

# PERCEIVED EFFECTS OF CLASSROOM MANAGEMENT STRATEGIES ON STUDENTS' DIVERSITY CONDITIONS

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**ABSTRACT** : This study was conducted to determine the perceptions of the students on the classroom management strategies of the teachers in India. Results revealed that the students' perceptions of the classroom management strategies of the teachers as regards management of the learning environment and individual differences as affected by diverse learning groups is only Satisfactory. The students perceived that the classroom management strategies of the teachers "highly affect" their health condition, maturation, thinking and learning styles, and human relations. The classroom management of the teachers highly affects the students' health condition, maturation, thinking/learning style, and human relations. Implications of the study are discussed.

**KEYWORDS:** Classroom Management, Student Diversity, Perception, Students.

## INTRODUCTION

Classroom management is a term used by the teacher to describe the process of ensuring the classroom lessons that run despite of individual differences of the students. It is an integral part of teaching. Professional training and teaching method and strategies such as the lecture, case methods, discussion, active learning, homework and the right classroom strategies of the teachers must be possessed by a teacher in order to make the teaching and learning process a worthwhile and productive endeavor. Classroom management must be more proactively planned: things must be properly organized and systematized to avoid problems arising. Thus, an effective classroom manager has to make classes start on time, make things in order and present lessons for the best interest of the students.

Although a variety of variables affect school performance, teachers have a significant effect on the chances of future achievement (Stronge, Ward, & Grant, 2011). For example, Rockoff (2004) estimated that an improved instructor rating of 1 SD improves the student results by around 0.20 SDs in reading and 0.24 SDs in math. In addition, Chetty, Friedman, and Rockoff (2011) observed that rising teaching efficiency dependent on value added levels by US\$ 250,000 from below 5 percent to just average improves pupil life expectancy revenues. These analyses take into account a wide range of teacher and classroom features, from teacher enthusiasm and attention to classroom management. Across tests, regulation of the learning climate through reasonable goals, predictable practices and effective usage of resources, which are critical to the productive management of the learning (Conroy, Alter & Sutherland, 2014), have predicted considerably higher student results (Fidler, 2002; Stronge et al., 2011; Stronge, Ward, Tucker and Hindman, 2008). Clearly, the administration of classes is directly linked to student performance.

The degree that which unique teacher management activities affect the performance of students is not so simple. The evidence is irrefutable. Surveys of graduates of education schools and colleges indicate that the number one area of concern of new teachers is their feelings of inadequacy in managing classrooms. Despite clinical experiences, practicums, student teaching, and other observations in classroom settings, this problem has persisted for decades. There is no magic elixir that will confer skill in this area of professional responsibility. We only wish there were.

According Kizlik (2012), classroom management and management of student conduct are skills that teachers acquire and hone over time. These skills almost never "jell" until after a minimum of few years of teaching experience. To be sure, effective teaching requires considerable skill in managing the myriad of tasks and situations that occur in the classroom each day. Skills such as effective classroom management are central to teaching and require "common sense," consistency, an often undervalued teacher behavior, a sense of fairness, and courage. These skills also require that teachers understand in more than one way the psychological

and developmental levels of their students. The skills associated with effective classroom management are only acquired with practice, feedback, and a willingness to learn from mistakes. Sadly, this is often easier said than done. Certainly, a part of this problem is that there is no practical way for education students to "practice" their nascent skills outside of actually going into a classroom setting. The learning curve is steep, indeed.

As previously mentioned, personal experience and research indicate that many beginning teachers have difficulty effectively managing their classrooms. While there is no one best solution for every problem or classroom setting, the following principles, drawn from a number of sources, might help. Classroom teachers with many years of experience have contributed to an understanding of what works and what doesn't work in managing classrooms and the behavior of students. More often, good classroom teachers maintain an atmosphere that enhances learning, which is governed by these fundamentals: Teachers know what they want and what they do not; Teachers show and tell their students of what they want; Teachers when they get what they want, acknowledge, not praise; and Teachers when they get something else, they act quickly and appropriately. These tend to make classroom management better and more appreciated.

