeachie, et al. (1986); Slavin (1980;1983); and Whitman (1988) report that, regardless of the subject matter, students working in small groups tend to learn more of what is taught and retain it longer than when the same content is presented in other instructional formats. Students who work in collaborative groups also appear more satisfied with their classes.

The theory of collaborative learning (also referred to as cooperative learning) assumes that learning is facilitated when direct instruction is removed from the classroom and when students are placed in small groups to work as a team on an assignment or project. Collaborative learning changes the traditional classroom structure by reducing competition and increasing cooperation among students. Tension and possible hostility between students is diminished, thus raising academic achievement (Ornstein & Levine, 2007). Bernard (1991), in his own investigation, concluded that that classrooms in which students are given an opportunity to respond, engage in cooperative learning environment, and participate in setting goals are more likely to learn and achieve better. All of these characteristics help students

develop a sense of belonging and involvement and help reduce the feelings of alienation and disengagement. With that kind of connection in the school, students will have more of a protective shield against the adverse circumstances that life throws at them.

OBJECTIVES OF THE STUDY

The present study advances the use of collaborative learning in small group discussions as an intervention to develop resilience among students in order to improve their academic performance specifically in Maritime English. Specifically the study was conducted to pursue the following objectives:

1. To describe the performance of the control group and the experimental group in the eight components of Resilience Quotient before and after the intervention;

2. To determine the existence of a significant difference in the scores of the control group and experimental group in the eight components of Resilience Quotient **before the intervention** on the basis of the same groupings (as a whole, between groups of scholars, and between groups of non-scholars);

3. To find a significant difference in the scores of the control group and experimental group in the eight components of Resilience Quotient **after the intervention** on the basis of the same groupings (as a whole, between groups of scholars, and between groups of non-scholars);

4. To determine the level of Resilience Quotient of the control group and experimental group before and after the intervention;

5. To find a significant difference in the mean scores of the control group and experimental group in the pretest and posttest and in the summative test on the basis of the same groupings (as a whole, between groups of scholars, and between groups of non-scholars).

MATERIALS AND METHODS

The present investigation anchors itself on the framework of Collaborative Learning (CL) (Johnson and Smith, 1991) particularly in using small group discussions(SGD) as a useful tool in promoting resilience which is believed to be a significant factor in enhancing academic performance.

The teaching and learning environment in the present study is seen as a process or strategy which shows the input variables on one end and the output variables on the other. The input variables are composed of grouping where the classes are divided into the experimental group which was exposed to the CL in SGD environment and the control group which was taught using the traditional method of instruction; the type of students categorized as scholars and non-scholars; and their Resilience Quotient which was determined before the experiment. With these input variables, the intervention, when administered, is deemed to promote better learning. In this intervention, the collaborative learning environment characterized by the use of small group discussions is implemented with the experimental group while the usual traditional method is to be used with the control group. As an outcome, the intervention is expected to create an impact on both the cognitive and non-cognitive aspects of their learning skills. The following diagram illustrates the schematic framework of the concept of this study:
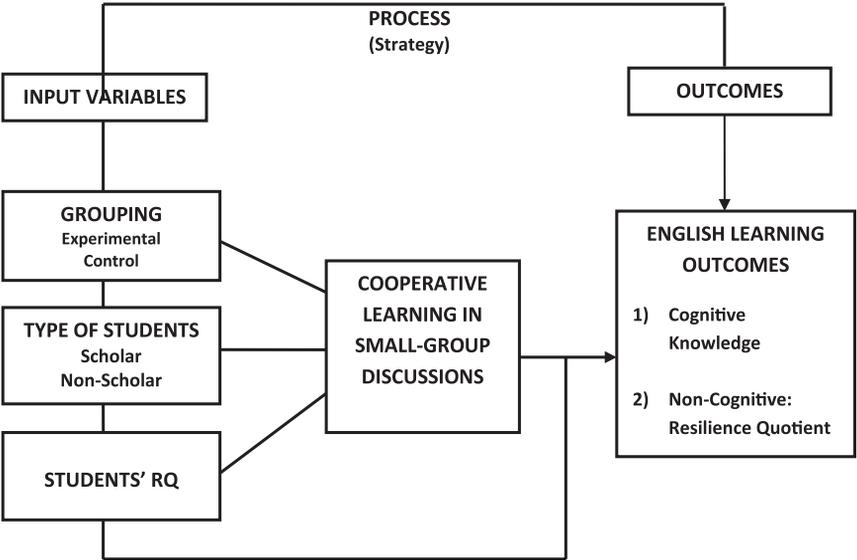
Fig. 1 The research paradigm showing the input, process, and outcome variables

