

Rigorous Instruction and Supportive Environment of Low Performing Public High Schools from one City in US

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Abstract - *The assessment on quality instruction is always part of the measure for all academic institutions to ensure the proper delivery of the curricular offerings while maintaining the support of the institution for the smooth operation of the educational services. This study aimed to present the result of assessment of students and teachers on rigorous instruction and supportive environment among the 42 public high schools from one City in the US with low performance in academics. Results revealed that these public high schools have higher performance rating in terms of rigorous instruction and supportive environment based on the perspective of students and teachers while majority of them have declining performance in Math from previous year's rating. However, significant positive low relationship exists between rigorous instruction in terms of academic press and quality of student discussion with Math State Regent exam as well as the supportive environment in terms of classroom behaviour. Significant positive low relationship exists between rigorous instruction and supportive environment. Thus, educational leaders have the responsibility to describe the present status of the institution based on the capacity of their teachers to deliver quality instruction to students. Enhancing the human capital development with the supportive environment is one way of strengthening the morale of the teachers in improving academic freedom and paying more attention to student classroom behaviour.*

Keywords: *classroom behaviour, educational system, institutional support, math state regent*

INTRODUCTION

School performance has always been one of the measures in classifying and ranking academic institutions all over the world. These measures vary from one country to another based on the capacity to

meet the criteria from the existing practices and standard of one's educational system. Having quality instruction is one of the core elements in describing the ability of the institution to fulfil the program educational objectives and learning outcomes in producing competent learners and future leaders. Having efficient institutional support to the curricular and co-curricular activities is also one important consideration in the success and achievement of the organizational vision and mission. However, there are some challenges that might occur in the implementation of educational services especially in the delivery of rigorous instruction that might somehow affect the student performance in world ranking.

Recent comparisons of educational outcomes tied to economic growth have challenged the ranking of the United States among other emerging economies. Results from the 2018 Program for International Student Assessment (PISA) from 79 participating countries rank the United States at 36th in mathematics and 13th in reading. Meanwhile, the Philippines scored 353 in mathematics, 357 in science, and 340 (79th) in reading, all below the average of participating Organisation for Economic Co-operation and Development (OECD) countries based on the latest PISA results on December 3, 2019 [1]. According to the report, the result of the PISA 2018 will lead the Department of Education in the Philippines to focus on the activities like K to 12 review and updating; improvement of learning facilities; teachers and school heads' upskilling and reskilling through a transformed professional development program; and Engagement of all stakeholders for support and collaboration [2].

Turning around chronically under-performing schools is different and more difficult than school improvement. An emerging body of research is

showing that organizational characteristics such as student-centered learning environments, instructional leadership, and safety can influence teaching and learning toward improving school quality and outcomes [3]. More and more school districts are using surveys to gather information about these key organizational characteristics.

This study is anchored in the social cognitive theory of Bandura [4] as part of the learning environment theories. Learning environment studies acknowledge that learning takes place within the social realm and that social conditions contribute to the quality of both learning and experience [5]. Instruction is customized, inclusive, motivating, and aligned to the Common Core within a specified learning environment. High standards are set in every classroom environment. Students are actively engaged in ambitious and intellectual activity while developing critical thinking skills. Martella and Marchand-Martella [6] noted that students' success or failures are in large part determined by how well teachers provide effective instruction to their students. Magno [7] emphasized that when engaging in critical thinking, students need to undergo specific metacognitive skills like monitoring their thinking process, checking whether progress is being made toward an appropriate goal, ensuring accuracy, and making decisions about the use of time and mental effort. Although some schools do flexibly group students homogeneously for needs-based core instruction, and many teachers provide differentiated instruction in heterogeneous classrooms, many others still use "teach to the middle" whole group instruction [8].

Likewise, it is useful to educators who are preparing to create and sustain an effective and supportive learning environment while meeting the demands to improve student achievement [9]. Supportive school environment enables pupils and staff to develop their physical, mental and social potentials enhancing the relationships between members of the school community, encouraging healthy lifestyle and making healthier choice the easier choice in Nigeria. In a health promoting school, much emphasis is placed on the supportive school environment, both physical and psychosocial school environments which support each other [10].

The need to prepare students for life following high school is an achievable goal through following a rigorous instruction. Students have to be adequately challenged to use their critical thinking and problem

solving skills to achieve this goal. Therefore, the results of this study will guide states and school districts to work collaboratively with troubled schools to build a caring school culture or "community" that helps academic achievement. The overall rating of each essential element provides an evidence-based perspective on how the school's learning environment, school climate, and school capacity will improve. School leaders can use feedback from the survey to reflect and make improvements to schools' programs.

OBJECTIVES OF THE STUDY

This study attempted to examine performance of low performing high schools for two years from SY 2016-2017 to SY 2017-2018 in New York City in terms of rigorous instruction, and supportive environment based on the perspective of students and teachers. It specifically aimed to determine the assessment of rigorous instruction in terms of academic press, common core shifts in literacy, common core shifts in math, course clarity, and quality of student discussion; determine the assessment of supportive environment in terms of classroom behavior, guidance, peer support for academic work, personal attention and support, safety, and social-emotional; describe the result of Math State Regent Exam; test the relationship of the assessment on rigorous instruction and supportive environment with the result of Math State Regents Exam; and test the significant relationship between rigorous instruction and supportive environment;

METHODS

Research design

The researcher used descriptive research method in this study. Descriptive research is a quantitative research method that attempts to collect quantifiable information for statistical analysis of the population sample. The information collected were the survey results from 42 low performing public high schools from one City in the US.

Participants

The researcher selected 42 low performing public high schools from one City in the US for SY 2016-2017 and SY 2017-2018 based on the Failing Schools-2015 Reports. The respondents of the annual School Survey were the students, teachers and parents of these schools.

