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The Impact of Effective Classroom Management Techniques on Student Academic Achievement in Mathematics in Japan

数学教師の教室経営が学業成績に与える影響に関する一考察

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Abstract

The main focus of this study was to investigate the impact of effective classroom management techniques of mathematics teachers upon student academic achievement. Descriptive research design was adopted for this study. Four research questions and four hypotheses were created to guide the study. A total of 139 first-year University students participated in the study. The results indicated that there is a strong and positive relationship between classroom management and student academic achievement at 0.05 level of significance. The finding also showed that giving feedback to student work is the most important component of classroom management, followed by teacher student interaction and motivation.

〔Key word〕 Classroom Management, Academic Achievement

Ⅰ　INTRODUCTION

1．Background

The general goal of education in any country is to prepare the citizens to become physically, mentally, emotionally and spiritually capable. Therefore, while education should arouse in an individual a desire to learn and grow independently, it should at the same time make her/him a social contributor. In the context of Japan, although the Japanese Ministry of Education, Culture, Sports, Science and Technology stated that only 6.5% of Japanese school children display misbehavior and learning difficulties in the classrooms in their 2012 report (Terasaka, 2017), managing the classrooms has become a serious educational and societal challenge in Japan, and all the stakeholders acknowledged the role of classroom management in developing well-disciplined behavior and promoting academic achievement. Japanese students' mathematics level stood as the sixth of all the OECD

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countries according to the result of 2018 Programme for International Student Assessment (PISA) (Tsuboya-Newell, 2017). Therefore, it is crucial to explore the classroom management techniques that mathematics teachers have been applying in their classrooms. That is why this study was conducted with the aim of not only identifying the impact of classroom management on students' mathematics achievement but also to provide some suggestions to the teachers on the most appropriate classroom management techniques required to manage Senior High School students in Japan.

2. Theoretical Framework

The theoretical framework for this study is the teacher behavior continuum of Wolfgang and Glickman (1980). The two prominent educationists theorized a framework for a classroom management model that includes three approaches to classroom interaction: non-interventionists, interventionists, and interactionalists in 1980. They described the non-interventionists as those who assume that students possess an inner drive that requires to find ways to express in the real situation. On the other hand, the interventionists are those who give priorities to the external environment including people and physical facilities for the development desired behavior in students. The interactionalists are those who make a logical connection between the non-interventionists and the interventionists. The interactionalists believe that there should be a mutual contribution between the students and the external environment. Wolfgang and Glickman assumed that teachers manage their classrooms according to all three models of discipline, although one model obviously outweighs the others. Therefore, by applying these three models, the degree of power possessed by the teachers and students can be revealed in teachers' behavior.

3. Definition and Components of Classroom Management

A classroom refers not only to an environment both intellectually and physically secured (Agbabi, et al., 2013) but also to a shelter for both teachers and students so as to engage in educative activities, and to get formal knowledge acquisition (Adeyemo, 2012), whilst management is the process of designing and maintaining any organization in which people work in group to accomplish the goal they set together (Adeyemo, 2012). As a result, classroom management is a complex societal issue that involves teachers and parents, community members, and students (Sakui, 2007). Everything from encouraging students to acquire certain behavioral patterns and attitudes (e.g., neatness, the willingness to overcome one's dislike of certain food) to helping the overly shy or overly aggressive child is dealt with classroom management (Nanbu, 2012). Classroom management is defined as the sum total of plan of actions taken by the teacher in the classroom to bring about a conducive classroom environment that supports teaching and learning

leading to success and achievement (Sunday-Piaro, 2018).

The concept of classroom management is definitely broader in scope than discipline or control (Adeyemo, 2012; Martin & Baldwin, 1994) although the focus of classroom management has been on discipline as the basis for behavioral and instructional management (Sowell, 2013). Upon observing the undisciplined behavioral issues and lack of motivation in the secondary school classrooms, Omenka (2015) claimed that classroom discipline and classroom motivation are major components of classroom management. George (2017), however, focused on verbal instruction, corporal punishment, instructional supervision, and delegation of authority to learners in his survey in the secondary schools in Uyo Local Government Area of Akwa Ibom State. Sunday-Pairo (2018) conceptualized that classroom management includes classroom discipline, teachers' teaching technique, classroom reward system, and delegation of authority. Although various scholars assume the components of classroom management differently, including every element of classroom from teaching learning activities to classroom atmosphere is crucial in managing classroom effectively (Nicholas, 2007, Cited from George, 2017).