The participants in this study were first year students enrolled in the Bachelor of Science in Marine Transportation Program of JBLCF-Bacolod for the Second Semester of SY 2009-2010. Four intact sections were selected prior to the experiment where two were randomly assigned as the control groups representing both scholars and non-scholars. The control groups were the classes of BSMT 1-NSA composed of 19 students (scholars) and BSMT 1-Granny Knot composed of 38 students (non-scholars). Another two classes were assigned as the experimental groups. These were BSMT 1-Polaris composed of 36 students (scholars) and BSMT 1-Fisherman's Bend having 38 students (non-scholars). The selection was made in such a way that the experimental groups match with their control group counterparts in terms of mental ability. This was done on the basis of their weighted average during their first semester with the school.

This study employed the quasi-experimental method using the pretest-posttest control group design. All four groups were given the RQ Test and the pretest prior to the experiment. The experiment lasted eight (8) weeks during which the experimental groups were taught using cooperative learning in small group discussion while the control groups were taught following the traditional strategy. After the 8-week intervention, the same groups were given the post test using the same instrument used in the pretest with some modifications. The RQ test was again administered to record their scores in the eight components after the experiment. Scores taken from the summative test were also used to further describe the impact of the intervention on the students' cognitive skills.

The instrument on Resilience Quotient was used (with permission from Russell and Consulting) to determine the initial RQ of the respondents. The instrument has eight components namely: self assurance, personal vision, flexible and adaptable, organized, problem solver, interpersonal competence, socially connected, and proactive. The maximum score for each of the components of RQ is 24. The instrument used for the pretest and posttest was a form of an achievement test prepared by the experimental teacher and validated by three other experts in the field. It was intended to measure the academic performance of the participants before and after the intervention. The other instrument used was a summative test consisting of a total of 60 multiple-choice items.

Mean was used to determine and compare the scores of the students in the eight components of RQ as well as their performance in the pretest, post test, and summative test. Frequency and percentage were used to determine how many of the respondents were very resilient, resilient, somewhat resilient, and not very resilient. To compare the scores of the experimental and control groups in the eight components of resilience, the t-test for independent samples was used.

RESULTS AND DISCUSSION

Scores of the Control Group and the Experimental Group in the Eight Components of RQ before and after the Intervention

Table 1.a Means and standard deviation in the eight components of RQ of the experimental group and control group before and after the intervention (as a whole)

Components of Resilience Quotient (RQ)	Experimental				Control			
	PRE		POST		PRE		POST	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Self Assurance	19.41	2.22	20.14	2.27	18.54	2.70	19.11	2.76
Personal Vision	20.88	2.14	21.01	2.14	20.38	2.69	19.70	3.35
Flexible and Adaptable	18.99	1.65	19.69	2.21	18.61	2.62	18.81	2.92
Organized	17.25	2.57	18.45	2.85	16.35	3.07	17.04	3.40
Problem Solver	18.93	2.60	19.53	2.83	18.42	3.12	18.63	2.85
Interpersonal Competence	18.64	3.07	19.47	2.34	18.11	2.76	18.72	3.22
Socially Connected	20.10	2.66	20.38	2.09	19.12	2.71	19.18	2.86
Proactive	20.03	2.31	20.05	2.28	19.67	2.37	18.88	2.69

Table 1.a shows that before the intervention, both the experimental and control groups scored highest in the following components: personal vision, socially connected, and proactive. However, both groups scored lowest in the following components: interpersonal competence, organized and problem-solver. For both groups, their low score in the said components could mean that even if they have

a high degree of personal vision, social connection, and proactive characteristic, they have not fully adopted a system in accomplishing their tasks and are simply accustomed to receiving lessons as taught to them in a teacher to student routine type of learning. It also appeared that they have not fully developed the skill to work with others as they appeared to be used to learning on their own.

Data after the intervention reveals that both groups have shown progress in their scores for all the eight components of resilience quotient except for personal vision and proactive in the case of the control group. This could mean that with the intervention, the students in the experimental group have all progressed in all the eight components and have shown a remarkable improvement especially on the three components where they used to have the lowest scores. In other words, they have become more organized, more of a problem-solver, and could now work better with others. In the case of the control group, however, the regression in personal vision and being proactive could be due to their dependence on the teacher as the main source of learning in the traditional environment.