Instrument

The Annual School Survey created by the City Department of Education (DOE) was the instrument used in this study. The key dimensions of school climate within the survey yielded information that schools could use to discover their own strengths and weaknesses and identify areas that in need of improvement.

The survey is aligned to the DOE's Framework for Great Schools. The framework for Great Schools allows the district superintendent to develop a holistic, research-based approach to school support and accountability that recognizes and celebrates what schools do every day. It also provides tailored support to foster professional learning communities and holds schools accountable for the shared goal of building capacity to drive student achievement. Respondents (Teaches, Students and Parents) answered the questionnaire with these sub measures either by paper or online. Each respondent had his/her nametag (Survey Access code) printed in the survey materials.

A response rate of 70 percent or more was considered sufficient to represent and generalize a larger population. In an effort to provide more schools with data, some districts accepted slightly lower response rates. The two variables of this study, namely: Rigorous Instruction and Supportive Environment were two of the six (6) essential elements of Framework for Great Schools. Each variable consists of sub measures.

Rigorous Instruction

The Rigorous Instruction element consists of five measures: Academic Press, Common Core Shifts in Literacy, Common Core Shifts in Math, Quality of Student Discussion, and Course Clarity. Common Core Shifts in Literacy and Math was based on U.S. Department of Education implementation surveys about instructional shifts of the Common Core. Quality of Student Discussion and Course Clarity were developed and validated by the Chicago Consortium. All of these measures were on the teacher version of the Survey, except for Course Clarity, which was on the student survey. The two measures had high reliability (Quality of Student Discussion and Course Clarity); all measures had alphas above .70 and had very low within-school agreement (Common Core Shifts in Literacy and Common Core Shifts in Math). All measures had face and content validity and all measures had concurrent validity and had positive correlations with student academic achievement. The

correlation was particularly strong for elementary school teachers.

Supportive Environment

The Supportive Environment element consists of six measures: Safety, Social Emotional, Peer Support for Academic Work, Classroom Behavior, Guidance, and Personal Attention and Support. These measures were previously validated, except for Social Emotional Measure and Next Level Guidance. These measures were reported by the students. The student measures had high reliability, with alphas above .70. Within school agreement, these measures were low for all measures with the exception of Safety, particularly when the measures were based on student responses. The face and content validity were strong for most measures, except for Social Emotional Measure. Teaching social and emotional skills was complicated, and the working group did not have a clear understanding of the particular instructional strategies or techniques for teaching social and emotional skills that the NYC DOE wanted to capture. All measures had concurrent validity and positive correlations with student academic achievement.

Procedure

Each year since 2006, the City Department of Education has distributed surveys to all students in grades 6-12, as well as all teachers and parents in the district. The School Survey is administered in over 1,800 schools to nearly a million individuals each year, making it the largest annual education census in the United States. This research used quantitative documentary analysis. The retrieved data were tabulated and analyzed to find patterns and relationships among variables.

Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic [11]. Analyzing documents incorporates coding content into themes similar to how focus group or interview transcripts are analyzed [11]. The documents in this study were survey results from all respondents of the 42 low performing public high schools during the last two school years.

Data Analysis

Weighted Mean, Percentage and Rank were the descriptive statistical tools used to describe the result of survey. Spearman Rho was used to test the significant relationship between the two variables.

Linear Regression Analysis was used to test the relationship of two variables with Math State Regent Exam. The given scale was used to interpret the result of the data gathered from the survey: 3.50-4.00: Strongly Agree/All; 2.50-3.49: Agree/A Lot; 1.50-2.49: Disagree/Some; 1.00-1.49: Strongly Disagree/None.

RESULT AND DISCUSSION

Table 1. Rigorous Instruction Element in terms of Academic Press

Academic Press Students	WM	VI	Rank
prepare me for the next level or grade.	2.97	Agree	2
My classes at this school really make me think critically.	2.85	Agree	3
are you challenged?	2.55	Agree	7
do your teachers ask difficult questions on tests?	2.71	Agree	5
do your teachers ask difficult questions in class?	2.56	Agree	6
do you work in small groups?	2.78	Agree	4
do your teachers want students to become better thinkers, not just memorize things?	3.02	Agree	1
Mean	2.78	Agree	
Teachers			
feel challenged?	2.62	Agree	4
have to work hard to do well?	2.81	Agree	2
provide constructive feedback to their peers/teachers	2.63	Agree	3
respond to challenging test questions?	2.92	Agree	1
Mean	2.75	Agree	
Overall Mean	2.76	Agree	

Table 1 shows the Rigorous Instruction Element in terms of Academic Press. There is a high level of Academic Press as indicated by the computed overall mean of 2.76 as perceived by the students (2.78) and teachers (2.75). Students agreed that their classes at this school prepare them for the next level or grade (2.97), their classes at this school really make them think critically (2.85), they feel challenged (2.55), and the teachers ask difficult questions on tests (2.71). It is evident from the response of the students that the schools have provided them rigorous instruction in terms of academic press by giving the students with activities on how to think critically as part of their instruction through asking complex questions.

Cultivating students' critical thinking skills is a major goal of American higher education [12]. Most educators agree that it is essential that students develop such skills while engaged in academic learning because they enable students to engage in purposeful, self-regulatory judgment [13].

Likewise, the respondents also agreed that the teachers ask difficult questions in class (2.56) with the lowest mean score, as well as working in small groups (2.78). Teachers know the art of questioning is an important part of instruction. Giving intelligent questions to students is one way of encouraging them to actively participate in the discussion. Delima et al. [14] noted that students may have the ability and desire to participate in the discussion; they are too conscious of verbalizing what they think. Encouraging questions may trigger student participation in classroom discussion.