Previous Studies on Classroom Management in Japan.

To explore the factors affecting the classroom management in Japanese classrooms, Sakui (2007) studied on 30 Japanese teachers of English through observations and interviews for one academic year. According to the participants in the study, the challenges to classroom management were class size, student' s socioeconomic backgrounds, and c ommunities' changing values towards teachers and schools.

Shin, Lee and Kim (2009) conducted a comparative study of three countries: Korea, Japan and America. According to their findings, students in Korea and Japan preferred competitive learning environment while students from US did not. Students from Japan and Korea showed more interest in mathematics than instrumental motivation. School disciplinary climate had significant impact on achievement in all three countries whilst student-teacher interaction was significant only in Japan.

Ito (2011) did a case study on two different homeroom teachers to investigate the impact of classroom management on student performance. The result showed that stud ents' mental health, motivation and academic achievement were the result of classroom climate and school connectedness that were claimed to be the parts of classroom management.

Concerning the classroom management strategies applied in Japanese classrooms, Terasaka (2017) led a group to do a survey on Japanese Elementary schools through the direct observation for a total of 30 class hours in a University affiliated elementary school. They reported that teachers of lower grade classrooms applied more reactive responses and less proactive strategies and recommended the upper grade classrooms to apply more reactive approach.

As for increasing student achievement and reducing classroom management issues, class size is a crucial matter in Japan (Tsuboya-Newell, 2017). Tsuboya-Newell pointed out that Japan was one of the countries with the highest-achieving students in the world according to Catherine Rampell's (2017) article in the New York Times. Managing a comparatively bigger class size, however, makes individual teacher difficult to meet each student's needs.

After reviewing the related literature, it became obvious that finding out the significant classroom management techniques was a relatively less focused topic in Japan. This study, which is expected to fill the gap in the literature by focusing on more comprehensive classroom management techniques, is designed to find out the most important classroom management techniques for Senior High School mathematics teachers, while investigating its impact on student academic achievement.

4. Purpose of the Study

The purpose of this study is to investigate the influence of classroom management on the students' academic achievement in mathematics. Thus, the study sought to find out: (1)The influence of motivation, (2)The influence of physical aspects, (3)The influence of teacher-student interaction, (4)The influence of rules and regulations, (5)The influence of feedback on student work.

5. Research Questions

The following research questions guided this study:

1. Does motivation in the classroom have an impact on student mathematics achi evement ?
2. Do physical aspects of the classroom have an impact on student mathematics a chievement ?
3. Does teacher student interaction in the classroom have an impact on student mathematics achievement ?
4. Do rules and regulation in the classroom have an impact on student mathematics achievement?
5. Does feedback on student work in the classroom have an impact on student mathematics achievement ?

6. Research Hypothesis

The following hypotheses were tested for this study:

1. There is no significant relationship between motivation in the classroom and student mathematics achievement.

2. There is no significant relationship between physical aspects of the classroom and student mathematics achievement.
3. There is no significant relationship between teacher-student interaction in the classroom and student mathematics achievement.
4. There is no significant relationship between rules and regulation in the classroom and student mathematics achievement.
5. There is no significant relationship between feedback on the work of students in the classroom and student mathematics achievement.

Ⅱ METHODOLOGY

This study was designed as a descriptive and relational study, aiming to explore the impact of effective classroom management techniques of Senior High School mathematics teachers on student academic achievement. Data were collected from 139 first year students, studying Educational management under the faculty of Education, Shimane University.

The questionnaire consisted of three parts. The first part was designed to collect the personal information of each participant. As the second part, a questionnaire developed by Saifi, et al. (2018) was adopted to explore the opinions of the participants on classroom management of their Senior High School mathematics teachers. It consisted of 35 close-ended questions on five-point Likert scale ranging from strongly disagree to strongly agree. There were five different components in that part; namely, motivation in classroom (7 items), physical aspects (7 items), teacher student interaction (9 items), rules and regulations (6 items) and feedback on students work (6 items). The final part was to find out student opinions about academic achievement level on mathematics based on the results of tests and exams as well as on what degree they enjoyed studying the subject. It consisted of two items with five-point Likert scale ranging from very low to very high.