Table 1.b Means and standard deviation in the eight components of RQ of the experimental group and control group before and after the intervention (between groups of scholars)

Components of Resilience Quotient (RQ)	NSA (Control Group)				Polaris Experimental Group			
	PRE		POST		PRE		POST	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Self Assurance	20.37	2.01	20.58	2.36	19.47	2.26	20.22	2.33
Personal Vision	21.79	1.27	21.32	2.43	21.28	1.98	21.08	2.22
Flexible and Adaptable	19.74	2.90	20.11	2.13	19.22	1.71	20.16	2.25
Organized	16.74	3.23	16.42	2.99	17.42	2.82	18.22	2.94
Problem Solver	20.58	2.19	19.74	2.70	18.86	2.88	19.54	2.95
Interpersonal Competence	19.47	2.37	20.26	2.23	19.36	2.31	19.92	2.17
Socially Connected	20.32	2.69	20.79	2.42	20.03	2.58	20.46	1.95
Proactive	21.11	1.63	20.00	2.29	20.25	2.43	20.49	2.12

It could be gleaned from Table 1.b that before the intervention, the groups of scholars appeared to have a high level of personal vision and social connection. They are also both proactive in their way of dealing with things. However, both groups show the lowest score on organization. Also worth-mentioning is that the NSA group appeared to be better problem solvers than the Polaris group.

Data after the intervention reveals that both groups of scholars appeared to have scored well in all the other six components of RQ. It can also be observed though that they remained to have a lower score for being organized and being problem-solvers. This could probably mean that these components of the RQ are skills that require a longer time to acquire and develop. It could be possible that given a longer span of time for the intervention, they could also hone these skills to a higher level. Comparatively looking at the scores between the two groups, the NSA group appeared to score slightly higher than the Polaris group in terms of self-assurance, personal vision, problem solver, interpersonal competence, and socially connected. It is interesting to note, however, that the Polaris group (experimental group) scored higher than the NSA group in terms of flexibility and adaptability, and being organized and proactive. This could have resulted from their exposure to collaborative learning in small group discussions where they were made to face adjustments with their peers as they planned and organized their outputs before they were turned over to the teacher or before they are presented and critiqued in front of the class.

Table 1. b.1 Comparative results of the scores of the groups of scholars on the eight components of RQ in the pretest and the posttest

Components of Resilience Quotient (RQ)	NSA (Control Group)		POLARIS (Experimental Group	
	Pretest	Posttest	Pretest	Posttest
Self Assurance	20.37	20.58	19.47	20.22
Personal Vision	21.79	21.32	21.28	21.08
Flexible and Adaptable	19.74	20.11	19.22	20.16

Continuation of Table 1. b.1

Organized	16.74	16.42	17.42	18.22
Problem Solver	20.58	19.74	18.86	19.54
Interpersonal Competence	19.47	20.26	19.36	19.92
Socially Connected	20.32	20.79	20.03	20.46
Proactive	21.11	20.00	20.25	20.49

Table 1.b.1 shows the scores of the groups of scholars on the eight components of the RQ before and after the intervention. Among the eight components, it can be seen that the NSA group who were taught using the traditional method improved their scores in only four components: self assurance, flexible and adaptable, interpersonal competence, and socially connected. Their scores for personal vision, organized, problem-solving, and proactive declined after the intervention. It can be suspected that since they were taught using the teacher-dominant mode of instruction where the teacher dominated the floor for most of the activities, their skills on these aspects were not maximized and not used actively. Too much reliance and dependence on the teacher could have created a passive attitude on their part in the teaching-learning process thereby affecting their level of resilience especially on the said components. The group of Polaris students, on the other hand, revealed interesting results. It can be seen on the table that except for personal vision, the Polaris group (experimental group) showed improvement in all the other seven components of the RQ after the experiment. This could mean that the intervention has created a positive impact on their level of resilience. The decline in their score for personal vision could possibly be due to their experience in working with their groups. As they began to work as a team, their perspective could have changed in that they were thinking more in line with their group's goals rather than just their personal interest in the learning process.

Table 1.c Means and standard deviation in the eight components of RQ of the experimental group and control group before and after the intervention (between groups of non-scholars)

Components of Resilience Quotient (RQ)	Granny Knot (Control Group)				Fisherman's Bend Experimental Group			
	PRE		POST		PRE		POST	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Self Assurance	17.63	2.55	18.37	2.67	19.35	2.21	20.05	2.24
Personal Vision	19.68	2.94	18.89	3.48	20.49	2.24	20.95	2.08
Flexible and Adaptable	18.05	2.30	18.16	3.07	18.76	1.59	19.22	2.08
Organized	16.16	3.02	17.34	3.59	17.03	2.32	18.68	2.79
Problem Solver	17.34	2.97	18.08	2.79	19.00	2.33	19.51	2.74
Interpersonal Competence	17.42	2.72	17.95	3.38	17.95	3.56	19.03	2.46
Socially Connected	18.53	2.54	18.37	2.75	20.16	2.77	20.30	2.23
Proactive	18.95	2.37	18.32	2.73	19.81	2.20	19.62	2.38

For the groups of non-scholars before the intervention, it can be seen that except for personal vision and being socially connected, both groups of non-scholars appeared to have lower scores in all six other components of the RQ. If compared with those classified as scholars, the results seemed to point out that students who have a higher academic performance tend to also have a higher RQ. It is also worth-mentioning that the groups of non-scholars appeared to have the lowest score on being organized and on interpersonal competence.