Furthermore, teachers also wanted students to become better thinkers, not just memorize things (3.02) which obtained the highest mean from students. Teachers agreed that they feel challenged (2.62) as part of the academic press, they have to work hard to do well (2.81), they provide constructive feedback to peers/teachers (2.63), and they respond to challenging test questions (2.92) which obtained the highest mean from teachers. Academic Press is the extent to which the school is driven by a quest for academic excellence. It is a collective characteristic of the school. It refers to the normative and behavioral environment of a school. Hoy, Sweetland and Smith [15] noted that teachers set high but achievable goals. They also believe in the capability of their students to succeed, the school environment is orderly and serious, and students, teachers, and principals all respect academic achievement and work for success.

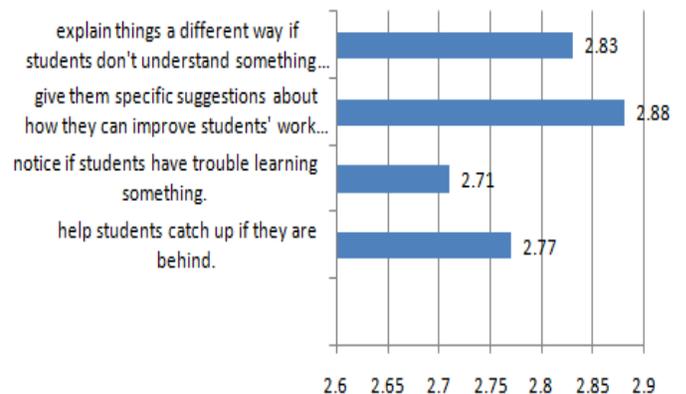


Figure 1. Rigorous Instruction in terms of Common Core shifts in literacy

Figure 1 shows rigorous instruction in terms of Common Core shifts in Literacy. There is a high level of common core shifts among respondents as denoted by the computed overall mean score of 3.20. The teachers agree that for general/self-contained/literacy/science/social studies in planning the last instructional unit, they had the resources and tools needed to include multiple opportunities for students to interact with academic language (3.26); reading and writing experiences grounded in evidence from text, both literary and informational (3.25); students to interact with complex grade-level text (3.19); and rich non-fiction (3.12).

Papola-Ellis [33] emphasized that there is much support in the literacy community for including more informational texts in classrooms, but some scholars caution against a narrow focus only on nonfiction texts. Informational texts may be more challenging for students due to the content-specific vocabulary contained in many texts, requiring more extensive background knowledge than some elementary students have [34], [35].

Figure 2 shows Rigorous Instruction in terms of Common Core shifts in Math. Teachers have high level of common core shifts in math as denoted by the computed overall mean score of 3.09. For

general/self-contained/math/science: in planning the teachers' last instructional unit, they had the resources and tools they needed to include multiple opportunities for focusing deeply on the concepts emphasized in the standards to help students build strong foundations for learning (3.11), developing student's conceptual understanding, procedural fluency, and their ability to apply math in context (3.10) and creating coherent progressions within the standards from previous learning as foundations for math concepts (3.06). Schools ensure that they have adequate resources to support the rigorous instruction towards the achievement of the set standards leading to the desired outcomes of developing students' conceptual understanding. Monitoring of student performance is being conducted to ensure the progress of every learner is being addressed as part of the inclusive growth for all students.

Bottge et al. [16] noted that teachers showed how to solve mathematical problems, and students were encouraged to follow the step-by-step procedures. Formative assessment was ongoing to check students' mastery level, using random questions, teacher observations, or small quizzes, which allowed teachers to re-teach and review the contents and provide additional instruction as needed.

