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Designing Classrooms for Learning

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PROBLEM STATEMENT:

The goals and objectives of this study are to highlight the design and application of features of the middle school science classroom in America's student population. This area coincides with curriculum and instruction, but focuses on the physical classroom design. The two main research questions this project covers are 1.) What are the physical needs for middle school students in their environment that must be present for them to learn? And 2.) Do students perceive the design of their work environment as a factor in their success?

This research project has builds upon my educational and field experiences during my time in the middle level program at The University of Akron. Classroom design and setup gets brought up in Intro to Education and Instructional Design and Assessment as important components to any education style. The way a classroom is designed is integral to any educator, and improving upon that design could have a variety of benefits. By getting a sample set of data from current middle level science learners their perception of the science classroom will be broken down into measurable areas. I will be able to compare and contrast the results of the survey in the form of student opinion with the literature on classroom design.

The final outcome of this research is to create a better understanding about the design of the optimal classroom environment and the ways in which a particular classroom design can impact students and educators. The classroom has remained relevant in formal education and as educators we are reminded to be looking for methods in which to expand the impact we have on students. Contrasting the ideal classroom with students' current classroom will allow us to examine what benefits there are to specific criteria in classroom design, and if different ways of organizing a classroom have an impact on student learning. This research will allow teachers to reconsider the ways that they build their classrooms and structure these areas for optimal student learning and enjoyment.

DISCUSSION OF THE LITERATURE

The literature in my study examines middle- level science classrooms. The structural design of the classroom can have an effect on students in the classroom. Along with lighting, features like neutral and bright colors have been found to improve focus and motivation among students. In addition, data from this study showed that exposure to more natural daylight in the classroom will give students a better opinion of their experience inside of that classroom. In a related analysis by Young (2015) with more than 2,000 classrooms in California, Washington, and Colorado, students exposed to more natural light in their classrooms outperformed students and felt more comfortable in their classroom than those exposed to less natural light. As a result students exposed to larger amounts of daylight in their classroom had improved student test scores than students who were exposed to less daylight in their classroom (at a rate of 2%-26%

higher, depending on school district). The presence of natural light can be an important factor in student success.

Building on this, Mark Phillips (2014) observed a Massachusetts teacher and came to several conclusions about the effects of natural light in the classroom. Classrooms with minimal windows and minimal outside light tend to increase student depression. At the other extreme, windows without adequate room darkeners make visual media difficult to use.

In Wulsin's study at Princeton University (2013), it demonstrated that having a window to the outside will improve attitude and productivity. This effect was increased when the window view included a natural element like a tree or garden. The view effect can be replicated with views to internal atriums and courtyards. Windows allow students and teachers to alter the perspective from their desk to the other people in the room to the distant trees and buildings outside.

As the study by Young (2015) says, there is a shift in classroom design to affect the students and educators. The graphics of classroom design, shown below, display three general methods of organizing classrooms for students. Figure 1 has a classroom design where the students are situated in desks in pairs facing the same general direction. The next classroom desk layout (Figure 2) has the desks constructed into table groups of five to six students. This allows students to work together when in class and interact more freely with each other without having to leave their desks, unlike the model in Figure 1. The final design, (see Figure 3) has the desks organized around a central focal point for the students to view. From this they state the changes to a classroom layout which offer multiple avenues for students to work can result in a 45% increase in academic engagement when implemented. .