While good classroom arrangement, on the other hand, is not a guarantee of good students' behavior, poor classroom planning can create conditions that lead to problems in the management later. Kizlik (2012) also pointed out that in order for a teacher to properly and effectively manage the classroom, the teacher must be able to observe all the students at all times and to monitor work and behavior and the students should be able to see the teacher and presentation area without undue turning or movement. Teachers should identify expectations for student behavior and communicate those expectations to the students periodically. Teachers **should not** develop classroom rules which he himself is unwilling to enforce because desirable student behavior may vary depending on the activity. Most inappropriate behaviors in classrooms that are not seriously disruptive and can be managed by relatively simple procedures that prevent escalation are sometimes considered as the main glitches of teachers in the management of classrooms. In order to shun these, effective classroom managers practice skills that minimize misbehavior.

On the other hand, diverse student learners include students from racially, ethnically, culturally, and linguistically diverse families and communities of lower socio-economic status.

Today, we know more about teaching than we ever have before. Research has shown us that teachers' actions in their classrooms have twice the impact on student achievement as do school policies regarding curriculum, assessment, staff collegiality, and community involvement (Marzano, 2003). We also know that one of the classroom teacher's most important jobs is managing the classroom effectively. A comprehensive literature review by Wang, Haertel, and Walberg (2005) amply demonstrates the importance of effective classroom management. These researchers analyzed 86 chapters from annual research reviews, 44 handbook chapters, 20 government and commissioned reports, and 11 journal articles to produce a list of 228 variables affecting student achievement. They combined the results of these analyses with the findings from 134 separate meta-analyses. Of all the variables, classroom management had the largest effect on student achievement. This makes intuitive sense—students cannot learn in a chaotic, poorly managed classroom.

The impressions about a teacher and a classroom management come not only to the interaction between the students and the teacher or teacher and parents, but from the way the teacher has organized the classroom and the students. To become an effective teacher, everything is important – the way the classroom is arranged, the planning and displaying of materials, the presence of clutter, the posting of classroom expectations and even the procedures used in the classroom. (Berliner, D.C. 2003. *Effective Classroom Management and Instruction: A Knowledge-base for Consultation*)

According to Moskowitz and Hayman (2008), once a teacher loses control in the classroom, it becomes increasingly more difficult for them to regain the control. Also, a research from Berliner (2008) and Brophy and Good (2010) shows that the time that the teacher has to correct misbehavior caused by poor classroom management skills would result to a lower rate of academic engagement in the classroom. Effective classroom management involves clear communication or behavioral and academic expectations as well as cooperative learning environment. According to specialists in the field of education, school classroom management aims at encouraging and establishing students' self-control through a process of promoting a positive student achievement. Teacher efficacy and teacher-student behaviors are directly linked with the concept of school and classroom management.

Classroom management impacts academic performance specifically and meaningfully (Brophy & Good 1986). Korpershoek, Harms, de Boer, van Kuijk and Doolard (2016) have recently published a meta-analysis of the relationship between teacher and student success and academic results. In addition, efficient classroom management eliminates disruptive behaviour by 0.24 SD units and improves student success by 0.17 SD units, all of which are statistically important. Oliver, Wehby, and Reschly (2011) investigated the

association between class administration and destructive and offensive behavior in a previous meta-analysis. Their results indicate that quality classroom management has an average impact of 0.80 ( $p < .05$ ), which almost decreases classroom disruption and violence by normal. Such meta-analyses therefore analyzed classroom management systems and not the connection between particular classroom management activities and the actions of the pupil. Work indicates that there are clear management strategies in the classroom that improve the likelihood of student participation and decrease the possibility of interruptive behaviour, including a percentage of time, enhanced receptive incentives (OTR) and constructive input (Conroy et al, 2014; Simonsen, Fairbanks, Briesch, Myers & Sugai, 2008).

Responsive coaching habits, which are targeted at growing student performance, require verbal and physical contact (Brophy & Nice, 1984). Simple teaching or so-called academic communication is described as the instructor who has habits, which involve describing a principle, displaying a principle, or modeling an academic subject-related skill / activity when furthering the lesson / objective of a course. The stronger the contact with the instructor and the students (i.e. teaching), the more possible it is that the students will be involved (Pianta, Hamre and Allen, 2012; Williford, Maier, Downer, Pianta, & Howes, 2013). Aside from communicating by teaching with peers, evidence shows that successful observation of peers in their classroom through small group or different seating decreases the risk of destructive actions (Haydon & Kroeger, 2015). For starters, De Pry and Sugai (2002) observed a positive reduction of destructive behaviour in a sixth classroom.