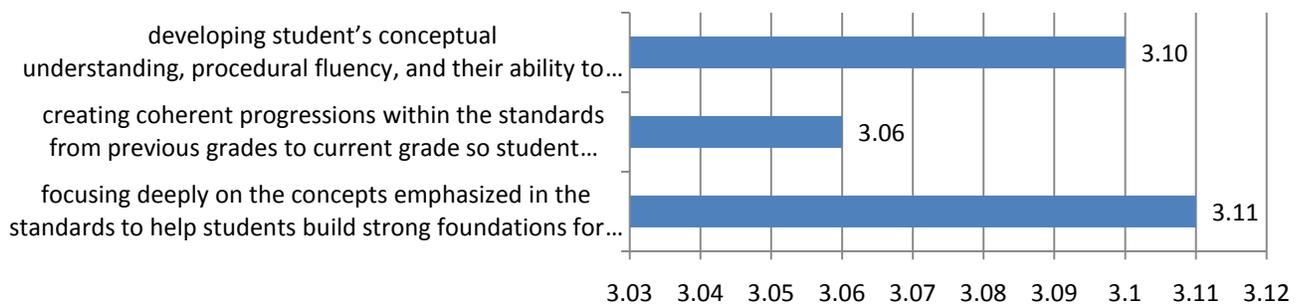


Figure 2. Rigorous Instruction in terms of Common Core shifts in math

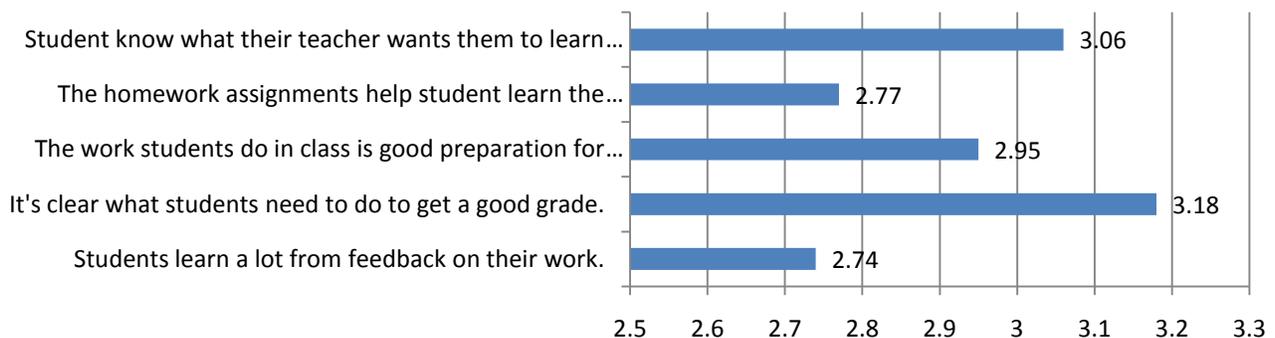


Figure 3. Rigorous Instruction Element in terms of Course clarity

Figure 3 shows the Rigorous Instruction in terms of Course Clarity. The overall mean of 2.94 implies that the respondents have high level of assessment on course clarity. Students consider that most of the time in their classes this school year they feel that there is clarity most of the time on what they need to do to get a good grade (3.18); they learn from feedback on their work (2.74). Further, the work they do most of the time in class is good preparation for their class tests (2.95), the homework assignments help them learn the course material (2.77) and they know most of the time what their teacher wants them to learn in class (3.06). Giving immediate feedback to the performance task and activities of the students provides direct information on how they can still improve their work. It encourages better understanding of their outcomes based on the clarity of the objectives. Cheng et al. [17] found out that cognitive feedback like direct correction was more helpful for the students' writing learning gains than affective feedback like praising comments and metacognitive feedback like reflecting comments. Nixon et al. [18] emphasized that approaching feedback development as a member of a course or module team, supported by better communication and awareness of student perceptions, has the potential to play a vital role in creating clarity and consistency.

Figure 4 shows the result of assessment on Rigorous Instruction in terms of Quality of student

discussion. The results reveal that the overall mean score of 2.74 implies that there is a high level of assessment on the quality of student discussion as observed by the teachers. Most of the students participate in class discussions at some point (2.92), and most of them show respect on each other's ideas (2.81), and use data or text references to support their ideas (2.71). Students were encouraged to actively participate in class discussion through maintaining respect of different perspectives and views. They were given the chance to express their opinions and ideas in the class with deeper appreciation of their thoughts.

Most students build on each other's ideas during class discussion (2.62) and provide constructive feedback to their peers/teachers (2.63). It is always important to provide feedbacks on the answers of the students. These feedbacks encourage the students to improve their manner of critical thinking and allow them to analyze the questions more logical and analytical for them to share their thoughts comprehensively and systematically. Murphy et al. [19] believe that letting learners know how important these discussions are to learning may help but will not necessarily guarantee participation. To better understand how to support students in asynchronous discussions, instructors may wish to consider reasons behind student reticence.

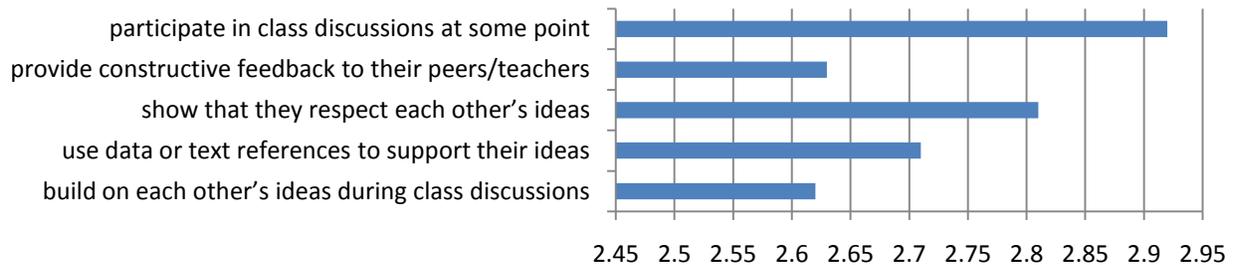


Figure 4. Rigorous Instruction Element in terms of Quality of student discussion

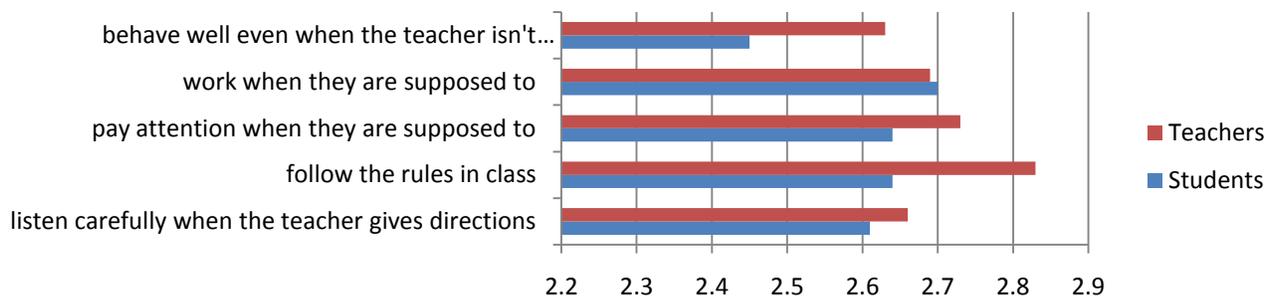


Figure 5. Supportive Environment Element in terms of Classroom behaviour

Figure 5 shows the result of assessment on supportive environment in terms of Classroom behavior. Students and teachers respond to the same sub measures. There is a high level of positive classroom behavior as observed by the students (2.61) themselves. There is an item that reveals that only a few of the students feel that most students behave well even when the teacher is not watching. Both teachers and students feel that in many classes at their respective schools, most students listen carefully when the teacher gives directions with 2.61 mean score from students and 2.66 mean score from teachers; also, they follow the rules in class, and pay attention when they are supposed to. The importance of having classroom management tools that are effective across cultural and linguistic traditions cannot be overstated [20]. The existence of aggressive and inappropriate behaviors in schools is a universally noted phenomenon that has been witnessed in far reaching regions [21]. Teachers believe that a lot of students behave well in class even if the teacher is not watching. The results reveal that teacher average weighted mean is higher than the students. This signifies that there is a less supervision from the teachers of the students who are well-behaved in class.