After the experiment, the experimental group scored higher in all aspects compared to the control group. It is obvious to say then that the group which was exposed to the intervention has completely shown a higher level of resilience than those who were exposed to the traditional method of instruction.

It was also interesting to compare the scores of each group in the eight components of RQ while looking at their scores in the pretest and posttest. The following table has this data.

Table 1.c.1 Comparative results of the scores of the groups of non-scholars on the eight components of RQ in the pretest and the posttest

Components of Resilience Quotient (RQ)	GRANNY KNOT (Control Group)		FISHERMAN'S BEND (Experimental Group	
	Pretest	Posttest	Pretest	Posttest
Self Assurance	17.63	18.37	19.35	20.05
Personal Vision	19.68	18.89	20.49	20.95
Flexible and Adaptable	18.05	18.16	18.76	19.22
Organized	16.16	17.34	17.03	18.68
Problem Solver	17.34	18.08	19.00	19.51
Interpersonal Competence	17.42	17.95	17.95	19.03
Socially Connected	18.53	18.37	20.16	20.30
Proactive	18.95	18.32	19.81	19.62

It can be gathered from the Table 1.c.1 that both groups of non-scholars have declined in their level of proactive involvement after the intervention. This lower level of assertiveness could be due to their not being scholarly. In the classroom, whatever the teaching method is, low-performing classes are normally quiet and dependent on the cues given by the teacher especially when exposed to very challenging tasks, so in the present study, the intervention did not really effect a positive change in this aspect. It is interesting to note, however, that the experimental group showed improvement in all the other seven components. In the control group, on the other hand, a decline can also be observed for personal vision and social connectivity. This could again be attributed to too much dependence on teacher instruction and individual responsibility of each student to respond in the learning process.

Difference in Scores of the Control Group and Experimental Group in the Eight Components of RQ before the Intervention (as a whole, between groups of scholars, and between groups of non-scholars)

Table 2.a t-test showing the means and standard deviation in the eight components of RQ of the control group and experimental group before the intervention (as a whole)

Components of Resilience Quotient	N	Mean	SD	t	df	Sig. value
Expt. Self Assurance	73	19.41	2.22	2.01	128	**.047***
Control	57	18.54	2.70			
Expt. Personal Vision	73	20.88	2.14	1.16	128	.249
Control	57	20.39	2.69			
Expt. Flexible & Adaptable	73	18.97	1.65	.938	89.61	.351
Control	57	18.61	2.62			
Expt. Organized	73	17.25	2.57	1.81	128	.073
Control	57	16.35	3.07			
Expt. Problem Solver	73	18.93	2.60	1.02	128	.311
Control	57	18.42	3.12			
Expt. Interpersonal Competence	73	18.64	3.07	1.04	128	.302
Control	57	18.11	2.76			
Expt. Socially Connected	73	20.06	2.66	2.05	128	**.042***
Control	57	19.12	2.71			
Expt. Proactive	7	20.03	2.31	.874	128	.384
Control	57	19.67	2.37			

$\alpha < .05$, significant *

Table 2.a reveals that before the intervention, there is a significant difference on the aspect of self assurance and socially connected between the experimental and control group in favor of the experimental group. The scores in the rest of the components are comparable for the two groups.

Table 2.b t-test showing the means and standard deviation in the eight components of RQ of the control group and experimental group before the intervention (between groups of scholars)

Components of Resilience Quotient	N	Mean	SD	t	df	Sig. value
Polaris Self Assurance	36	19.47	2.26	1.45	53	.153
NSA-1	19	20.37	2.01			
Polaris Personal Vision	36	21.28	1.98	1.161	50.76	.251
NSA-1	19	21.79	1.27			
Polaris Flexible & Adaptable	36	19.22	1.71	.710	24.76	.484
NSA-1	19	19.74	2.90			
Polaris Organized	36	17.47	2.82	.874	53	.386
NSA-1	19	16.74	3.23			
Polaris Problem Solver	36	18.86	2.88	2.27	53	.027*
NSA-1	19	20.58	2.19			
Polaris Interpersonal Competence	36	19.36	2.31	.171	53	.865
NSA-1	19	19.47	2.37			
Polaris Socially Connected	36	20.03	2.58	.388	53	.700
NSA-1	19	20.32	2.69			
Polaris Proactive	36	20.25	2.43	1.38	53	.175
NSA-1	19	21.11	1.63			

$\alpha < .05$, significant *

Table 2.b shows that before the intervention, the NSA group significantly appeared to be better problem-solvers than the Polaris group. For the rest of the components, the two groups showed comparable results.