### **Conceptual Framework**

The classroom management is an integral part of teaching. It aims at encouraging and establishing the student's self-control through a process of promoting positive student achievement, teacher efficacy and teacher-student behavior. A classroom management strategy of teachers that includes individual differences and learning environment affects the pupils' diversity. A good teacher is such a wholesome phenomenon and an experienced individual in a classroom situation. Good classroom management establishes an atmosphere, which permits activities to be carried on efficiently and economically. It ensures wise use of the teacher's and pupils' time, efforts and energies. It spells careful use of the physical faculties of the school.

### **Statement of the Problem**

This study determined the perceptions of the students on the classroom management strategies of the teachers. (1) How do the students assess the classroom management strategies of teachers in terms of: Learning Environment and Individual Differences; (2) How do the students perceive the effects of classroom management strategies of teachers on students' diversity conditions?

## **METHODOLOGY**

### **Research Design**

The present study utilized the Descriptive Survey Method of Research. It is a fact-finding study with adequate and accurate interpretation of the findings. This method is descriptive when a survey is conducted to find conditions that are typical to the people. The process of descriptive research goes beyond mere gathering and tabulation of data. It involves the elements of interpretation of meaning and significance of what is described.

### **Respondents of the Study**

The study involved all the eighty one (81) students of one of the schools in India during the academic year 2019.

### **Data Gathering Procedure**

The researcher requested permission from the administrators to conduct the study and to allow the students to participate as the respondents of the survey. After permission was sought, the researcher met and informed the students about the research study, the purpose of the study and the confidentiality of the data to be gathered. He then personally distributed the questionnaire to the student-respondents. The researcher made the directions and questions clear enough for easy understanding by the respondents. When the questionnaire were

filled up, the researcher retrieved the copies from the respondents, made a summary of data and later been statistically analyzed.

**Data Gathering Instrument**

The researcher made use of an adapted questionnaire. The researcher, with the help of technical experts in writing research made some modifications to suit the level of understanding of the respondents in the questionnaires on the indicators along Students’ Diversity, Individual Differences and Learning Environment. The researcher made use of the questionnaire as the instrument in getting and collecting information about the problem. The questionnaire served as the major source of data. The questionnaire consisted of 2 parts: Part 1 dealt with the profile of the respondents and Part 2 evaluated the students’ perceptions of the classroom management strategies of teachers.

**Data Analysis**

The profile characteristics of the student-respondents in terms of gender, household size, monthly family income, educational attainment of parents and occupation of parents were analyzed using frequency counts and percentages. Weighted means were used to describe the classroom management strategies of the teachers the perceived effects of classroom on some students’ diversity conditions. The following scale and their corresponding descriptive equivalents were used in the describing the perceptions of the students.

Range	-	Descriptive Equivalent	-	Descriptive Equivalent
4.20 – 5.00	-	Excellent	-	Highly Affected
3.40 – 4.19	-	Very Satisfactory	-	Affected
2.60 – 3.39	-	Satisfactory	-	Uncertain
1.80 – 2.59	-	Fair	-	Not Affected
1.00 – 1.79	-	Poor	-	Not At All Affected

**RESULTS AND DISCUSSION**

**Profile of the 2<sup>nd</sup> Year BEd Students**

Table 1 presents the frequency and percentage distribution of the 2<sup>nd</sup> Year BEd students in terms of their profile variables. It can be gleaned from the table the group is dominated by female with a total of 73 or 90.12 percent. There were only 8 or 9.88 percent males. In terms of household size, 51 or 62.96 percent of the respondents belong to the average household size with 4-7 members. Eight or 19.76 percent came from large household with more than 8 members, and 14 or 17.28 percent came from a small household size composed of 2-3 members. There are only 9 of the fathers who finished a college degree, and 5 have at least attended college level. Most of them are high school graduates and there are 6 who were elementary graduates. The mothers’ highest educational attainment reveals more than half of them are high school graduates. Twenty four are college graduates, 22 undergraduates, and just 1 finished elementary only. Majority of the parents are self-employed although there are some who are employed in the government service, and OFWs.

Table 1. Frequency and Percentage distribution of students according to profile variables.