T-test was used to compare independent groups for the differences in opinions. For item analysis, mean and standard deviation were calculated, while Pearson's Product Moment Correlation co-efficient (r) was applied in determining the significant relationship implied in the hypotheses.

Ⅲ RESULT

1. Demographic Variables and Opinions

Table 1.1 : Comparison of male and female students' opinions about classroom management

Gender	N	%	$(\overline{X})$	SD	t-value	p-value
Male	80	57.55	3.55	0.59	−0.39	0.69
Female	59	42.45	3.60	0.66		

p>0.01; not significant at 0.01 level of significance.

Table 1.1 shows the comparison of opinions of male and female participants about classroom management techniques. Out of 139 participants, 80 (57.55%) were male and 59 (42.45%) were female. Since the p-value (0.69) is well beyond 0.01 level of significance, it can be noted that the difference in the opinions of the male and female students was insignificant.

2. Analysis of Research Questions

RQ 1: Does the motivation in the classroom have an impact on student achievement ?

Table 2.1: Students' opinion on motivation in the classroom

S/N	Does the motivation in the classroom have an impact on student achievement ?	$(\overline{X})$	SD	Remark
1.	My teachers manage class in the way which creates encouraging environment in the classroom for productive learning.	3.56	1.17	Agreed
2.	My teachers motivate students in the class for learning.	3.56	1.17	Agreed
3.	My teachers encourage equal participation of all students in classroom.	3.69	1.20	Agreed
4.	My teachers lead disciplined and organized class that enhances student learning positively.	3.35	1.16	Neutral
5.	My teachers equipped classroom well that motivates students to learn.	3.49	1.15	Neutral
6.	My teachers try to eliminate gender bias amongst the students that lead to a positive change in the attitude of the students towards studies.	4.12	1.09	Agreed
7.	My teachers give the amount of work to students that do not demotivate them.	3.67	1.22	Agreed
	Overall Mean	3.64	0.86	Agreed

Table 2.1 shows the motivational strategies used in the classroom that can impact student achievement. Item 1, 2, 3, 6 and 7 yielded the mean 3.56, 3.56, 3.69, 4.12 and 3.67. This shows that majority of the students agreed that item 1,2,3,6 and 7 were used most frequently by teachers. In contrast, item 4 and 5 yielded significantly low means of 3.35

and 3.49. This shows that students had neutral idea about item 4 and 5. Since the overall mean (3.64) was greater than the criterion mean, the participants moderately agreed that their teachers practice the productive motivation techniques in the classroom.

RQ 2: Do the physical aspects of the classroom have an impact on student achievement ?

Table 2.2: Students' opinion on physical aspects of the classroom

S/N	Do the physical aspects have an impact on student achievement ?	($\overline{X}$)	SD	Remark
8.	My teachers try to make classroom physical environment conducive for learning.	3.94	1.02	Agreed
9.	My teachers keep classroom physical appearance effective.	3.37	1.32	Neutral
10.	My teachers make proper seating arrangement in classroom for effective learning.	2.63	1.35	Neutral
11.	My teachers make sure that white board is visible to all students in the classroom.	4.30	0.96	Agreed
12.	My teachers keep notice of appropriate lighting in classroom.	3.52	1.18	Agreed
13.	My teachers use audio-visual aids in classroom to facilitate the students' learning.	2.77	1.39	Neutral
14.	My teachers change classroom seating arrangement for group work.	2.86	1.49	Neutral
	Overall Mean	3.34	0.71	Neutral

Table 2.2 shows how physical aspects of the classroom arranged by the mathematics teachers were viewed by the students. Item 8, 11 and 12 yielded mean 3.94, 4.30 and 3.52. This shows that majority of the students agreed that item8, 11 and 12 were used most frequently by teachers. However, item 9, 10, 13 and 14 showed the mean 3.37, 2.63, 2.77 and 2.86 respectively. This shows that students had neutral idea about item 9, 10, 13 and 14. Since the overall mean (3.34) was lower than the criterion mean, the participants had neutral idea that their teachers arranged the physical aspects of the classroom productively.

RQ 3: Does the teacher student interaction in the classroom have an impact on student achievement ?

