Abstract

This descriptive study assesses how high school students perceive the physical condition of their school to impact their ability to learn with the physical condition defined in terms of lighting and classroom space. The gap poses an issue due to the urgency of policy makers in discussion of directing funding away from maintaining the physical condition of a high school. Since students ultimately predicate the academic and motivational climate of school, their perceptions are assessed to determine the effects the physical conditions have on learning. A survey containing close-ended and open-ended questions has been implemented and the results elicited that high school students sought lighting to be influential towards learning while classroom space had little effect on learning.

Keywords: physical condition, high school learning, student perceptions,

Author: Rajpal Dhand

Classroom Learning: How High School Students Perceive the Physical Condition to Impact Learning

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Introduction

In the American educational system, the root cause of academic disparities among high school students is unclear. This issue evolves from previous beliefs incorporating student characteristics as the basis for altering educational outcomes. For instance, Lance Roberts, a professor of sociology, found that "22.2% of principals believe that students morale and commitment impacts student work enthusiasm which undermines student achievement" over factors outside of the student's control; consequently, funding is diverted towards altering student-based characteristics causing "less than 10 percent of the funds allocated to schooling [to be] directed to facilities" (Roberts et. al, 2008). This converges itself into a problem because the educational effects of diverting funding away from a school's facility is unknown.

From a lack of funding, an emerging idea is that the maintenance of the school facility is overlooked; yet, Valkiria Duran-Narucki, a professor of psychology, hypothesizes that a school's physical condition may inhibit academic learning by making students feel "unsafe and distract them from learning" if the condition is in disrepair or unmaintained, placing them at an educational disadvantage (Duran-Narucki, 2008). At a large scale, the feelings created by students extrapolate to other students as "perceptions influence the overall academic and motivational climate of school, which then influences student achievement up or down," (Bowers and Urick, 2011). Collectively, student perceptions instigate the rise of factors that are overlooked to impact student learning, further corroborating the need to examine the full effects of a school's facility to modify student learning.

The significance in researching a school's facility as predictor of student learning stems from policy makers from over thirty states being in discussion about moving towards academic performance-based funding models (National Conference of State Legislatures, 2013). A sense of urgency arises from this movement as the effects the neglected school facilities have on learning are unclear. However, through Duran-Narucki and Bower's ideas, the physical structure of a school may enhance or hinder learning at a significant level compared to factors that are currently accepted. The urgency of policy changes to enhance academic learning facilitates the research question: to what extent do high school students, between ninth grade and twelfth grade, perceive the physical condition of a school to impact academic learning? It can be asserted that high school students devise perceptions that distract them from learning based on how adequate lighting and classroom space are. Perhaps a descriptive study assessing student perceptions regarding their beliefs on how the physical factors of lighting and space at school impact their ability to learn may answer this question.

Literary Review

Various studies entail a gap around how the physical conditions of a school impacts learning at a high school level. Studies conducted encompass how student characteristics account for a student's ability to learn. In a sociological approach, Paul Sackett, a professor of psychology, conducted a meta-analysis study to examine the relationship between high school students' socioeconomic status and their score on the SAT to deposit that socioeconomic status "was correlated with grades, though the correlation was relatively low" (Sackett et. al, 2009). Sackett's outcome demonstrates that socioeconomic status may potentially impact students' academics, yet the minimal

reduction in test-grade correlations when students took the SAT test suggests socioeconomic status to insignificantly impact academics, hence the need to exploit alternative factors. The weak correlation may ensue from the study's reliability on self-reports of high school students which may evoke inaccurate results as students may distort responses, thus skewing the data.

Branching off of Sackett's study, a medical approach characterizes how students' health status impedes their ability to learn. Charles Basch, a professor of health, conducts a content-analysis to identify health problems impacting school-aged youths, along with its effect on academic achievement. Basch's conclusion attests to the fact that that students experiencing vision problems, and hyperactivity "will struggle to succeed academically and will feel less connected and engaged with school" (Basch, 2011). The implications brought about by Basch's conclusion are that they indirectly state how significantly health disparities impact learning, which parallels to Sackett's study to assume that health disparities like socioeconomic status account for meager impacts on learning. Furthermore, Basch's findings only addresses health related issues and fails to consider external factors out of the student's control, opening the discussion as to how the physical condition of a school can impact students' academic achievement.