Profile	Category	Frequency	Percentage
<b>A. Gender</b>	Male	8	9.88
	Female	73	90.12
<b>B. Household Size</b>	Small (2-3 members)	14	17.28
	Average (4-7 members)	51	62.96
	Large – (9 or more members)	16	19.76

<b>C. Highest Educational attainment of Fathers</b>	<b>College Graduate</b>	<b>9</b>	<b>23.46</b>
	College Level	5	30.86
	High School Graduate	27	33.33
	High School Level	6	7.41
D. Highest Educational attainment of Mothers	College Graduate	24	29.63
	College Level	22	27.16
	High School Graduate	56	32.1
	High School Level	8	9.88
	Elementary Graduate	1	1.23
E. Occupation of Fathers	Government Employee	9	11.11
	OFW	5	6.17
	Self-employed	53	64.45
	Unemployed	7	8.64
	Deceased	7	8.64
F. Occupation of Fathers	Government Employee	7	8.64
	OFW	12	14.81
	Self-employed	58	71.60
	Unemployed	3	3.70
	Deceased	1	1.23

**Classroom Management Strategies of Teachers**

The classroom management strategies of teachers involve two aspects namely, for learning environment and for individual differences.

**Learning Environment**

Learning environment comprises of classroom displays, seating arrangement of students, classroom size, proper ventilation, good lighting, positive reinforcement, cleanliness and security. Presented in Table 3 are the students’ perceptions of the classroom management of the teachers as regards management of learning environment as affected by diverse learning groups. There are 2 aspects of classroom management where the teachers were rated Very Satisfactory by the students. These are the cleanliness and positive reinforcement. This indicates that the teachers teaching in the BEEd program of the College of Education at the Cagayan State University at Sanchez Mira are very particular with cleanliness. This is a part of the campus initiative program of cleanliness and proper waste management. In fact, all rooms are required trash cans or bins for proper waste disposal. In terms of positive reinforcement, teachers are kind enough to praise students for their good accomplishments. It is a part of the trainings of the teachers on inclusivity to extend positive reinforcement to students regardless of whoever they are.

The ventilation, lighting, security, classroom size, are all beyond the control of the teachers. It is the responsibility of the university to provide such services for the welfare of the students, hence the teachers were just rated “satisfactory” in these areas. The sitting arrangement and classroom displays were likewise rated “satisfactory”, which denotes a room for improvement on said aspects.

Table 3. Perceptions of students of the classroom management strategies of teachers in terms of learning environment as affected by diverse students.

<b>Classroom Management for Learning Environment</b>	<b>Weighted Mean</b>	<b>Descriptive Equivalent</b>
Cleanliness	3.69	Very Satisfactory
Ventilation	3.39	Satisfactory
Lighting	3.26	Satisfactory
Security	3.12	Satisfactory
Positive Reinforcement	3.46	Very Satisfactory
Classroom Size	3.37	Satisfactory
Seating Arrangement	3.31	Satisfactory

Classroom Displays	3.1	Satisfactory
<b>Average Weighted Mean</b>	<b>3.34</b>	Satisfactory
4.20 – 5.00	-	Excellent
3.40 – 4.19	-	Very Satisfactory
2.60 – 3.39	-	Satisfactory
1.80 – 2.59	-	Fair
1.00 – 1.79	-	Poor

**Classroom Management for Individual Differences**

Table 4 presents the level of Classroom Management Strategies in terms of individual differences. All the indicators were rated “Satisfactory”. Although the ratings are good enough, there is still room for improvement. This implies further that the teachers may not be sensitive enough to consider individual differences in their classroom management.

Table 4. Perceptions of students of the classroom management strategies of teachers in terms of individual differences of students

<b>Classroom Management Strategies for Students’ Individual Differences</b>	<b>Weighted Mean</b>	<b>Descriptive Equivalent</b>
1. Challenging the Process - Students tend to find a process that they believe needs to improve them most	3.37	Satisfactory
2. Inspired by a Shared Vision - Students tend to share their learning/vision in words that can be understood by others.	3.21	Satisfactory
3. Enabling Others to Act - Students tend to use the tools and methods learned to do the task	3.37	Satisfactory
4. Modeling the Way - Students tend to be persistent in accomplishing a task	3.1	Satisfactory
5. Encouraging the Heart - Students tend to be optimistic while handling the disappointment positively	2.84	Satisfactory
<b>Average Weighted Mean</b>	<b>3.18</b>	Satisfactory