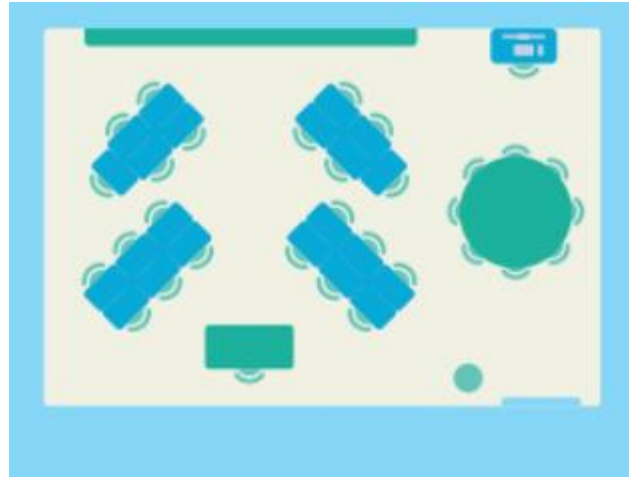Figure 1.Paired Desks in Same Direction. From Young (2015).

Figure 2: Desks in Table Groups. From Young (2015).
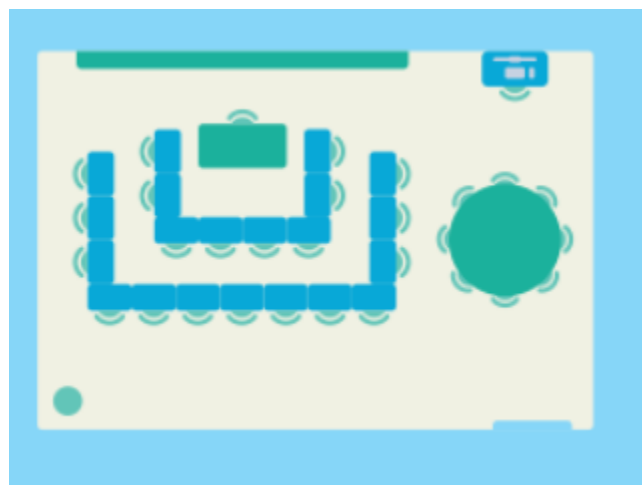
Figure 3:Desks around Central Focal Point. From Young (2015).

In Phillips' study (2014), it was concluded that the traditional standard model of desks in rows and columns facing one general direction is not interactive. In addition, it prevents the students in the back from getting a view without heads in the way. Tables are an excellent environment for group work, but this design could still be altered in instances. To bring students together for different purposes you want to move the tables to the back and sides. In his classroom he had small tables because that's what he was given. The tables were arranged in a semicircle, with 3-4 students at each, some students with their backs to the table for most activities. A semicircle encourages interaction and enables all students to see each other. This is important if you place a high value on relationships between students, building community and creating an open environment. This reflects the classroom designs in all three figures above described from the study through Young's study (2015), (see Figure 1-3).

Going along with this information, a study conducted by Cheyran (2014) revealed several surprising results when rearranging desks. The authors in the study rearranged desks to create distinct areas for individual and group work, and labeled and reorganized materials to specific areas to make them more easily accessible. Making these changes took only a few hours, but following this intervention, the students showed sustained improvements in engagement and demonstrated a reduction in disruptive behavior, allowing them to be more productive as well as engaged and in-tune with their environment (p. 1-7).

In addition to desk layout, Wulsin (2013), discussed knowledge generation, which is transferring knowledge from the instructor to the students. Highly flexible spaces can accommodate large classes in addition to small group discussions and movable furniture to facilitate quick changes within space set-ups. His study also discusses classroom space planning. Space planning traditionally focuses on a seats-per-square-foot, a mindset that in turn does a disservice to the academic aspirations of 21st century teaching institutions in the modern age.

Likewise, in a paper by Winske (2017), several new classrooms promoted concepts like collaboration, flexibility, and problem solving. The spaces have a versatile layout and flexible furniture to change for learning activities. Innovative classrooms like these that utilize many of the concepts discussed above often use active instructional approaches. The layout of these classrooms should be able to support different learning formats and concepts by allowing students to work collaboratively and independently. When considering computer use, tech labs were catered towards distance learning programs. These provided alternative formats for learning as well as engaging students. Students can access a wider range of topics with environments like these.