Moreover, studies diverge deeper to assess how students' characteristics facilitate certain actions in students. Furthering from Sackett's study, Wesley Austin and Michael Totaro, who are both Associate Professors of Economics, utilize secondary data to explore the effects internet usage has on high school academics. The results illuminate that grades are "higher when students undertake *moderate* Internet use; however, grades decline when students are below or surpass a certain threshold" to express that internet usage impacts academic achievement (Austin & Totaro, 2011). This aligns with Sackett's

study to account for socioeconomic status as a factor that may impact internet usage amongst students if socioeconomically disadvantaged students do not have internet access, making it difficult to rule internet usage as a true cause of academic disparity due to extraneous variables present.

Corresponding to Basch's study, a psychological approach pairs health disparities with certain behavioral actions that contribute to learning outcomes at a high school level. Joshua Breslau, from the department of internal medicine, executes a longitudinal study on students from the ages of six to seventeen to assess how specific behavioral problems impact academic achievement on math and reading examinations. Breslau concludes that "attention problems are the principal predictor of diminished achievement relative to expectations based on a child's cognitive ability" indicating that other factors, such as a school's condition, are negligible regarding academic achievement (Breslau et. al, 2009). This conclusion contradicts Sackett's study to depict behavior problems as the primary cause of learning compared to socioeconomic status while enforcing Austin & Tutaro's study to demonstrate that student actions may impact learning. Collectively, Sackett's, Basch's, Austin & Totaro's, and Breslau's studies are limited because of the difficulty to account for all the possible variables related to student learning. In failing to account for certain variables, the outcome they have on learning may vary which justifies the need to look at alternative factors that may evoke a response independent of the extraneous variables from these studies and lead to a new understanding of the true causation of learning disparities.

A relatively new approach in understanding learning disparities considers how the physical condition of a school intertwines with learning. Few studies evaluate the extent to which the physical condition of a school impacts learning but have not assessed

how these factors apply to high school students. At lower levels of education, public health officials Debora Furr-Holden and Adam Milam performed a descriptive study enticing the perceptions of third through fifth grade students concerning school safety and its effects on standardized exams. Furr-Holden and Milam implemented a survey between third through fifth grade student assessing the physical safety of a school in regards to academics finding that "fifth grade students had lower agreement with feeling safe in the school [which] caused about 52% of fifth graders to perform below proficient levels." (Furr-Holden & Milam, 2010). The limit of Furr-Holden and Milam's study is that the findings can only be generalized to a fifth-grade level, which encourages the gap to look at high school students in regards to the physical condition of a school to impact academics.

Mimicking Furr-Holden and Milam's study, another descriptive study applies similar principles amongst middle school students but examines how the physical condition impacts grade point average. Authors Ming-Te Wang and Rebecca Holcombe, who are both doctoral candidates, deduced that eighth grade students who "positively perceived their school's environment" had experienced an increase in their GPA by ".59" (Wang & Holcombe, 2010). The perceptions created by students ties back to Furr-Holden & Milam's study to corroborate that the physical condition plays an integral part in determining academic achievement as one progresses to higher levels of education. However, the results can only be generalized to an eighth-grade level, which urges the gap to look at how high school students perceive the physical condition of a school to impacting academics.

Collectively, Furr-Holden & Milam and Wang & Holcombe's studies corroborate that students who perceived the physical condition to be undesirable did not

academically succeed. However, implementing different variables to measure educational outcomes as opposed to standardized variables throughout different levels of education indicates that educational learning varies at certain grade levels, yet the effects of the physical condition on learning persists through higher levels of education. This justifies that the results at different levels of education cannot be generalized to higher levels of education and justifies the need to assess this gap to evaluate how high school students are affected by the physical condition.

Due to the vast characteristics that comprise a school's physical condition, the factors exhibiting a noticeable impact on learning are lighting and classroom space. Utilizing a quasi-experiment, Michael Mott, a professor of curriculum and instruction, examines the intensity of lighting in the classroom in terms of affecting vision, circadian rhythms, mood, and cognition to either impair or enhance students' visual skills which can then impact their ability to see and read learning material presented to them. Mott implemented two types of lighting, focus and normal lighting, where focus lighting is brighter and has a higher intensity compared to normal lighting to illuminate that focus lighting has a "higher percentage increase in oral reading fluency performance (36%) than did normal lighting (17%)" (Mott et. al, 2012). These results contrast from Sackett's, Basch's, Austin & Totaro's, and Breslau's studies to reveal that factors pertaining to a school's physical condition encompass a greater influence on academic learning than student characteristics and actions. Likewise, the amount of space within a classroom is equally as influential as lighting is.