Figure 6 shows the result of assessment on supportive environment in terms of Guidance. There is a high level of guidance provided to the students as denoted by the computed composite mean score of 3.04. The students agree that the adults at their school including teachers, administrators, counselors and the principal encourage them to continue their education after high school (3.07), provide them with the information about the college enrollment process like

college selection and application process, financial aid process, course registration(3.02), help them plan on how to meet their future career goals (2.99), help them consider which colleges to apply to (3.09), and show them options on how to pay for college like scholarship, grants, loans, work study programs(3.05). Zhang and Huang (2018) emphasized that career information and suggestion and peer role models provided proximal and distal support, promoting individuals' career exploration not only directly but also indirectly through career decision-making self-efficacy.

There is an increase in the mean from 2017 to 2018 in the first three sub measures and a slight decrease in the last two sub measures. Students also agree that adults at their school help them consider which colleges to apply to. Adults at their school help them plan for how to meet their future career goals shows the lowest rank. It is already considered the success of the institution if the students successfully completed their Senior High school and ready to face the challenges of college education. Lohman and Dingson [22] believed that a traditional way of assessing program effectiveness of academic programs has been by determining the percentage of students who complete programs and receive degrees or some other acknowledgment of completion. They still believe that college education is important to their career development and success as future professionals. Teachers are continuously encouraging senior high school students to pursue college degree so that they can have for higher positions and take higher responsibilities.

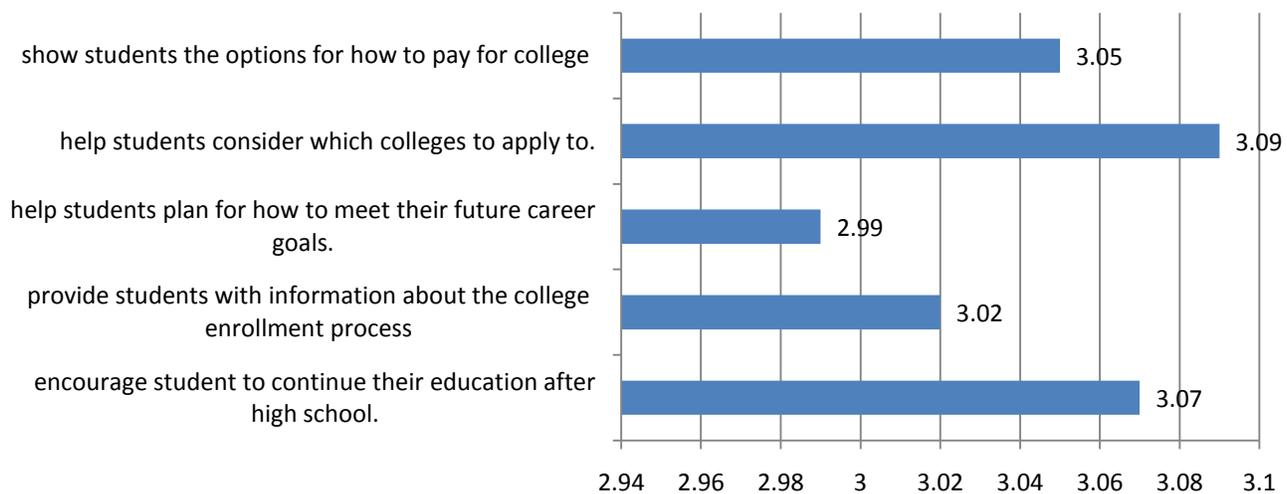


Figure 6. Supportive Environment in terms of Guidance

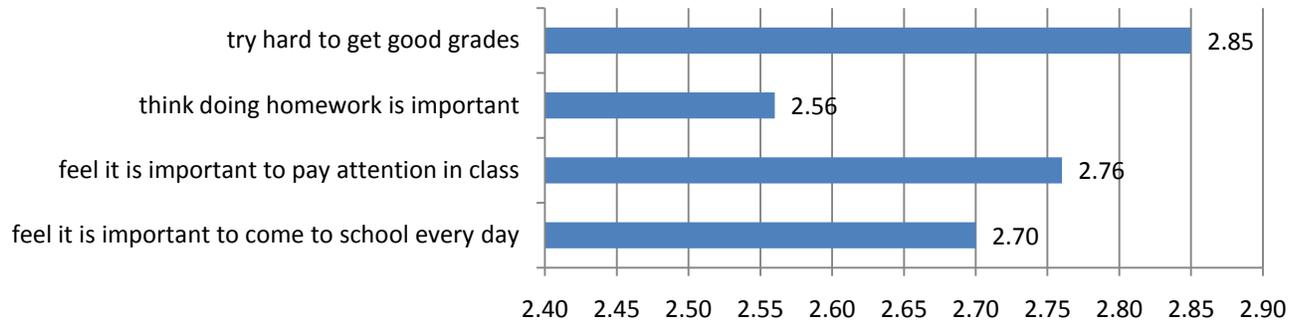


Figure 7. Supportive Environment Element in terms of Peer support for academic work

Figure 7 shows the result of assessment on the Supportive Environment in terms of Peer support for academic work. There is a high level of peer support for academic work in the schools under study as indicated by the computed p-value of 2.71. Students feel that in most classes in their school, students feel it is important to come to school everyday (2.70), they feel it is important to pay attention in class (2.76), they think doing homework is important (2.56), and they try hard to get good grades (2.85). It is good to note that students really see the importance of going to school everyday to fulfil their duties and responsibilities as students. They still believe on the significance of knowledge that they will gain from attending classes. Kobayashi [23] emphasized the importance of students' preparatory activities outside of the classroom which included negotiating task definition and teacher expectations, sharing experiences, collaborative dialogue, and rehearsing and peer coaching. These are some of the learning activities where students can experience peer support

for academic work. Relatively fewer students think that doing homework is important as shown by the results for two years. Teachers also feel that in most of their classes, most students try hard to get good grades. Further, they think doing homework is important, which ranks the lowest.