Conceived of in A focus group study by Rands and Gansemer-Topf (2017), a notion known as the Open Space Design affords movement and interaction. The study participants represented a variety of interests allowing for maximum variation with the goal to identify common patterns among diverse classroom experiences.. The participants reported that the frequent social interactions helped to enable students the ability to connect with each other and their instructor to share and create knowledge, resulting in a community of participation and engagement. This was assisted through the mobility of the furniture and equipment in the classroom, freeing up many spaces. The flexible, Open Space Design afforded student and instructor movement, and intellectual and social interaction, in the classroom. Classroom design made students feel valued as such constructors of knowledge" (p.29). due to the design of the "erasing the imaginary line" dividing students and instructors. Although the sample size was small, (four instructors and nine students) the participants represented a variety of interests allowing for maximum variation with the goal to identify common patterns among diverse classroom experiences. Data was collected from focus groups. The social, semi public nature of a focus group method allowed for multiple views and perspectives in gaining insight into attitudes, feelings, and beliefs. The flexible and open design permitted movement within the classroom and encouraged social interaction with students and instructors. The participants reported that the frequent social interactions helped to enable students the ability to connect with each other and

their instructor to share and create knowledge, resulting in a community of participation and engagement. This was assisted through the mobility of the furniture and equipment in the classroom, freeing up many spaces.

Similar to the Open Space design of the Rands' study, in Mathewson's study (2016) at Baldwin Schools on Long Island, there is a teacher involved in a classroom design revolution using the same concepts. The teacher in question, Mrs. Lynam, educates seventh-graders five periods each day, with students with severe special needs and a mix of general and special education students, and kids who are academically advanced . Mrs. Lynam needed a multi-functional classroom and wanted a layout that was completely mobile. The redesigned room has "no front, and everything is on wheels" (p.1). Desks are posed in groups for assignments involving conversations and group interactions. In addition, each desk group has a comfortable ottoman or cushioned seat with a back at student's disposal. The teacher trusts the students to make decisions that work best for them. Group seating sets students up as resources for each other as they work on assignments. Conversations are invited, not suppressed in this environment noted by Lynam. By allowing environments like these to become commonplace, the focus is shifting away from the teacher onto the students.

Likewise, Sheryl Reinsech (2018), conducted a project about understanding classroom changes in elementary school students over a time period of four months. The students' classroom for the experiment was revamped and the reactions of the students involved were recorded via interviews, observations and student journals. Of these multiple changes to the classroom on a visual level, were comfortable reading areas, having live animals and plants, and student artwork on display. The artwork brought into the classroom on display had positive effects on the students. The overall comfort level in the classroom played an integral role in student reactions as well, with some of the students quoted as saying that they feel relaxed and ready to learn.

Background of the STEM Middle School in Akron

The survey portion and its responses were conducted at the Science, Technology, Engineering, and Math (STEM Middle School in Akron, Ohio in October, 2018. STEM is an abbreviation for Science, Technology, Engineering, and Math. The school is a partnership between six key organizations, those being Akron Public Schools, the City of Akron, the National Inventors Hall of Fame Foundation, The University of Akron, Akron Tomorrow and the Greater Akron Chamber. These organizations offer opportunities in STEM based areas for students.

According to the school's website (2019), it identifies as not only a school, but a Community Learning Center. The school takes in students from all over Akron Public Schools through an admission process in the fourth grade. Unlike some schools, this middle school consists of students from the fifth to eighth grade level. The breakdown inside of the school when it comes to the student population is that there is a ratio of students-to- teachers of 16:2.

The school has goals that range from increasing science, mathematics, engineering and technology education to creating a program that no single entity could achieve on its own without community partnerships. I surveyed 80 students from the STEM Middle School in Akron Ohio in grade 8 from three class periods. In this particular environment there are class sizes under 30, and the students all get their own personal school computer for them to take from class to class and utilize in their time while being at the facility.