Table 2.3: Students' opinion on teacher student interaction in the classroom

S/N	Does the teacher student interaction have an impact on student achievement ?	($\overline{X}$)	SD	Remark
15.	My teachers use understandable language in class which positively influences the academic achievement of the students.	4.07	1.05	Agreed
16.	My teachers have friendly and approachable behaviour in classroom for students' better learning.	3.99	1.21	Agreed
17.	My teachers relate the topic with real life through different examples.	3.37	1.30	Neutral
18.	My teachers reward to students for good behaviour in the classroom.	3.91	1.14	Agreed
19.	My teachers engage students in active discussion about issues related to topic.	3.31	1.24	Neutral
20.	My teachers use teaching approaches that encourage interaction among students.	3.01	1.35	Neutral
21.	My teachers give students opportunities to ask questions in the classroom.	4.06	1.11	Agreed
22.	My teachers closely monitor off task behaviour during class.	3.81	1.17	Agreed
23.	My teachers answer students' questions for promoting positive interaction in the classroom.	3.69	1.15	Agreed
	Overall Mean	3.69	0.80	Agreed

Table 2.3 shows how students viewed their relationship with their teachers. Item 15, 16, 18, 21, 22 and 23 gained the mean 4.07, 3.99, 3.91, 4.06, 3.81 and 3.69. This shows that majority of the students agreed that item 15, 16, 18, 21, 22, and 23 were used most frequently by teachers. However, item 17, 19 and 20 showed the mean 3.37, 3.31 and 3.01. This shows that students had neutral idea about item 17, 19 and 20. Since the overall mean (3.69) was higher than the criterion mean, the participants agreed that their teachers had an easy-to-approach relationship with them.

RQ 4: Do the rules and regulation in the classroom have an impact on student achieve ment ?

Table 2.4: Students' opinion on the rules and regulations in the classroom

S/N	Do the rules and regulations have impact on student achie vement ?	$(\overline{X})$	SD	Remark
24.	My teachers define the class rules and regulations meaning- fully.	2.88	1.23	Neutral
25.	My teachers do not tolerate indiscipline behaviour from stu- dents in class.	3.45	1.30	Neutral
26.	My teachers intervene when students talk at inappropriate times during class.	3.90	1.07	Agreed
27.	My teachers firmly redirect students back to the topic when they get off task.	3.87	1.08	Agreed
28.	My teachers become strict when it comes to student com- pliance in classroom.	3.30	1.26	Neutral
29.	My teachers insist that students in classroom follow the rules always.	3.39	1.23	Neutral
	Overall Mean	3.46	0.83	Neutral

Table 2.4 gives information about the opinions of students on the rules and regulations set by Senior High School mathematics teachers. Item 26 and 27 yielded the mean 3.90 and 3.87. This goes to show that majority of the students agreed that item 26 and 27 were used most frequently by teachers. On the contrary, 24, 25, 28 and 29 yielded the mean 2.88, 3.45, 3.30, and 3.39. This shows that students had neutral idea about item 24, 25, 28 and 29. Since the overall mean (3.46) was lower than the criterion mean, the participants had neutral idea that their teachers practiced the productive rules and regulations in the classroom.

RQ 5: Does the feedback on student work in the classroom have an impact on student achievement ?

Table 2.5: Students' opinion on feedback on students' work in the classroom

S/N	Does the feedback on students' work have an impact on student academic achievement ?	$(\overline{X})$	SD	Remark
30.	My teachers check assignments of students in time in classroom.	3.33	1.18	Neutral
31.	My teachers appreciate with good words, when students perform well in the class.	3.97	1.03	Agreed
32.	My teachers give individual attention to problematic students and give them proper feedback.	3.65	1.14	Agreed
33.	My teachers give feedback to the students in classroom with constructive criticism.	4.01	1.00	Agreed
34.	My teachers conduct tests in classroom which promotes the students' academic achievements.	3.25	1.39	Neutral
35.	My teachers give immediate feedback to the students when they answer their questions.	4.18	0.96	Agreed
	Overall Mean	3.73	0.78	Agreed

Table 2.5 shows information about the view of students on feedback provided by the mathematics teachers on their work. Item 31, 32, 33, and 35 yielded the mean 3.97, 3.65, 4.01, and 4.18. This goes to show that majority of the students agreed that item 31, 32, 33, and 35 were used most frequently by teachers. In contrast, the item 30 and 34 gained the mean 3.33 and 3.25. This shows that students had neutral idea about item 30 and 34. Since the overall mean (3.73) was higher than the criterion mean, the participants had moderately agreed that their teachers provided the corrective and constructive feedback on their work.