Figure 8 shows the result of assessment on supportive environment in terms of personal attention and support. There is a high level of personal attention and support that the students are receiving from the teachers as indicated by the computed composite mean score of 2.73. Students feel that most teachers give their personal attention and support when teachers help them catch up if they are behind (2.77), notice if they have trouble learning something (2.71), give them specific suggestions about how they can improve their work in class (2.88), and explain things a different way if they do not understand something in class (2.83). However, there is a low level of assessment on how teachers support them when they are upset (2.47).

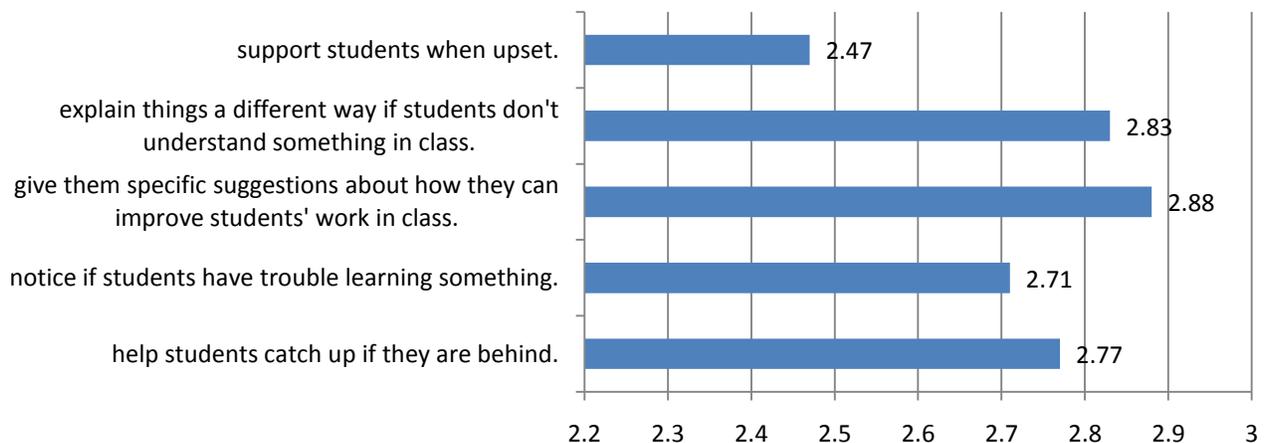


Figure 8. Supportive Environment Element in terms of Personal attention and support

It signifies that the number of students inside the classroom can also influence on how teachers can provide personal or individual support with all the students. McKinney et al. [24] emphasized that small schools appear to work not because classes are smaller but because teachers get to know students as individuals and take an ongoing interest in their success. The mean shows a decreasing trend in all sub measures from 2017-2018. Most teachers give them specific suggestions about how they can improve their work in class. Teachers are supporting them when they are upset ranks the lowest. Teachers are naturally concerned with the problems and difficulties being experienced by the students but there are times they are not aware of the problems of the students. Being sensitive to the needs of the students is one way of putting better perspective on how students can really appreciate the support from the teachers.

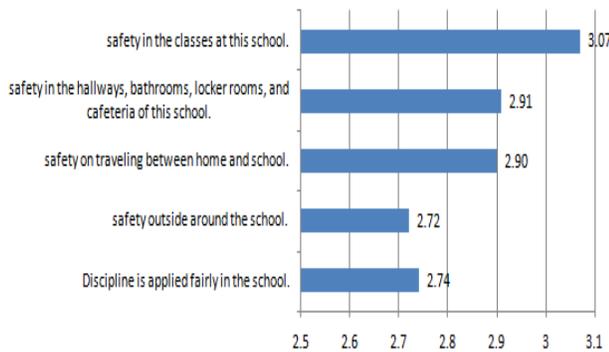


Figure 9. Supportive Environment Element in terms of Safety

Table 9 shows the result of assessment on Supportive Environment in terms of Safety. There is a high level of school safety as observed by the students during these two years as indicated by the computed composite mean score of 2.87. Most, students feel that discipline is applied fairly in their school (2.74), and they feel safe outside around the school (2.72). Students observed high level of safety inside the schools. The management has established various strategies to ensure the safety and security of the students inside and outside the vicinity of the schools. They feel safe traveling between home and the school and they feel safe in the hallways, bathrooms, locker rooms, and cafeteria of the school and in the classes at the school (2.87). Most of the students feel safe in their classes at their school. However, students feel safe outside around their school ranks the lowest. Booren, Handy and Power [25] noted that students' feelings of school climate and violence were associated with ratings on the importance of safety strategies, such that higher ratings on the connection/climate and incivility and disruption scales significantly predicted the perceived importance of rule enforcement strategies. Security measures in educational environment are always ensured to protect the students from threats and the properties from damage. Schools have precautionary measures and programs for anti-bullying campaign even in the social media. The welfare of the students is always the priority of schools to guide them and let them feel valued.