Christopher Brookes, a research fellow of information technology, performed a quasi-experimental study comparing academic success in college students taking *Principles of Biology Science* taught in a traditional classroom and Active Learning

classrooms which contain large round tables with an ample amount of space. Brookes' results indicated that "ALC students earned an average of 29.81 more points" compared to students in a traditional classroom setting (Brookes, 2010). This expostulates a significant grade difference between these two classroom settings to justify the need to look at this factor in conjunction with Mott's study of lighting as both of these factors extrapolate significant impacts on learning. Furthermore, Brookes concludes that students "lent themselves to a greater use of collaborative and student-centered learning activities" which Brookes believes has the potential to enhance learning outcomes compared to a traditional classroom (Brookes, 2010). Overall, Brookes and Mott's findings evoke the need to observe how the physical aspects of lighting and classroom space impact high school students as physical aspects assessed in Furr-Holden & Milam and Wang & Holcombe significantly impacted learning at lower levels of education compared to factors evaluated in Sackett's, Basch's, Austin & Totaro's, and Breslau's studies.

Methodology

Introduction

A descriptive approach was used by implementing a survey across high school students in South Florida to answer the question. The goal of the survey was to obtain perceptions of high school students regarding their perception as to how the physical conditions of school would possibly impede, facilitate, or have no effect on their ability to learn due to the survey's ability to account for any experiences or beliefs that the participants may have encountered. A survey deemed the best fit as focus groups and interviews insisted on the research being present with the participants which would express the Hawthorne effect where participants "behave in a certain manner due to their awareness of being observed" based on *Introduction to Sociology 2nd Edition* (Griffiths

et. al, 2015); and cause participants to inaccurate or incompletely answer questions. The presence of this effect would threaten the external validity and generalizability of this study, ruling out interviews and focus groups as a feasible method. Also, a survey would allow the researcher to obtain more participants which would increases the generalizability to high school students across South Florida, whereas interviews and focus groups would not reach out to more participants. Questionnaires are ruled out as they failed to "account for experiences [and] beliefs of participants" defeating the goal of this study to reveal how perceptions can impact participants' ability to learn (Salkind, 2012). Since surveys were capable of accounting for the experiences and perceptions of the participants while limiting bias with the researcher present, this became a credible method.

The survey answered the research question by garnering direct high school student perceptions to examine the extent to which high school students believe certain physical aspects of a classroom can affect their ability to learn as data.

Ethical Considerations

Having submitted a form to the Internal Review Board highlighting the intentions of this research, and obtaining approval on November 2018, participants would experience no harm out of the ordinary that involve the consumption of perishables, exposure to living organisms, or physical and emotional harm. Since participants were minors, a minor consent form must be published onto the survey. The purpose of the minor consent form was to ensure that participants were forewarned about any physical, mental, or emotional harm they would be exposed to along with the intentions of this study.

Participants

Participants encompassed public high school students in grades nine, ten, eleven, and twelve. This grade range emerged from a gap created by Wang and Holcombe' study in which the highest grade assessed was eighth grade along with a descriptive study conducted by Vincent Granito, a professor of psychology, which utilized focus groups to evaluate the extent to which college students' perceive the physical conditions of their college to impact their learning, where the lowest grade level being assessed were freshman college students (Granito & Santana, 2016). Evidently, a gap in perspective emerged between grades ninth through twelfth which justified the need to examine this grade range. Also, public high schools were utilized to stay consistent with the public middle school examined by Wang and Holcombe's study and public elementary school examined by Furr-Holden and Milam, which allowed the results of the study to be comparable towards these two studies.

Through the Creative Research System's sample size calculator, the ideal sample size for this study was 141 participants with a confidence interval of eight and confidence level of 95% (Creative Research Systems, 2012). This ensured that the validity and reliability of this study were maintained so the results would be applicable towards a wider range of high school students. Convenience sampling was most effective to obtain participants from four public high schools in South Florida. Convenience sampling is justifiable because it was difficult to obtain participants across the nation, whereas the South Florida population was accessible and "the members of the population are easy to sample" (Salkind, 2012). Surveys reached participants online through Google Classrooms which were effectively propagated to reach a wider range of participants, thus increasing the study's validity.

Methodology Instrument

Referring to Appendix A for the survey, Questions 1 and 2 were demographic questions regarding grade level and gender. Grade level was asked to ensure that participants currently fall between grade nine and grade twelve to be considered in high school. With this, the researcher could examine disparities in learning at different grade levels regarding the perceptions drawn about the physical conditions. Based on Wang and Holcombe's study, gender was excluded and only factors such as "age [and] household income" were asked, serving as a limitation as it cannot examine how gender differences could impact perceptions devised about the physical conditions (Wang & Holcombe, 2010). The option "other" was included with a space for the participant to write the gender to specify their gender and to add perspectives in regards to how perceptions about the physical condition of a school impact that would be fashioned by a wide variety of genders.