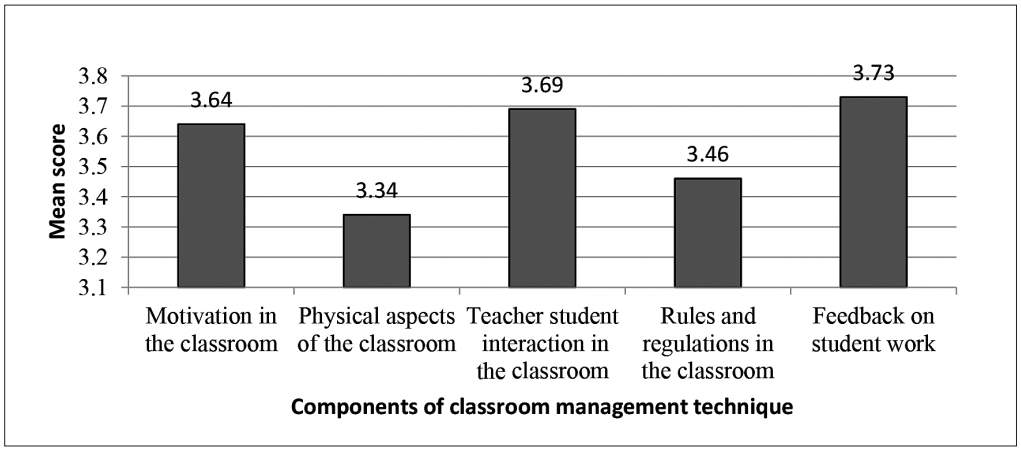

Figure 2.1: Comparison of student opinions on five components of classroom management

Figure 2.1 compares the opinions of students on five components of classroom management techniques practised by the mathematics teachers. It can be seen that feedback on student work got the highest mean (3.73), followed by teacher student interaction (3.69), motivation in the classroom (3.64), rules and regulations in the classroom (3.46), and physical aspects of the classroom (3.34).

3. Hypothesis Testing

Hypothesis 1: There is no significant relationship between motivation in the classroom and student academic achievement.

Table 3.1: Relationship between motivation in the classroom and student academic achievement

Variables	N	$(\overline{X})$	SD	DF	p-value	r-cal	r-cri	Remark
Motivation	139	3.64	0.86	137	0.00	0.53	0.20	Significant
Academic achievement	139	3.28	0.77	137				

$p<0.01$; not significant at 0.01 level of significance.

Table 3.1 shows that the calculated r-value of 0.53 was greater than the r-critical value of 0.20 at the degree of freedom of 137 and 0.01 level of significance. This implies that the null hypothesis (H_o) was rejected, and the alternative hypothesis (H_1) accepted meaning that there was a significant and relatively strong positive relationship between motivation in the classroom and student academic achievement.

Hypothesis 2: There is no significant relationship between physical aspects of the classroom and student academic achievement.

Table 3.2: Relationship between physical aspects of the classroom and student academic achievement

Variables	N	$(\overline{X})$	SD	DF	p-value	r-cal	r-cri	Remark
Physical Aspects	139	3.34	0.71	137	0.00	0.43	0.20	Significant
Academic achievement	139	3.28	0.77	137				

$p<0.01$; not significant at 0.01 level of significance.

Table 3.2 describes that the calculated r-value of 0.43 was higher than the r-critical value of 0.20 at the degree of freedom of 137 and 0.01 level of significance. This implies that the null hypothesis (H_o) was rejected, and the alternative hypothesis (H_1) was accepted, describing that there was a significant and moderately strong positive relationship between physical aspects of the classroom and student academic achievement.

Hypothesis 3: There is no significant relationship between teacher-student interaction in the classroom and student academic achievement.

Table 3.3: Relationship between teacher student interaction in the classroom and student academic achievement

Variables	N	($\overline{X}$)	SD	DF	p-value	r-cal	r-cri	Remark
Teacher-student teraction	139	3.69	0.80	137	0.00	0.58	0.20	Significant
Academic achievement	139	3.28	0.77	137				

$p<0.01$; not significant at 0.01 level of significance.