METHODOLOGY

The intent of this study is to analyze student opinion about the topic of classroom design in relationship to consultation of other studies relative to the topic. Furthermore, this was to see if the recommendations in the literature are being followed supported by the and show how students they perceive their own needs when it comes to learning. Surveys one and two operated in two sets of ten questions each. Each survey question was conceived in relationship with regards to the literature described above about regarding classroom design and the major points it provokes. The questions from each survey are nearly identical. The questions focus on go over discusses the same topic area relating to classroom design. For clarification purposes, the surveys are different in that Survey one 1 Appendix A) asks questions oriented towards the "Ideal Classroom," and Survey two 2 (Appendix B) has the questions pertaining to students' classroom they took participated in the surveys in.

With the survey, the ideal classroom concept is not a tangible object that can be studied outside of student opinion. The ideal classroom will be different for every student as it is a figment of what they can imagine to be "ideal."

After getting permission from an eighth-grade educator at the STEM Middle School I was able to implement the survey. I administered the survey to the (how many) students via Google Forms. Each student had ample access to a laptop PC at the time, making this the simplest method of obtaining information from the survey group. The survey the students received had twenty multiple choice questions and two short answer prompts. The results of which were sent to me via Google Forms. The selection size for this research project was 80 students spread out among three classes of eighth grade science, these eighty students are the ones from the class that chose to respond to this and participate. The questions were not required to be answered by students if they thought they did not apply to them. Several of the survey responses may have less than 80 responses for this reason.

The questions on the surveys went through ten criteria for either the "ideal" or "current classroom." The criteria are:

- classrooms are bright and well lit,
- natural light sources,
- desks in table groups,
- desks facing the same direction,
- computer areas,
- laboratory equipment,
- multiple instructional spaces,
- group work areas,
- personal belonging space, and,
- school belonging space.

Each of the ten questions had the students rate their opinions of them on a scale from 1 to 5. In order the number values correspond to these rankings among students (see Appendices A and B) are:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

The data from the survey, once analyzed, will be compared and contrasted to what the current literature on classroom design states.

RESULTS

This results section will address will concern the responses to the survey in relationship to of both the current and ideal classrooms on students. The survey results will be broken down in order to assess how the sample of students felt personally about the subject of the questions. By measuring on a scale from "Strongly Disagree" to "Strongly Agree," students in the sample can provide their input with regard to the topic posed in each prompt.

 The first two survey questions focus on about the concept of light and air in the classroom. The first question I asked students to rate was how important brightness was to their classroom. Student responses to the question "My Classroom is bright and well lit" (see Appendix A) varied greatly between the ideal/ current model. The overall student responses were much more equal when it came to their ideal classroom's brightness versus the current classroom they occupy. On the ideal side of the spectrum, students seemed to have varying opinions about this issue, with all of the answers coming in a 15 point range from Strongly Disagree with nine votes compared to the answer of Agree which had 24 votes, (see Table 1). In their current classroom (see Table 1) a large concentration of answers (78) said that they " agree" or " strongly agree" the classroom they are in currently is bright and well lit, with only 10 responses that came in as Neutral or lower.

Table 1

Comparison *of Student Responses for* Ideal and Current Classrooms – Bright and Well Lit

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	9	2
Disagree	23	1
Neutral	14	7
Agree	24	30
Strongly Agree	14	38

The second question dealt with the effect of natural light in the classroom and where student preference lay with that (see Appendix A). When it came to their ideal classroom specifically (see Table 2), the general trend in the results was student preference increased on the answering scale they were provided, with the fewest answers (6) belonging to "Strongly Disagree" while the most answers (30) lay with the "Strongly Agree" category. This positive trend was exemplified on the current classroom criteria (see Table 2), which saw a similar trend and had no students answer that they strongly disagreed with the sentiment that their current classroom had natural light sources. Again, students' responded that the classroom they study in today generally had adequate windows and natural light.