The remaining questions consisted of a mixture of closed-ended and open-ended questions. Closed-ended questions were answered on a five-point Likert scale because it offered a broader and informative range of answers that was standardized and credible (Salkind, 2012). The scale provided was as follows:

1= Strongly Disagree
2 = Disagree
3 = Neither Disagree or Agree
4 = Agree
5 = Strongly Agree

When interpreting this scale, options 1 and 2 indicated that the participant believed that the statement provided goes against what the participant believed and options 4 and 5 indicate that participants believed that the statement aligns with the participant's perception. Option 3 indicates that the provided statement did not reject nor comply with their perceptions.

Questions 3 through 6 accounted for factors related to learning, including motivation and concentration, to determine whether or not the physical conditions expressed or suppressed these factors which could indirectly affect learning. These questions were adapted from a study by Romina Asyai, an educational administrator, examining the impact the physical learning environment had on learning and motivation among secondary school students, but modified to expound upon how the physical condition impacts learning related factors. These questions facilitated how students perceived the physical condition of a school to impact their ability to learn by examining factors that contribute to learning, as measurements such as class grades and GPA could not be obtained as it would break the ethical concern of masking the anonymity of the participant.

Questions 7 through 11 specified on space availability in the classroom as Brookes' study mentioned that large round tables with an ample amount of space "lent themselves to a greater use of collaborative and student-centered learning activities" implying that it could enhance learning outcomes compared to a traditional classroom (Brookes, 2010). These questions revealed the relationship between space availability and factors that contributed to learning to examine the extent to which students perceive space availability to impact various factors that ultimately impact learning. From here an

open-ended question was asked to obtain in-depth, direct feedback about space availability.

Questions 12 and 13 specified on lighting as a contributing factor towards learning. From Mott's study, lighting might "impair or enhance students' visual skills" which affected their ability to see and read learning material presented to them (Mott et. al, 2012). This justified the inclusion of these questions as lighting had the potential to influence student learning. Also, an open-ended question was asked to obtain direct feedback from students.

Procedure

Research occurred from December 2018 until January 2019. All participants took the survey online through Google Classroom. Prior to taking the survey, participants read the minor consent stating the purpose of the study and any harm the participant might be subject to and virtually selected that they agreed to participate. From here, participants accessed the survey and, once completed, submitted the survey where the results were sent directly to the researcher through Google Forms.

Analysis

The researcher utilized raw data to calculate percentage to compare responses. As the data procured was qualitative in nature, percentages were implemented to "quantify the amount of change [and] express an increase or reduction" in responses (University of Leicester, n.d.).

Results

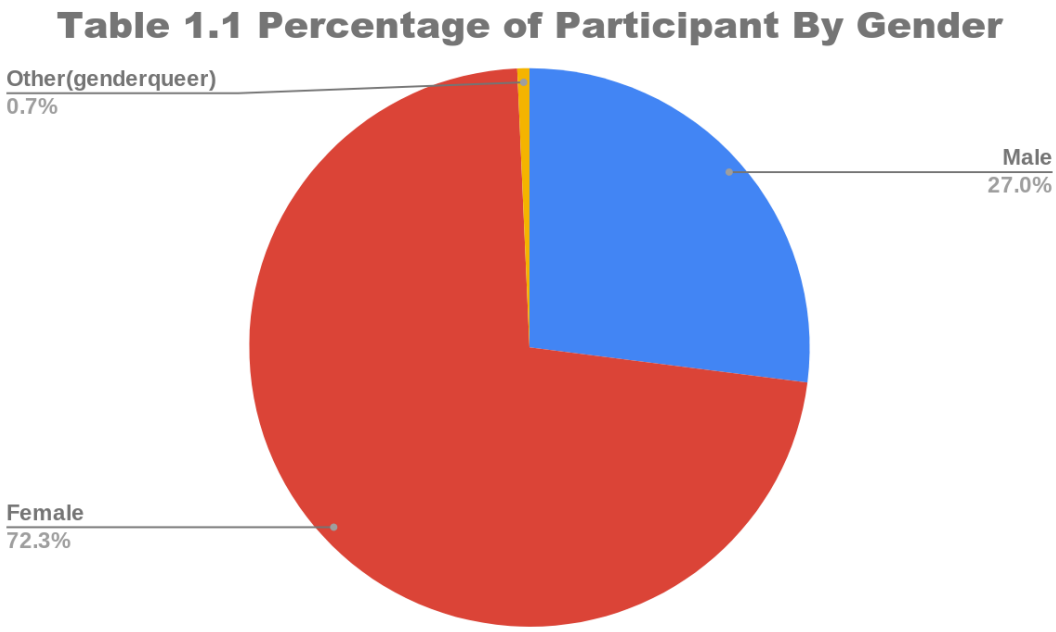
Table 1.1 Percentage of Participant By Gender
Other(genderqueer)
0.7%
Male
27.0%
Female
72.3%