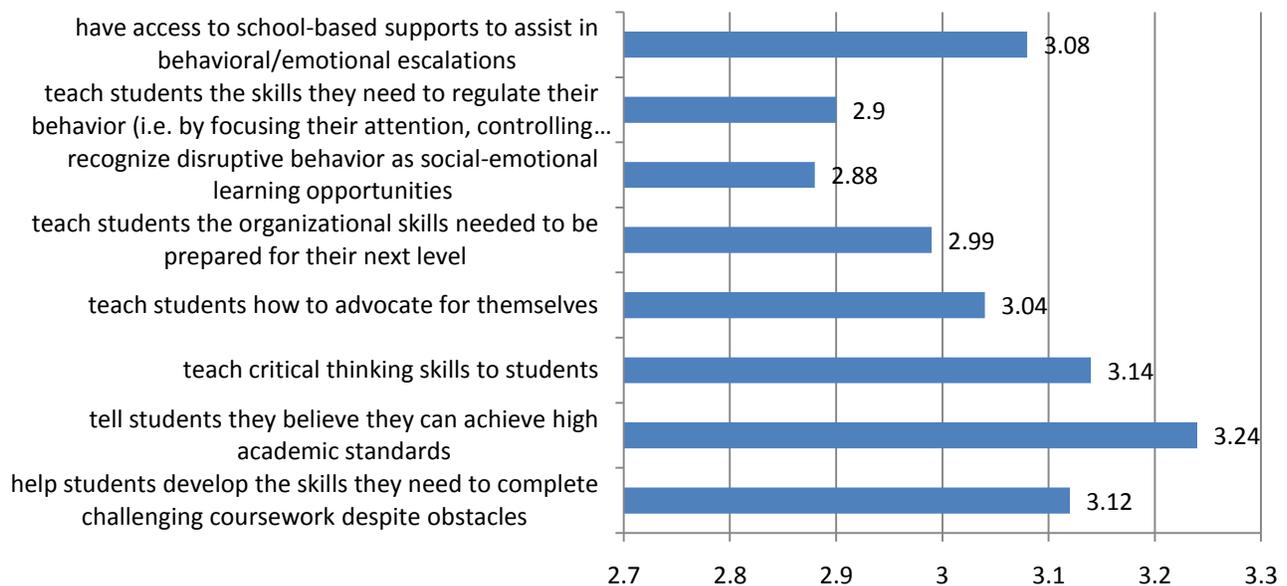


Figure 10. Supportive Environment in terms of Social-emotional Aspect

Figure 10 shows the result of assessment on Supportive Environment in terms of Social-emotional aspect. Data reveal that the two-year mean total score is 3.05. Most teachers agree that adults at this school develop the skills they need to complete challenging coursework despite obstacles (3.13), and tell their students they believe they can achieve high academic standards (3.24). They also agree that teachers teach critical thinking skills to students (3.04) and teach students how to advocate for themselves (3.04). There is also a high level of assessment on teaching the students the organizational skills needed to be prepared for their next level (2.99), recognize disruptive behavior as social-emotional learning opportunities (2.88), and teach students the skills they need to regulate their behavior like by focusing their attention, controlling their emotions, or managing their thinking, behavior, and feelings (2.90). Having a strong emotional intelligence controls how the person can manage anger, fear and stress through positive way of looking at things from different perspectives.

Greenberg et al. [26] consequently asserted that school-based prevention programming—based on coordinated social, emotional, and academic learning—should be fundamental to preschool through high school education. As such, critical challenges for effective and sustained school-based prevention and youth development are intertwined with the broader challenges of educational reform and improvement. Elias [27] emphasized that social-emotional learning, which is a form of education, when added to academic learning, provides educators with the possibility of capturing the balance children need.

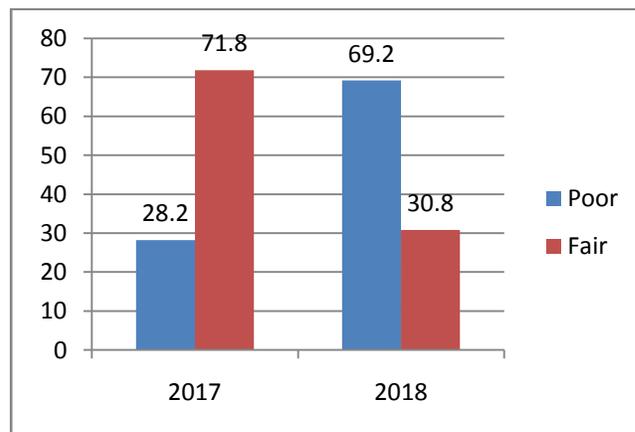
There is also a high level of assessment in terms of having access to school-based supports to assist in behavioral/emotional escalations (3.08). Teachers agree that adults at their schools tell their students they believe they can achieve high academic standards. Adults at their school recognize disruptive behavior as social-emotional learning opportunities ranks the lowest. Lunenburg [28] believed that the function of education is to provide opportunities for each student to reach his/her full potential in the areas of educational, vocational, social, and emotional development. The school leader must ensure that guidance is an integral part of education and that it is centered directly on this function.

Table 2 presents the summary of composite mean scores for the four elements of the school learning environment. Results showed that there is a high level of rigorous instruction and supportive environment among the low performing public schools.

Table 2. Summary of Composite Mean Scores on Rigorous Instruction and Supportive Environment

Rigorous Instruction	CM	VI	Level
Academic Press	2.76	Agree	High
Common Core shifts in literacy	3.20	Agree	High
Common Core shifts in math	3.09	Agree	High
Course Clarity	2.94	Most	High
Quality of student discussion	2.74	Most	High
Cluster Mean	2.95		High
Supportive Environment			
Classroom behaviour	2.66	Agree	High
Guidance	3.04	Agree	High
Peer support for academic work	2.71	Most	High
Personal attention and support	2.73	Most	High
Safety	2.87	Most	High
Social-emotional	3.05	Agree	High
Cluster Mean	2.84		High

There are results in this study that are interesting and very hard to reconcile. It is so surprising that these low performing high schools generally performed well on all four elements of Framework for Great Schools. The expectations were that these schools are lacking in at least two elements because they are low performing. However, this does not guarantee that the responses are biased because the respondents do not want to put the school in bad light. The researcher also realized that the NYC DOE annual survey cannot be used for needs assessment of struggling schools.