Table 2

Comparison *of Student Responses for* Ideal and Current Classrooms – Natural Light Sources

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	6	0
Disagree	9	4
Neutral	11	15
Agree	23	29
Strongly Agree	30	31

Moving on from light and atmosphere of the classroom, the next questions I provided on the student survey deal with the factor of desk placement within the science classroom. When it came to the question of whether students would prefer their desks to be in groups versus remaining alone (See Appendix A) in their ideal classroom the results were leaning heavily in favor of desks being arranged in a group pattern rather than being alone and separated with over half of the responses (48) of students strongly agreeing with the statement described (see Table 3). Almost 75% (58) of the students surveyed responded that in their current classroom (See Table 3), they "Strongly Agreed" that their desks are situated in groups instead of being alone.

Table 3		
Comparison *of Student Responses for* Ideal and Current Classrooms – Desks in Groups		
	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	15	0
Disagree	5	2
Neutral	8	1
Agree	48	17
Strongly Agree	2	58

Also concerning desks, the question of whether students preferred to have their desks all entirely facing one direction (see Appendix A)or not led to similar results for each question in this pair. In the ideal classroom (See Table 4), the student input was that a majority of students surveyed (53) responded with disagree or strongly disagree in regards to the statement "I Feel that my Ideal Classroom has all students facing the same direction." The other 26 students each said that they felt neutral or positively about the statement. When answering with their current classroom (see Table 4), a majority (46) students said that they strongly disagreed with the statement "I Feel that my Current Classroom has all students facing the same direction." This shows the opinion of students with the orientation of their classroom.

Table 4

Comparison *of Student Responses for* Ideal and Current Classrooms – Desks in One Direction

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	30	46
Disagree	23	11
Neutral	10	6
Agree	12	9
Strongly Agree	3	6

In the survey, Question 5 asked the students' whether classroom had "separate areas for using computers." In the ideal or current setting situation (see Appendix A). In the ideal and current classroom environments, students stated that they overwhelmingly disagreed with the sentiment that computer areas should be separate from the classroom with 33 strongly disagreeing in the ideal scenario and 35 strongly disagreeing in their current scenario (see Table 5).

Table 5

Comparison *of Student Responses for* Ideal and Current Classrooms – Separate Computer Areas

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	33	35
Disagree	14	9
Neutral	12	15
Agree	12	13
Strongly Agree	7	7

The next three survey questions dealt with particular items in the classroom. Question six (see Appendix A) stated the classroom "Had extra room for lab equipment." The students' current classroom environment in their opinion had extra room for lab equipment with 45 of the student responses that they "strongly agreed" their current classroom had extra room for lab equipment (see Table 6). Alternately 34 student responses fit that they strongly agreed their ideal classroom had extra room for lab equipment (see Table 6). The results in the ideal category were much more evenly spread than the current classroom spread.

Table 6

Comparison *of Student Responses for* Ideal and Current Classrooms – Room for Lab Equipment

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	4	0
Disagree	3	2
Neutral	13	10
Agree	25	22
Strongly Agree	34	45

Questions seven and eight dealt with the teaching methods and ability of students to engage in group work in their classroom setting. Question seven on the survey was "I feel that my current/ideal classroom allows the teacher to teach in multiple areas."(see Appendix A). The results of the ideal prompt are nearly identical to these in the "current classroom" prompt with a trend in students agreeing that they prefer to allow the teacher multiple teaching areas in the ideal prompt (see Table 7). In the current classroom prompt, students identified that there were multiple teaching areas for their teacher to teach in with 60 responses as either "agree" or "strongly agree." In either variation of the question, less than ten total responses were for "strongly disagree" or "disagree."