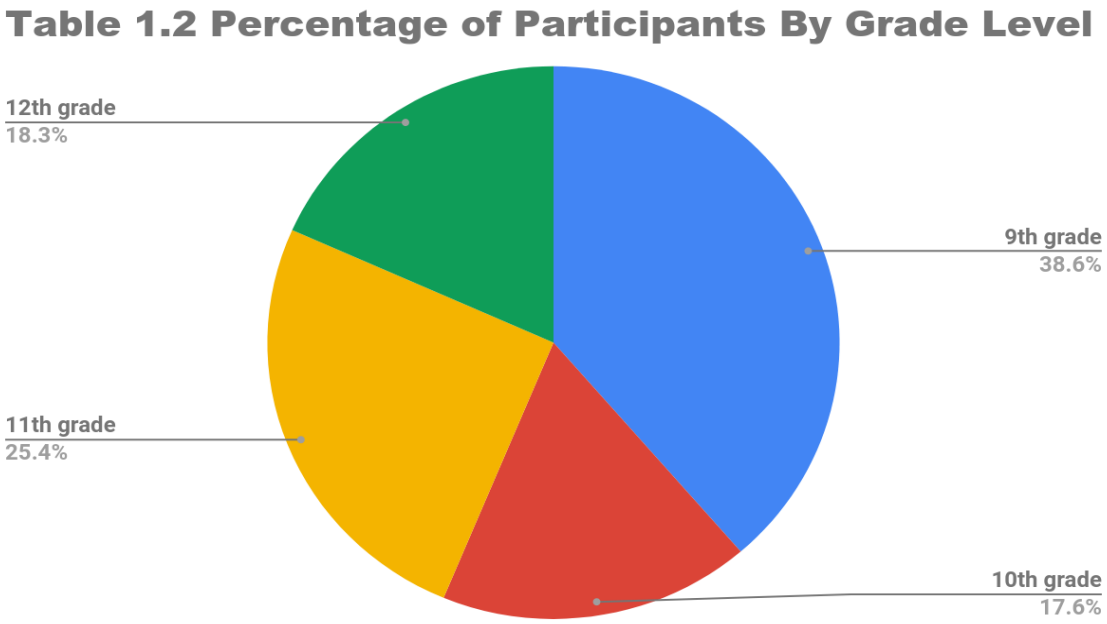

Table 1.3 Perception of Factors Affected by the Physical Condition					
	Strongly Disagree	**Disagree**	**Neither Disagree nor Agree**	**Agree**	**Strongly Agree**
Physical Condition Contributes to Motivation	4.3%	8.5%	25.5%	39.7%	22.0%
Physical Condition Contributes to Learning	1.4%	3.5%	14.9%	31.9%	48.2%
Physical Condition Contributes to Academic Success	2.15%	5.0%	19.9%	38.3%	34.8%
Poor Physical Condition Negatively Impacts Learning	5.0%	12.8%	27.7%	31.9%	22.7%

Table 1.4 Perception of Factors Affected by Classroom Space Taken					
	Strongly Disagree	**Disagree**	**Neither Disagree nor Agree**	**Agree**	**Strongly Agree**
Classrooms are Cluttered with Desks	12.1%	17.0%	34.0%	24.1%	12.8%
Cluttered Desks Decrease Movement for Class Activities	4.3%	8.5%	9.9%	29.8%	47.5%
Classrooms Cluttered with Desks Serve as a Distraction	19.9%	27.7%	23.4%	15.6%	13.5%