Scale: Very Poor: <50; Poor: 51-60; Fair: 61-70; Satisfactory: 71-75

Figure 11. Result of Math State Regents Exam

Figure 11 shows the Result of Math State Regents Exam for 39 Low Performing High Schools in New York City. For SY 2016-2017 28 out of 39 schools (71.8%) scored 61-70 and 11 schools (28.2%) scored 51-60. The passing mark for Math Regents Exam is 65. Further, SY 2017-2018 reveals that 27 out of 39 schools scored 51-60. The number of schools that scored below 65 is more than doubled while the remaining 12 schools (30.8%) scored 61-70. For two consecutive years no school scored an average above 70 in the Math Regents Exam. Kang [29] noted that the New York State English Regents is a mandated standardized exam that students in New York State must pass in order to graduate from high school. Many students across the state struggle to meet these minimum qualifications. The state and the city use the scores on this exam as a method for evaluating school performance, principal performance, and teacher performance.

Table 3. Significant Relationship Between Rigorous Instruction and Math State Regents Exam

Rigorous Instruction	r-value	p-value
Academic Press	.331*	.040
Common Core shifts in literacy	-.009	.958
Common Core shifts in math	.036	.831
Course clarity	.046	.779
Quality of student discussion	.353*	.028

Note: *. Correlation is significant at the 0.05 level (2-tailed).

Table 3 reveals the significant relationship between rigorous instruction and the result of Math State Regent Exam. There is a significant positive relationship between the result of Math State Regents Exam and the Rigorous instruction in terms of academic press, $r=.331$, $p=0.040$ and quality of student discussion $r=.353$, $p=0.028$) as denoted by the computed p-values which are less than 0.05 alpha level. This signifies that those schools with higher response on academic press and quality of student discussion are also those schools with possibility of having higher result on Math State Regents Exam. Meanwhile, those schools with lower response are also those with lower exam results. A study conducted on the analysis of citywide survey data and achievement test scores of sixth and eighth grades in Chicago reveal that levels of both social support and school academic press are positively related to student achievement in reading and Math. Results of another study between teaching and learning in Mathematics

Projects showed that the greatest student gains on a performance assessment consisting of tasks that require high levels of mathematical thinking and reasoning. Student performance gains were greater for those students whose tasks were both set up and implemented to encourage the use of multiple solution strategies, multiple representations, and explanations [30].

Table 4. Significant Relationship Between Supportive Environment and Result of Math State Regent Exam

Supportive Environment	r-value	p-value
Classroom behavior	.399*	.012
Guidance	-.043	.797
Peer support for academic work	.069	.675
Personal attention and support	-.063	.702
Safety	.110	.505
Social-emotional	.006	.973

*Correlation is significant at the 0.05 level (2-tailed).

Table 4 reveals the significant relationship between supportive environment and the result of Math State Regent Exam. There is a significant positive relationship between the result of Math State Regents Exam and the supportive environment in terms of classroom behaviour, $r=.399$, $p=0.012$) as denoted by the computed p-value which is less than 0.05 alpha level. This higher response on classroom behavior signifies a possibility of obtaining higher result in Math State Regents Exam. Beltran [31] noted that while it is necessary to assess what students are learning to determine the effectiveness of current practices and allocate resources, it is also true that there may be a mismatch between the intended consequences of test use and the actual repercussions on the educational system. This is the case for the Regents Examinations, which have been in use in New York State for more than a century.

Table 5. Significant Relationship between Rigorous Instruction and Supportive Environment

	r-value	p-value
Rigorous Instruction and Supportive Environment	.831**	.000

**Correlation is significant at the 0.01 level (2-tailed).

Table 5 presents the significant relationship across four selected essential elements for school learning environment. Result showed that there are significant

relationships among the four essential elements as denoted by the computed p-values of less than 0.01 alpha level. This signifies that those schools with higher rigorous instruction are also those schools with higher level of supportive environment. Teachers have a sense of responsibility on the effective delivery of instruction to students because they really feel the support of the management on their efforts and academic activities of the students. Blömeke and Klein [32] found out that a climate of trust plays an important role for the extent of autonomy perceived. Administrative leadership was significantly related to the amount of appraisal the teachers reported. It is good to note that rigorous instruction has something to do with collaborative teachers, supportive environment and effective school leadership. It gives a better view of how the respondents, both teachers and students, assessed objectively the performance of their respective institutions. Those respondents who answered higher in one element are also those respondents who answered high on another element.

CONCLUSION AND RECOMMENDATIONS

The public high schools under study have higher level of assessment on rigorous instruction in terms of common core shifts in literacy and math as compared to quality of student discussion at the same with higher level of assessment on supportive environment in terms of social-emotional aspect as compared to classroom behavior. There is a declining performance of these schools IN Math Regents Exams from 2017 to 2018. More than half of the schools scored below passing mark in Math Regents. Significant positive relationship exists between rigorous instruction and supportive environment. The variables or essential elements that correlated with the result of Math Regents Exams are rigorous instruction in terms of academic press and supportive environment in terms of classroom behaviour.

The researcher adopted the recommendations of the Turnaround Challenge prepared by the grant from the Bill and Melinda Gates Foundation. Researching the nature of underperformance in schools serving disadvantaged, high-poverty enrolments (which represent the bulk of failing schools). Examining the well-documented practices of individual high-performing schools serving these enrolments and distilling the strategies they use to achieve their results. Analyzing a wide spectrum of scaled-up school intervention, from those simply providing guidance and added capacity to more

extensive initiatives involving staff or principal replacement, closure/reopening, and the establishment of special turnaround “zones” with altered operating conditions. Isolating the key elements, intensity, duration, resources, and funding required for turnaround of under-performing schools to take root. Developing a framework for state policymakers and school district leaders to use in developing the systems, approaches, expanded capacity, and resource levels required to bring about dramatic transformation in struggling schools. Further studies may be conducted to compare the results of the six elements of the framework for school learning environment to see how respondents differ their observations and perceptions on the actual performance of the public high schools.

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