**Perceived Effects of Classroom Management on Students’ Diversity**

Students’ diversity includes health condition, maturation, thinking/learning style, faith or belief, human relation and socio – economic status. Table 5 shows the perceived effects of classroom management on the students’ diversity conditions. The students’ mean perceptions reveal that their health condition, maturation, thinking and learning styles, and human relations are “Highly Affected” by the classroom management

strategies of the teachers. This means that the way teachers treat their students, and the way they perform their duties, has a marked effects on many aspects of the students. Knowingly or unknowingly, their actions have impacts on students’ social being and welfare.

Table 5: Mean Ratings on the Perceived Effects of Classroom Management Strategies of Teachers on Students’ Diversity

<b>Students’ Diversity</b>	<b>Weighted Mean</b>	<b>Descriptive Equivalent</b>
1. Health condition	4.26	Highly Affected
2. Maturation	4.38	Highly Affected
3. Thinking/Learning style	4.24	Highly Affected
4. Faith or Belief	3.46	Affected
5. Human Relation	4.32	Highly Affected
6. Socio – Economic Status	1.66	Not at all Affected
<b>Average Weighted Mean</b>	<b>3.72</b>	<b>Affected</b>

4.20 – 5.00	-	Highly Affected
3.40 – 4.19	-	Affected
2.60 – 3.39	-	Uncertain
1.80 – 2.59	-	Not So Affected
1.00 – 1.79	-	Not at all Affected

The easiest approach to evaluate the actions of an instructor is to find the habits of students that are proven to be connected with performance and to instead change the circumstance when it comes to understanding teachers' conduct that causes student behaviours. Such a thesis contributes easily to the dedication of students, likely without effectiveness (e.g., Berliner, 1990; Greenwood, Horton & Utley, 2002). The relation between academia and student achievements, as David Berliner (1990) puts it, "has the same scientific status as the concept of homeostasis in biology and strengthening in psychology and physics gravity" (p. 3). As a consequence, greater dedication to student results than less dedication is correlated, and commitment can be characterized by length and strength of active involvement that is more advantageous than passive (e.g. Downer, Rimm-Kaufman & Pianta, 2007). The antithesis to active participation doesn't require the class — or what is commonly called off-tasking.

Much as positive engagement is a marker for effective learning, negative activity is an indicator of disappointment (Noltemeyer, Ward & Mcloughlin, 2015). Disruption is more than a simple disengagement, because it involves behaviors which disrupt the teacher from instruction and planned tasks and perhaps the entire classroom. Disruptive student behavior, in particular among new teachers, is apparently one of the most daunting aspects in teaching (Westling, 2010). Students of destructive behaviors, in fact, are more likely than non-disruptive peers to have learning deficiencies (Nelson, Benner, Lane, & Smith, 2004; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005), and eventually undergo fewer guidance (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008).

Off-tasking and destructive conduct is of interest to students with and at risk for mental or behavioral disorders, most especially (EBD, Kauffman & Landrum, 2018). Work has shown that EBD students are routinely omitted either by calling them into office (Sugai, Sprague, Horner & Walker, 2000) or by putting them in a restrictive environment (McLeskey, Landers, Williamson & Hoppey, 2012). Trout, Nordness, Pierce and Epstein (2003) noticed that students with EBD are more likely to be undergraduate relative to their peers in both mathematics and education.

Longitudinal work is reinforcing these findings by showing that both reading and quantitative deficiencies are exhibited among EBD pupils, which are maintained over time (Anderson, Kutash & Duchnowski, 2001; Lane, Wehby, Small, & Cooley, 2005; Mattison, Hooper & Glassberg, 2002; Siperstein,

Wilay & Forness, 2011). Generally, it is evident that EBD pupils may not receive the same educational outcomes as their peers. To improve the likelihood that EBD students will (a) stay in their general education classes, (b) receive good quality instructional curriculum, (d) improve academic success, and (d) incorporate good-quality, evidence-based school management (U.S. Department of Education [USDOE] &

Classroom administration has a clear and measurable impact on the performance of students (Brophy & Good, 1986). A meta-analysis on the interaction between classroom administration and academic and behavioral outcomes has been undertaken by Korpershoek, Harms, de Boer, van Kuijk and Doolard (2016). In addition, they find that good management of classrooms reduces issue activity by 0.24 SD units and improves university performance by 0.17 SD units. Oliver, Wehby, and Reschly (2011) analyzed in earlier meta-analyzes the association between class administration and destructive and violent behavior. Their studies indicate that high-quality school administration has an overall impact of 0.80 ( $p < .05$ ), which almost eliminates class destructive and violent behaviour.