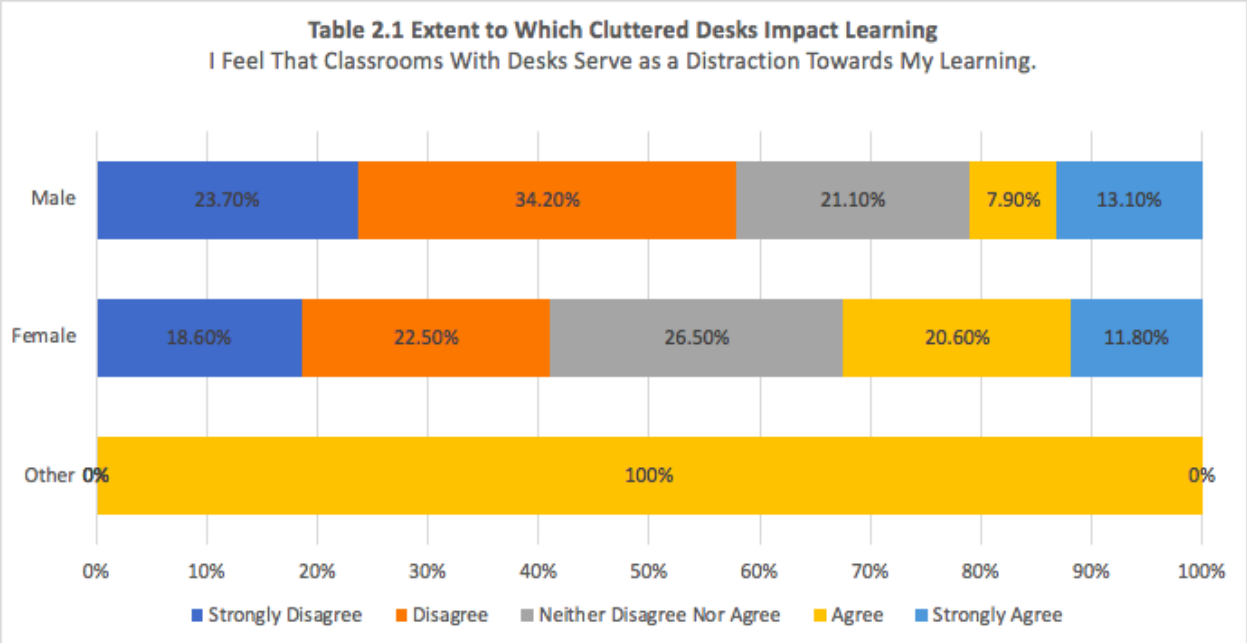

Table 2.2 Classroom Space and Desks Responses			
Category	Gender	Number of Participants by Gender	Total Percentage for Category
Has No Effect	Male	21	50.4%
	Female	50	
	Other	0	
More Desks Attribute to More Students Which Serves as a Distraction	Male	5	17.0%
	Female	18	
	Other	1	
Feelings of Claustrophobia and Anxiety	Male	2	11.3%
	Female	14	
	Other	0	
Feel Disorganized	Male	1	4.3%
	Female	5	
	Other	0	
Mixed Response	Male	3	12.1%
	Female	14	
	Other	0	
Vague Response	Male	6	5.0%
	Female	1	
	Other	0	

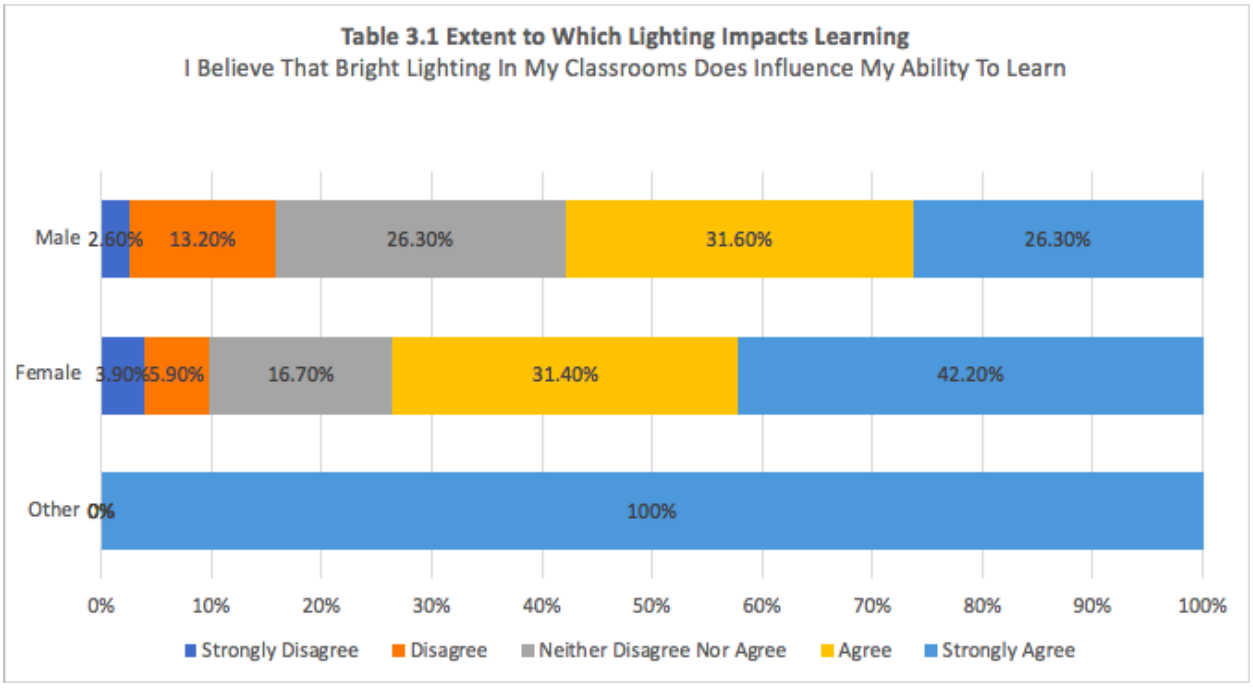
Table 3.1 Extent to Which Lighting Impacts Learning
I Believe That Bright Lighting In My Classrooms Does Influence My Ability To Learn
Male
2.60%
13.20%
26.30%
31.60%
26.30%
Female
3.90%
5.90%
16.70%
31.40%
42.20%
Other
0%
100%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Strongly Disagree
Disagree
Neither Disagree Nor Agree
Agree
Strongly Agree