Table 3.3 shows that the calculated r-value of 0.58 was more than the r-critical value of 0.20 at the degree of freedom 137 and 0.01 level of significance. This implies that the null hypothesis (H_o) was rejected, and the alternative hypothesis (H_1) was accepted, showing that there was a considerably significant and strong positive relationship between teacher-student interaction and student academic achievement.

Hypothesis 4: There is no significant relationship between rules and regulation in the classroom and student academic achievement.

Table 3.4: Relationship between rules and regulations in the classroom and student academic achievement

Variables	N	($\overline{X}$)	SD	DF	p-value	r-cal	r-cri	Remark
Rules and regulation	139	3.46	0.83	137	0.00	0.34	0.20	Significant
Academic achievement	139	3.28	0.77	137				

$p<0.01$; not significant at 0.01 level of significance.

Table 3.4 shows that the calculated r-value of 0.34 was more than the r-critical value of 0.20 at the degree of freedom 137 and 0.01 level of significance. This indicates that the null hypothesis (H_o) was rejected, and the alternative hypothesis (H_1) accepted the meaning that the rules and regulation in the classroom had a significant and moderately strong positive relationship with student academic achievement.

Hypothesis 5: There is no significant relationship between feedback on the work of students in the classroom and student academic achievement.

Table 3.5: Relationship between feedback on student work and student academic achievement

Variables	N	$(\overline{X})$	SD	DF	p-value	r-cal	r-cri	Remark
Feedback on student work	139	3.73	0.78	137	0.00	0.58	0.20	Significant
Academic achievement	139	3.28	0.77	137				

$p<0.01$; not significant at 0.01 level of significance.

Table 3.5 describes that the calculated r-value of 0.58 was well over 0.20, the r-critical value at the degree of freedom of 137 and 0.01 level of significance. This implies that the null hypothesis (H_o) was rejected, and the alternative hypothesis (H_1) accepted the meaning that there was a considerably significant and strong positive relationship between feedback on the students work in the classroom and student academic achievement.

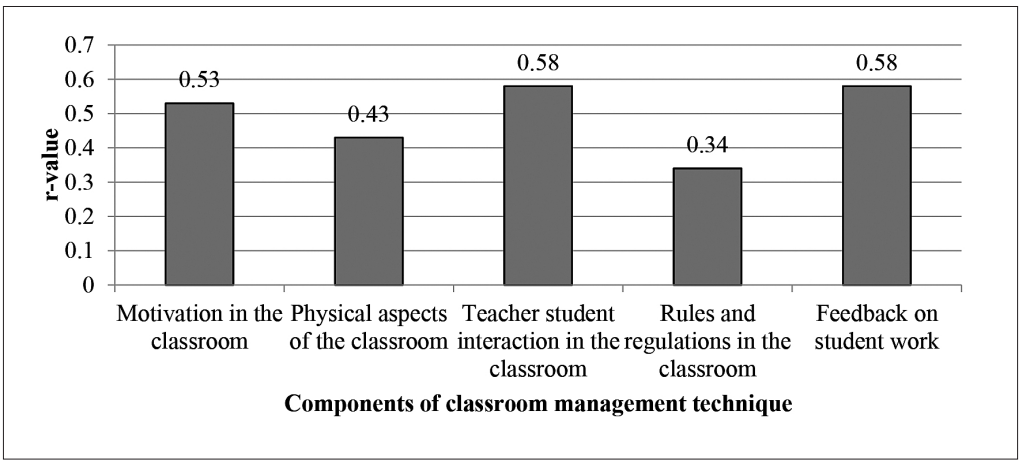

Figure 3.1: Comparison of the impact of five components of classroom management

Figure 3.1 describes the comparison of the impact of five components of classroom management techniques on student academic achievement. Teacher student interaction

and feedback on student work got the highest r-value of 0.58, whilst motivation in the classroom, physical aspects of the classroom and rules and regulations in the classroom showed r-value of 0.53, 0.43 and 0.34 respectively.

Ⅳ DISCUSSION

The finding of the first research question clearly showed that the teachers created encouraging environment for student learning, motivated students for learning, made effort for equal participation of all students, eliminated gender bias in the classroom, and ensured that workload is student-friendly to reduce any form of demotivation. Overall, the participants in this study moderately agreed that their mathematics teachers practised the productive motivation techniques in the classrooms (Overall mean＝3.64). Moreover, there was a significant and relatively strong positive relationship between motivation in the classroom and student academic achievement (r＝0.53). This result is in line with Shin, Lee and Kim (2009) who reported that motivation has a significant impact on mathematics achievement of Japanese students.