Table 2.c t-test showing the means and standard deviation in the eight components of RQ of the control group and experimental group before the intervention (between groups of non-scholars)

Components of Resilience Quotient	N	Mean	SD	t	df	Sig. value
Fisherman's Bend Self Assurance	37	19.35	2.21	3.11	73	.003*
Granny Knot	38	17.63	2.55			
Fisherman's Bend Personal Vision	37	20.49	2.24	1.33	73	.189
Granny Knot	38	19.68	2.94			
Fisherman's Bend Flexible & Adaptable	37	18.76	1.59	1.55	65.86	.127
Granny Knot	38	18.05	2.30			
Fisherman's Bend Organized	37	17.03	2.32	1.40	69.24	.166
Granny Knot	38	16.16	3.02			
Fisherman's Bend Problem Solver	37	19.00	2.33	2.68	73	.009*
Granny Knot	38	17.34	2.97			
Fisherman's Bend Interpersonal Competence	37	17.95	3.56	.719	73	.474
Granny Knot	38	17.42	2.72			
Fisherman's Bend Socially Connected	37	20.16	2.77	2.66	73	.010*
Granny Knot	38	18.53	2.54			
Fisherman's Bend Proactive	37	19.81	2.20	1.64	73	.106
Granny Knot	38	18.95	2.37			

$\alpha < .05$, significant *

Data between the groups of non-scholars as revealed in Table 2.c showed a significant difference in scores on the following aspects: self-assurance, problem-solver, and socially connected. The significant difference was seen in favor of the experimental group.

Difference in Scores of the Control Group and Experimental Group in the Eight Components of RQ after the Intervention (as a whole, between groups of scholars, and between groups of non-scholars)

Table 3.a t-test showing the means and standard deviation in the eight components of RQ of the control group and experimental group after the intervention (as a whole)

Components of Resilience Quotient		N	Mean	SD	t	df	Sig. value
Self Assurance	Expt.	74	20.14	2.27	2.34	129	**.021***
	Control	57	19.11	2.76			
Personal Vision	Expt.	74	21.01	2.14	2.58	89.83	**.011***
	Control	57	19.70	3.35			
Flexible & Adaptable	Expt.	74	19.69	2.21	1.90	101.03	.060
	Control	57	18.81	2.92			
Organized	Expt.	74	18.45	2.85	2.58	129	**.011***
	Control	57	17.04	3.40			
Problem Solver	Expt.	74	19.53	2.83	1.79	129	.076
	Control	57	18.63	2.85			
Interpersonal Competence	Expt.	74	19.47	2.34	1.55	129	.124
	Control	57	18.72	3.22			
Socially Connected	Expt.	74	20.38	2.09	2.67	98.56	.099
	Control	57	19.18	2.86			
Proactive	Expt.	74	20.05	2.28	2.71	129	**.008***
	Control	57	18.88	2.69			

α< .05, significant *

The results appearing in Table 3.a show that after the intervention, the experimental group performed significantly higher in self assurance, personal vision, organized, and in being proactive. This can be considered as a remarkable progress because before the intervention, the significant difference was only for the aspects of self-assurance and socially connected. It appears that the intervention has significantly

improved the personal vision, organization, and being proactive of the experimental group. It is noted however, that in socially connected, the experimental and control group have similar performance. It is very apparent that the intervention improved students' performance on self assurance, personal vision, organized and proactive. The difference in flexibility and adaptability was almost significant (sig. value is .060) in favor of the experimental group. This significant increase in score for self-assurance of the experimental group could mean a higher level of confidence which could be attributed to their improved social connections. Working with the group could have given them the opportunity to affirm their personal beliefs and individual capabilities in terms of accomplishing their tasks. Moreover, the collaborative environment could have improved their skill to organize and plan their tasks ahead of time.