Table 3.2 Lighting Responses			
Category	Gender	Number of Participants by Gender	Percentage of Participants
Has No Effect	Male	6	9.2%
	Female	7	
	Other	0	
Impacts Visibility	Male	4	9.9%
	Female	10	
	Other	0	
Induces Sleep and Impacts Alertness	Male	9	39.0%
	Female	46	
	Other	0	
Hurts Eyes and Headaches	Male	4	15.6%
	Female	17	
	Other	1	
Impacts a Classroom's Aura	Male	3	4.3%
	Female	3	
	Other	0	
Mixed Response	Male	2	7.8%
	Female	9	
	Other	0	
Vague Response	Male	10	14.2%
	Female	10	
	Other	0	

Discussion, Limitations, and Implications

The initial purpose of this descriptive study was to evaluate high school students' perception on how the physical conditions of school might impede, facilitate, or have no effect on their ability to learn in terms of lighting and space availability. The initial hypothesis theorized that high school students formulate perceptions that distract them from learning based on how adequate the lighting and classroom space are, which was proven to be partially true as high school students sought lighting as a prominent factor impacting learning, yet space allocated for desks evoked little impact on learning. Collectively, the results reflected a new understanding that the physical condition, overall, impacted learning by directly stimulating confounding variables, including emotions and neurological activity, that undermined students' learning.

As categorized by Table 1.3, 39.7% of students agreed that the physical condition impacted learning-related factors including motivation and academic success; however, 48.2% of students strongly agreed that the physical condition directly affected learning. This difference in agreement established that effects of the physical condition on factors related to learning might be masked due to confounding variables. For example, emotions could act as a confounding variable based on a qualitative study performed by Carlos Valiente, a Communication Professors; he concluded that emotions were "crucial contributors to students' motivation [and] may detract from [academic] achievement" which might interplay with the physical condition to suppress learning-related factors, including motivation and success, and ultimately impact learning (Valiente et. al, 2012). Valiente's conclusion undermined the reliability of Sackett's, Basch's, Austin & Totaro's, and Breslau's studies since the factors each study observed were skewed from events due to confounding variables that were not controlled.

With the strong connection between the physical condition and learning in Table 1.3, the new understanding emerged to mention that events due to confounding variables, such as emotions, could influence students' perception of the physical condition and impact learning outcomes. As Table 1.3 corroborated that the physical condition did impact learning with potential effect from confounding variables, it was necessary to analyze which aspects of the physical condition aligned with learning through the presence of confounding variables.

In terms of classroom space, space designated for desks was perceived as a negligible physical factor impacting learning. The results from Table 2.1 allocated that 26.50% of females neither disagreed nor agreed, while most males disagreed, that space designated for desks impacted learning. As the response scale was based on how much the participant agreed with the statement, the results as a whole indicated that participants believed space designated for desks minimally impacted learning. In order to decipher the reasoning for the trend in Table 2.1, Table 2.2 surfaced two common themes throughout all gender responses including that desks had *No Effect* towards their learning and that *More Desks Attributed to More Students Which Served as a Distraction.* From Table 2.2, 50.4 % of students believed that spacing lost due to desks had no impact as a student's response from Appendix B clarified that "learning is not based on desks but how the information is given to me and how much I am allowed to participate in the [class] discussion." This revoked Brooke's conclusion that classroom "space alone can improve student learning even beyond students' abilities" as low percentages of students perceived space to impact learning (Brookes, 2010).