According to the finding of the second research question, the teachers provided the supportive physical environment, made sure that whiteboard or blackboard was visible to all students and always took care about the lighting of the classroom. But student ideas about their teachers' effort to maintain classroom physical appearance, classroom arrangement, use of audio-visual materials and teaching-learning tools and classroom seating were neutral. Overall, the participants of this study neither disagreed nor agreed that the mathematics teachers kept the physical aspects of classroom supportive for student learning (Overall mean=3.34). Furthermore, the relationship between physical aspects and student academic achievement was positive and moderate (r＝0.43). This result agrees with Kekare (2015) who opined that well-furnished classroom equipped with various physical facilities has a significant influence on promoting student academic achievement.

In the case of the third research question, the finding also showed that the mathematic teachers communicated with the students using understandable language, had friendly and easy-to-approach behaviour towards the students, rewarded students for good behaviour, ensured that students had time to ask questions, closely monitored off task behaviour during class and responded to the inquiries of students in a positive way to promote active interaction. However, the participants had neutral idea with the statements that their teachers taught the lessons giving examples based on the real life experiences, involved all the students in active discussion, as well as used teaching approaches with the aim of encouraging the interaction among students. Overall, the participants agreed that the mathematics teachers had a supportive relationship with the students (Overall mean＝3.69). The hypothesis testing showed that there was a considerably significant and strong positive relationship between teacher-student relationship and student

academic achievement (r = 0.58). This finding is in agreement with Shin, Lee and Kim (2009) who reported that teacher student interaction is crucial in student academic achievement in Japan.

Moving on, the finding of the fourth research question suggested that their teachers prevented students from talking unnecessarily while the lessons were in progress, and ensured that students maintained focus on the topic. However, the students neither agreed nor disagreed with the idea that their teachers set the rules and regulations for the classroom meaningfully, did not entertain indiscipline behaviour of students during class, were strict with student compliance in the classroom and finally always made sure that all the students followed the rules. Overall, the participants had neutral opinion about the rules and regulations practised by their teachers to promote student academic achievement (Overall mean = 3.46). Also, the hypothesis testing showed that the rules and regulation in the classroom had a significant and moderately strong positive relationship with student academic achievement (0.34). This finding is in agreement with Sunday-Pairo (2018) who concluded that academic performance of students depends on the influence of classroom discipline.

Finally, according to the findings of the fifth research question, the mathematics teachers practised giving the conducive feedback on the work of students. the participants agreed that the teachers appraised the students for their good behaviour, gave individual attention and special support to the students especially maladjusted ones, gave constructive criticism to the work of each student, and always provided immediate feedback to the answers of students. However, the participants in the study did not agree or disagree with the idea that their teachers checked and returned the students' assignments in time, and created tests that were very beneficial to the academic achievement. Overall, the mathematics teachers provided corrective and constructive feedback on student work (Overall mean = 3.73). In terms of hypothesis testing, there was a considerably significant and strong positive relationship between feedback on the work of students in the classroom and student academic achievement (r = 0.58).

V　CONCLUSION and RECOMMENDATION

Based on the findings of this study, it can be concluded that all five components of effective classroom management: motivation, physical aspects, teacher student interaction, rules and regulations and feedback had significant impact on student mathematics achievement to some degree in Japan. The majority of mathematics teachers in Japan, however, emphasized on providing feedback to student work, having warm and friendly relationship with their students, and motivating students, to promote student academic achievement and manage classroom effectively. It is also interesting to interpret that mathematics teachers at Senior High Schools did not focus on physical aspects, and rules

and regulation of the classroom as tools of effective classroom management.

The following recommendations are made based on the findings of this study.

To be able to promote student academic achievement －

1．Teachers should give first priority to giving corrective and productive feedback on student work.

2．Teachers should give second priority to having friendly and easy-to-approach relationship with students in the classroom.

3．Teachers should give third priority to providing constructive motivation to the students in the classroom.

4．Nationwide survey should be encouraged to find out the most effective classroom management techniques among teachers throughout Japan.

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