However, these meta-analyzes focused at classroom management systems rather than the interaction between individual student and classroom management activities. Research shows that particular class management strategies increase the probability of participation and decrease the risk of negative behavior, like percentage of students, improve sensitivity incentives (OTR), and constructive input (Conroy et al., 2014; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008).

### **CONCLUSION**

This study was conducted to determine the perceptions of the students on the classroom management strategies of the teachers in India. Results revealed that the students' perceptions of the classroom management strategies of the teachers as regards management of learning environment and individual differences as affected by diverse learning groups is only Satisfactory. The students perceived that the classroom management strategies of the teachers "highly affect" their health condition, maturation, thinking and learning styles, and human relations. The classroom management of the teachers highly affect the students' health condition, maturation, thinking / learning style, and human relations.

### **Implications**

In the light of summary of findings and conclusions, the following recommendations are offered: (1) Students' must be treated disregarding their individual differences; (2) The University must look on the weakest point especially physical facilities of the campus; (3) Classroom displays must be authentic, attractive, and effective moreover, seating arrangements must be effective considering balance and comfort ability of the students; (4) The University must fund on providing well – ventilated classroom to achieve effective learning environment; (5) College Administrators or school Heads should include in their school calendar a one day or more training on classroom discipline and management to soon – to – be teachers. They may also conduct a research related to this for better understanding of students' diversity which affects by classroom management of teachers.

Teachers tend to say that threats, incompletion and disengagement are perhaps the most persistent and stressful activities they contend with everyday (Alter, Walker, & Landers, 2013). The findings of this study suggest that instructor management and the participation of students are linked. In fact, the degree of participation of students taught by below average administrators and low-interaction instructors is greater, an significant measure of school performance. For future studies, this field of study will start by discovering innovative methods of monitoring instructor usage of classroom management techniques routinely such that a more rigorous review takes into account the relative value of component activities. However, identifying effective practices is only part of the task ahead of us. This is doubtful that the basic recognition of successful classroom management activities alone can cause significant improvements. As mentioned above, the activities we concentrate on in the classroom management field have been described as the most successful methods in literature for over 50 years — and yet about 20 percent of teachers herein are defined as performing at alarmingly low levels (i.e. teachers in low experiences and low levels of management of classroom activities). Work also continues to identify the most successful methods for major improvements in classroom behaviour. Our preservation training and professional development models are a challenge.

Interpretation of these results is mitigated by research methodological limitations. First, while findings are coded for a number of qualitative and demographic features, the natural world provides a variety of potentially



significant variables far more than could be coded or analyzed fairly. Of starters, there is not detail as to when such events fall within the timetable (of starters, before or during lunch), how many children there were in the school, or how many adults there were. Naturally, in this study, not all of those considerations and a nearly infinite number of other variables is taken into account. Second, since these findings are the product of naturalistic experiments focused on 15-minute studies and do not seek to monitor variables systematically, they simply reflect an correlation. There are clearly some issues of the form chicken and egg that can not be replied. It indicates that it is not obvious if the low levels of class management activity are influencing weak student conduct, bad student behavior is influencing low level or other component factors of instructor case management activities.

Therefore, arbitrary student screening could have contributed to a collection of student behaviours. Statistical theory implies that variations between a survey and the population are induced by a statistical mistake (Johnson & Christensen, 2014, Hishan et.al,2020;Hishan et al, 2020), but testing will test this claim. Methodologically, the research is limited by IRB restrictions on the characteristics of students and teachers that can be collected, in particular the lack of additional information on teaching experience and academic achievements of students and repeated measurements. Such shortcomings will not invalidate the findings, but potential work will seek to increase the amount of instructor and student knowledge in order to develop the models further. Finally, the 3- and 4-class models have been somewhat close, and while the models have been classified using proven methods, variations between teachers for the three-class model may have been significant.

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