Table 7

Comparison *of Student Responses for* Ideal and Current Classrooms – Multiple Teaching Areas

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	3	3
Disagree	4	3
Neutral	7	13
Agree	29	27
Strongly Agree	36	33

The eighth question of the ideal and current classroom surveys (see Survey 1: Question 8 and Survey 2: Question 8) was about students doing group work and led off with the prompt, "I feel that my ideal/current classroom allows students to engage in group work easily." The trends on each of these survey questions' answers are very similar with the trend being that students "strongly agree" with the statement as both 41 and 47 students responded as that in that ideal and current classroom prompts respectively (see Table 8). What is interesting is that less students "agree" or "strongly agree" with the prompt when directed at their ideal classroom (see Table rather than their current classroom.

Table 8

Comparison *of Student Responses for* Ideal and Current Classrooms – Group Work

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	0	0
Disagree	5	4
Neutral	9	5
Agree	24	23
Strongly Agree	41	47

The final two questions on the survey featured students' belongings and what room there is to store them in the classroom. Question nine was "I feel that my ideal/current classroom has areas to store my personal belongings." (see Survey 1: Question 9 and Survey 2: Question 9). A majority of students either agree or strongly agree with that statement in the ideal portion, (49 students), (see Table 9) while in the current classroom portion the student response was very varied across the board, with "strongly disagree" as the highest response with 24 answers and "strongly agree" and "disagree" at the low end having only 10 responses. There was a very small range with this prompt.

Table 9

Comparison *of Student Responses for* Ideal and Current Classrooms – Personal Belongings Areas

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	9	24
Disagree	8	10
Neutral	13	16
Agree	19	18
Strongly Agree	30	10

Question ten, like question nine dealt with the storage of students' belongings, only this time it concerned their school belongings (see Appendix A). The responses to this were similar in regards to the ideal and current classroom models, with a positive correlation among the responses as the data went from "Strongly Disagree" to "Strongly Agree" (see Tables 19 and 20). In the current classroom, students also heavily agreed that they had areas to store their school belongings.

Table 10

Comparison *of Student Responses for* Ideal and Current Classrooms – School Belongings Areas

	Ideal Classroom (n = ?)	Current Classroom (n = ?)
Strongly Disagree	6	11
Disagree	6	10
Neutral	12	8
Agree	20	28
Strongly Agree	35	21

DISCUSSION AND RECOMMENDATIONS

The goals of this study were to examine what the design and application of middle school science classrooms' effects can be on America's student population. In taking this in, Efforts were placed in creating a method of examining where physical needs were in a classroom for students, and how as well as what the design of the work environment can affect in concordance with student learning. By positing that students will learn in learning environments that best suit their needs and interests it is vital that as educators we look to how these needs can be implemented. This kind of comfortability in the classroom is important so that students can embrace the classroom atmosphere as well as become accustomed to learning in it. This survey study can be related to what Williams (2018) said on Gardner and his theory of multiple intelligences. Specifically that every student learns differently, and to educate, instructors must provide multiple avenues for learning. There are methods in both design and execution by the educator in terms of lessons that can aid this by aiming towards many of his intelligences.

This information is important due to the sheer amount of time American students spend in a classroom. Young's work (2015) states on average American students spend 11,700 hours of their lives in an education building in the time from kindergarten through grade 12. This amount increases by another 400 hours when counting in college. Based on this we can figure that during grades 4-9 students spend a total of 5,400 hours in middle level education buildings. If implemented correctly, these changes will result in happier overall experiences for a major phase in students' lives.

The question I was asking from the start was "how can classroom changes affect students in school." Based off of the data from the survey conducted at the STEM Middle School in Akron, Ohio, I was able to reach several conclusions. In the questions I asked via Surveys 1-2 (see Appendix A and B) and data represented in Tables 1-20, student responses varied between the "Current Classroom" and the "Ideal Classroom." This signified a need for alterations in this science classroom in particular in terms of the ways it is designed and constructed with appropriate lighting, classroom and desk design, and the layout of materials in the classroom.