Table 3.b t-test showing the means and standard deviation in the eight components of RQ of the control group and experimental group after the intervention (between groups of scholars)

Components of Resilience Quotient		N	Mean	SD	t	df	Sig. value
Self Assurance	Polaris	37	20.22	2.33	.548	54	.586
	NSA	19	20.58	2.36			
Personal Vision	Polaris	37	21.08	2.22	.363	54	.718
	NSA	19	21.32	2.43			
Flexible & Adaptable	Polaris	37	20.16	2.25	.091	54	.928
	NSA	19	20.11	2.13			
Organized	Polaris	37	18.22	2.94	2.15	54	.036[*]
	NSA	19	16.42	2.99			
Problem Solver	Polaris	37	19.54	2.95	.242	54	.809
	NSA	19	19.74	2.70			
Interpersonal Competence	Polaris	37	19.92	2.17	.558	54	.579
	NSA	19	2026	2.23			

Continuation of Table 3.b

		N	Mean	SD	t	df	Sig. value
Socially Connected	Polaris	37	20.46	1.95	.552	54	.583
	NSA	19	20.79	2.42			
Proactive	Polaris	37	20.49	2.12	.793	54	.431
	NSA	19	20.00	2.86			

α< .05, significant *

In Table 3.b, it can be observed that after the intervention, there is a significant difference in the scores of the groups of scholars in terms of organization. This significant difference is seen in favor of the experimental groupwhich means that their exposure to the intervention has significantly improved their ability to organize their tasks. Another interesting observation is that before the intervention, it was found out that the NSA group (control group) significantly appeared to be better problem-solvers than those in the Polaris group (experimental group). After the intervention, the difference is not anymore significant. This is a remarkable progress because it appears that as problem-solvers, the experimental group has leveled up with the control group where before they appeared inferior to the control group in terms of this component.

Table 3.c t-test showing the means and standard deviation in the eight components of RQ of the control group and experimental group after the intervention (between groups of non-scholars)

Components of Resilience Quotient	N	Mean	SD	t	df	Sig. value
FB Self Assurance	37	20.05	2.24	2.96	73	**.004***
GK	38	18.37	2.67			
FB Personal Vision	37	20.95	2.08	3.09	73	**.003***
GK	38	18.89	3.48			
FB Flexible & Adaptable	37	19.22	2.08	1.75	65.26	.085
GK	38	18.16	3.07			

Continuation of Table 3.c

FB	37	18.66	2.79	1.79	73	.077
Organized						
GK	38	17.34	3.59			
FB	37	19.51	2.74	2.24	73	.028*
Problem Solver						
GK	38	18.08	2.79			
FB	37	19.03	2.46	1.58	73	.119
Interpersonal Competence						
GK	38	17.95	3.38			
FB	37	20.30	2.23	3.33	73	.001*
Socially Connected						
GK	38	18.37	2.75			
FB	37	19.62	2.38	2.20	73	.031*
Proactive						
GK	38	18.32	2.73			

$\alpha < .05$, significant *

Table 3.c shows interesting results. It can be observed that after the intervention, there is a significant difference in the scores of the groups of non-scholars in terms of personal vision, problem-solver, socially connected, and proactive. For the rest of the components their scores are comparable. It should be remembered that before the intervention, the experimental group of non-scholars significantly appeared to be better than the control group in terms of self-assurance, problem-solving skills, and social connection. After the intervention, they did not only maintain this edge in the said components but also in terms of personal vision and being pro-active. It is clear that the intervention has improved the scope of their resilience.

Level of Resilience Quotient (RQ) of the control group and experimental group before and after the intervention
To determine the level of resilience of the students in the experimental group and the control group, the following descriptions were used: VR (very resilient), R (resilient), SR (somewhat resilient), and NVR (not very resilient).

Table 4.a Level of RQ of the control group and the experimental group before the intervention

	NVR		SR		R		VR		Total	
	Pretest		Pretest		Pretest		Pretest		Pretest	
Group	f	%	f	%	f	%	f	%	f	%
Control	1	.77	3	2.30	51	39.23	2	1.55	57	43.85
Experimental	0	0	2	1.54	67	51.54	4	3.07	73	56.15
Total	1	.77	5	3.84	118	90.77	6	4.62	130	100
Scholars(Polaris)			1	2.6	33	86.8	2	5.3	36	94.7
Non-Scholars(FB)			1	2.6	34	89.5	2	5.3	37	97.4
Total			2	5.2	67	88.15	4	5.3	73	96.05
Scholars(NSA-1)					17	89.50	2	10.5	19	100
Non-Scholars (GK)	1	2.5	3	7.5	34	85.00			38	95
Total	1	2.5	3	7.5	51	86.44	2	3.39	57	96.61

Note: 4 data are missing in the posttest of the experimental and control and 2 missing data for scholars and non-scholars

The result in the pretest reveals that two respondents (1.55%) of the control group are very resilient and 4 (3.07%) of the experimental group are very resilient. Majority of the respondents are resilient. These majority is composed of 51 (39.23%) from the control group and 67 (51.54 %) from the experimental group. There are 3 or (2.30%) who are somewhat resilient from the control group and 2 or (1.54%) who are somewhat resilient from the experimental group. Only one or (.77%) is not very resilient from the control group and there is none from the experimental group. Moreover, it can be observed that for the groups of scholars, two students (5.3%) from Polaris appear to be very resilient, 33 (86.8%) are resilient, and one (2.6%) is somewhat resilient. For the NSA group, two (10.5%) appears to be very resilient and 17 (89.50%) are resilient.