As Reinsech's (2018) work identified, changing the setup of the classroom and the desk layout can affect the ways in which students study, learn and interact in the environment. Implementing layout strategies like the methods they prescribe will have effects on students in the science classroom. Looking at this there was student interest in the STEM Middle School survey group for desk layouts that may not always face the same direction, but rather consist of group work spaces instead of single desks. In addition, students from this study identified that having multiple teaching areas was something they Strongly Agreed fit in their ideal classroom, that may not be in their eyes present in the current classroom. An introduction of one of the desk designs (see Figure 2-3) from Young's study (2015) fits the student profile for their ideal classroom going off of their survey responses.

Another approach entirely would be to take the design of the classroom into the direction of universal design. The idea of universal design originates in barrier-free design and architectural accessibility. According to the Center for Universal Design, "Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." In recent years, this approach that was originally applied to building design has been applied to instructional practices. Universal Design for Instruction targets the best practices of teaching for each student's learning needs based around the principles of flexibility, a sense of community and an instructional climate for equitable use.

It would be conclusive from the literature and this data that student needs are related to the classroom environment. Drawing from the Mark Phillips (2014) study with The University of Massachusetts (2014), two big ideas evolved from the study. These include: are that Student morale and learning can be affected greatly by the physical structure of the classroom, and that the involvement of students in the environment creating process can increase their motivation as well as empower them and develop a sense of community. The visual appearance of the classroom through the objects in it can be conceptualized as a summary of the members of the

class. Starting to change classrooms in small ways by creating rooms with multiple teaching areas, variable seating arrangements, accessible technology, and efficient space for the belongings of students and the classroom will have an effect on student opinion.

   Reflecting on the data present in the survey sample and the literature points to conclusions in regards to meeting student needs in the classroom. Implementing ideas from this study and others like it into a classroom for student benefit include the presence of technology and computers, flexible working spaces and desk layouts as well as a brightly colored atmosphere and ample space to hold belongings as well as teach in multiple areas.

APPENDIX A

Class Period: _____   Instructor: _____

Classroom Design Survey 1

For Each Answer Circle one number 1-5 based off how you feel with each question. 1 being disagreeing and 5 being agreeing.

Disagree Strongly(1)   Disagree(2)   Neutral(3)   Agree(4)   Agree Strongly(5)

1. My ideal classroom is bright and well lit

    1   2   3   4   5

2. My ideal classroom has natural light sources (windows)

    1   2   3   4   5

3. My ideal classroom has desks in groups rather than alone

    1   2   3   4   5

4. My ideal classroom has all students facing the same direction

    1   2   3   4   5

5. My ideal classroom has separate areas for using computers

    1   2   3   4   5

6. My ideal classroom has extra room for lab equipment

    1   2   3   4   5

7. My ideal classroom allows the teacher to teach in multiple areas

    1   2   3   4   5

8. My ideal classroom allows students to engage in group work easily

    1   2   3   4   5

9. My ideal classroom has areas to store my personal belongings

1   2   3   4   5

10. My ideal classroom has areas to store my school belongings

    1   2   3   4   5

APPENDIX B

Class Period: _____   Instructor: _____

Classroom Design Survey 1

For Each Answer Circle one number 1-5 based off how you feel with each question. 1 being disagreeing and 5 being agreeing.

Disagree Strongly(1)   Disagree(2)   Neutral(3)   Agree(4)   Agree Strongly(5)

1. My current classroom is bright and well lit

    1   2   3   4   5

2. My current classroom has natural light sources (windows)

    1   2   3   4   5

3. My current classroom has desks in groups rather than alone

    1   2   3   4   5

4. My current classroom has all students facing the same direction

    1   2   3   4   5

5. My current classroom has separate areas for using computers

    1   2   3   4   5

6. My current classroom has extra room for lab equipment

    1   2   3   4   5

7. My current classroom allows the teacher to teach in multiple areas

    1   2   3   4   5

8. My current classroom allows students to engage in group work easily

    1   2   3   4   5

9. My current classroom has areas to store my personal belongings

1   2   3   4   5

10. My current classroom has areas to store my school belongings

    1   2   3   4   5

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