For the groups of non-scholars, on the other hand, two (5.3%) appear to be very resilient, 34 (89.5%) are resilient, and one (2.6%) is somewhat resilient in the Fisherman's Bend group. In the case of Granny Knot, nobody appears to be very resilient, 34 (85%) are

resilient, three (7.5%) are somewhat resilient, and one (2.5%) appears to be not very resilient. Figures appearing in this set of data would be compared later with those gathered after the intervention.

Table 4.b Level of RQ of the control group and the experimental group after the intervention

	NVR		SR		R		VR		Total	
	Posttest		Posttest		Posttest		Posttest		Posttest	
Group	f	%	f	%	f	%	f	%	f	%
Control	1	.77	5	3.85	44	33.59	7	5.34	57	43.51
Experimental	0	0	1	.77	63	48.09	10	7.64	74	56.49
Total	1	.77	6	4.62	107	81.68	17	12.98	131	100
Scholars(Polaris)			1	2.6	30	78.9	6	15.8	37	97.4
Non-Scholars(FB)					33	86.8	4	10.5	37	97.4
Total			1	2.6	63	82.89	10	13.16	74	97.4
Scholars(NSA-1)			1	5.3	15	78.9	3	15.8	19	100
Non-Scholars (GK)	1	2.5	4	10	29	72.9	4	10.0	38	95
Total	1	1.69	5	8.47	44	74.58	7	11.86	57	96.61

Note: 4 data are missing in the posttest of the experimental and control and 2 missing data for scholars and non-scholars

Table 4.b reveals that the number of very resilient respondents increases in the posttest for the experimental and the control group although the increase is more in the experimental group. This might be attributed to the intervention used in the experimental group. It is noted however, that in the control group there is still one respondent who is not very resilient. This could be due to the lack of intervention made for this group of students.

While looking at the separate data for scholars and non-scholars, some remarkable improvements have been noted especially for both groups of scholars and non-scholars who were exposed to the intervention (Polaris and Fisherman's Bend). For example, in the Polaris group where only two students appeared to be very resilient before the intervention, after the intervention there were already six. In the

Fisherman's Bend group were there used to be only two students who were very resilient, after the intervention there were already four. The one who used to be just somewhat resilient has now become resilient after the intervention. This means to say that for that short span of time of six weeks of exposure to the intervention, the level of resilience of some students seemed to have improved. It is also important to note the following observations among those in the control groups. First, where there used to be no one in the NSA group who was found to be less than resilient, after exposure to the traditional method, one came out to be just somewhat resilient. This could possibly be attributed to too much dependence on the teacher or for this student to have turned passive about learning since their group has not been subjected to any challenging activity during the actual instruction. Meanwhile it was also noted that for the Granny Knot group, where there used to be no student who was found to be very resilient, after the intervention there have been four. This phenomenon could possibly be attributed to teacher factor.

Difference in the Mean Scores of the Control Group and the Experimental Group in the Pretest and Posttest and in the Summative test

Table 5. a t-test showing the means and standard deviations in the pretest, posttest, and summative test of the control group and the experimental group (as a whole)

Group		N	Mean	SD	t	df	Sig. value
Pretest	Expt.	76	37.07	5.63	1.17	99.17	.246
	Control	59	35.63	8.07			
Posttest	Expt.	76	44.82	5.74	1.54	97.87	.126
	Control	59	42.85	8.39			
Summative	Expt.	76	62.43	7.54	3.97	105.35	**.000***
	Control	59	56.27	9.91			

The results show that both groups have a similar performance in the pretest and posttest. However, in the summative test, the experimental group performed significantly higher than the control

group, revealing a significant impact of the intervention in terms of the summative test results. The comparable results in the posttest could be due to the "freshness" of the items since they were exposed to it for the second time at eight weeks interval only. The instrument for the summative test, on the other hand, was administered to them only once.

Table 5.b t-test showing the means and standard deviations in the pretest, posttest, and summative test of the control group and the experimental group (between groups of scholars)

Group		N	Mean	SD	t	df	Sig. value
Pretest	Polaris	38	39.61	4.51	2.82	55	.007*
	NSA	19	43.42	5.37			
Posttest	Polaris	38	47.42	3.53	4.06	55	.000*
	NSA	19	51.53	3.75			
Summative	Polaris	38	39.92	4.79	.019	55	.985
	NSA	19	41.32	3.15			

It can be observed in Table 5.b that the NSA group (Control Group) has significantly showed a higher scoring ability in both the pretest and posttest. The figures further reveal that their scores in the summative test did not significantly differ. One possible factor why this is so is that of the NSA group's smaller class size. Because the number of students was small, a semi-individualized form of instruction could have been made possible in a teacher-controlled class setting. Students could have been given more ample time to interact and to clarify the lessons with the teacher. The comparability of their scores in the rest of the assessments could be an indication that the initial advanced mental ability of both groups is a big factor in determining their success in class. It is worth-noting though that the intervention has significantly improved the degree of resilience of the experimental group especially in terms of organization and problem-solving.

Table 5.c t-test showing the means and standard deviations in the pretest, posttest, and summative test of the control group and the experimental group (between groups of non-scholars)

Group		N	Mean	SD	t	df	Sig. value
Pretest	FB	38	34.53	5.53	1.93	76	.057
	GK	40	31.93	6.31			
Posttest	FB	38	42.21	6.36	2.37	76	**.020***
	GK	40	38.73	6.63			
Summative	FB	38	36.76	4.99	4.10	76	**.000***
	GK	40	32.45	4.84			

Table 5.c reveals very remarkable findings. The figures show that both groups of non-scholars have started off on the same level before the intervention as proved by their scores in the pretest. It is interesting to note, however that after the intervention, the scoring ability of the experimental group appeared significantly higher compared to those in the control group specifically in the posttest and the summative test. This raises a point that the intervention has significantly improved not only the level of resilience of the students but also their academic performance.

CONCLUSIONS

Students who have a higher academic performance tend to also have a higher Resilience Quotient (RQ). They seem to have their own way of coping with the lessons, so they could readily adapt to the absence or the infusion of any form of intervention. Using the collaborative learning approach in small group discussions can enhance the students' level of resilience to some extent in relation to some of its components. The method also displayed a significant impact on their scores in the tests. This was particularly observed as significant among the groups of non-scholars. Initial evidence from this study however revealed that some aspects of resilience, specifically on being organized and being a good problem-solver, take some time

to develop. In the study, it was noted that the limited exposure of the students to the intervention did not really improve the organization and problem-solving components of their RQ. It is possible though that given a longer span of time for the intervention, they could also hone these skills to a higher level.

Evidence in the study also showed that too much dependence on the teacher as the main source of learning in the traditional approach could lead to some regression in personal vision. It could create a passive attitude on the part of the students in the teaching-learning process thereby lowering their level of resilience. The improvement in the level of RQ can also be a teacher factor. This was evidenced by the improvement of the control group in some components of the RQ even without exposure to the intervention. Working with the group could give students the opportunity to affirm their personal beliefs and individual capabilities in terms of accomplishing their tasks. Moreover, findings of this study supported the earlier assumptions that using the Collaborative Learning approach by engaging the students to small group discussions could significantly improve not only the level of resilience of the students but also their academic performance.

RECOMMENDATIONS

Based on the findings derived from this study, the following recommendations are given. First, it is important also to capitalize on developing the affective domain of learning by providing a protective work climate between and among the teacher and the students. This means providing a connection which promotes a caring and supportive relationship to promote a more effective learning process. Next, the instructors must be a model of resiliency. They should provide more opportunities to students by giving them time in listening and validating their opinions. They must also try to refrain from being too judgmental. They should constantly remind and encourage their students to obtain a high level of academic competence. Instructors must highlight the importance of meeting expectations and aiming for achievement. They must put a strong belief in their students' innate capacities, provide them more challenging tasks, offer them support when needed, focus on strengths instead of weaknesses, and promote

a student-centered instruction to encourage individual participation in a collaborative atmosphere. Third, there is also a need for instructors to create opportunities for participation and contribution. They should give students power and responsibility by allowing them to work interactively with others in the class, reflect, think critically, and express their opinions openly.

While a multitude of studies on collaborative learning have been conducted over the years, it is still best to explore the applicability of this method in different context across disciplines. After all, it is possible that what works in one context may not necessarily apply to another. It would be interesting to find out what other strategies of collaborative learning could work best with the students and which of its attributes could effect problem-solving skills and the ability to be more organized.

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