Conversely, from Table 2.2, only 17.0% of students perceived that more desks impacted learning by indicating a larger class size as Appendix B allocated the response:

"Too many desks [led to] too many students [making it] harder for [the] teacher to control" the class. This was supported by a correlational study conducted by Rami Benbenishty, a professor of social work, where larger class sizes in violent school climates increased the frequency of fights where teachers would "spend more of their time preventing fights and less on delivering academic content" (Benbenishty et. al, 2016). Despite Table 2.1 and Table 2.2 affirming that desk space did not impact learning, which partially refuted the initial hypothesis, the opposing responses confirmed the new understanding that confounding variables such as class size might inhibit learning. A limitation to this understanding was the descriptive nature of this study, which could not attest any relationship between space allocated to desks and learning nor evidence causality due to the absence of a control group. Rather, this study could only describe the occurrence of the observed commonality in responses and future researchers should utilize a correlational study to determine the strength and direction of the correlation between this factor and learning.

Contrasting from classroom space, lighting was perceived as an influential factor towards learning. Table 3.1 depicted that 73.6% of females, 57.9% of males, and 100% of other genders either agreed or strongly agreed that learning was dependent upon classroom lighting. In order to understand the reason for the observed trend, Table 3.2 depicted that the two most chosen categories were *Induces Sleep and Impacts Alertness* and *Hurts Eyes and Headaches.* A common response amongst female students was that lighting impacted one's alertness and could impel sleep as a response from Appendix C stated: "When the classroom is dim, I feel that I am less focused and more tired." This concurred with Mott's study as lighting "affects numerous levels of human functioning

such as … circadian rhythm [includes sleeping patterns] and cognition" which most participants attested to experience from Table 3.2 (Mott et. al, 2012).

Likewise, students felt that lighting instigated medical repercussions as one response mentioned: "[b]right lights hurts my vision and induces headaches for me… so it does affect my learning" in Appendix C. This response parallels with alcohol consumption which exhibited similar repercussions as lighting as a descriptive study executed by Ana Balsa, a professor of Health Economics, stating that alcohol consumption amongst high school students "significantly increases the probability of encountering [similar] difficulties at school" (Balsa et. al, 2012). Together, these two categories equated the new understanding towards lighting as it impacted learning through altering neurological activities used for learning including alertness and vision while broadening its application towards other factors that affect learning as similar outcomes were observed with alcohol. The relation supported Mott and Balsa's studies that health-related issues might arise to impair students from learning while rejecting Benbenishty's study to ascertain that factors outside of human functions were negligible towards learning.

Collectively, Table 2.1 and 3.1 depicted little disparity observed amongst genders and their answer choices, which maintained that gender had a minimal effect on perceptions devised about the physical condition and learning and preserved the integrity of the new understanding. The integrity added to Wang & Holcombe's assertion that "analyses by gender… [would] reveal no significant differences" to justify the understanding that perceptions devised by different genders were consistent (Wang & Holcombe, 2010). Negating this notion was the study's unequal participation from genders which produced a limitation. The method for distributing the surveys was

compatible for this study; however, it led to female participants outnumbering all other genders which hampered the generalizability of the results mainly towards high school females. It would be advised for future researchers to distribute surveys to a wider range of high schools and obtain relatively equal amounts of each gender for a survey such as this.

Holistically, the initial hypothesis was consistent with the notion that the physical condition of lighting impacted learning since students believed this factor attributed to an altered state of functioning that distracted them from learning. Additionally, the initial hypothesis was counteracted as space occupied by desks manifested minimal impacts on learning. Reflecting on this study, a limitation was the factors observed. This study defined the physical condition of a classroom in terms of classroom space and lighting, which excluded many factors including temperature, acoustics, furniture, and technology as assessed in Granito and Santana's study (Granito & Santana, 2016). Since this study established that lighting played an important role in learning compared to space, future researchers would be advised to observe the factors previously mentioned to ascertain which factors of the physical condition would exhibit a greater impact towards learning.

The new understanding promoted an implication towards other members in the discipline, including teachers. A qualitative study carried out by Cynthia Uline, a professor of Educational Leadership, highlighted that physical qualities impacted teachers as their performance quality might decrease "as teachers are less likely to show enthusiasm for their jobs and to go the extra mile with students to support their learning when they teach in buildings they judge to be of poor quality" (Uline & Tschannen, 2008). This applies the new understanding towards the community of teachers while expressing an emerging gap that the physical condition might impact students learning

based on how teachers would perceive the physical condition to be. This addressed a limitation in Valiente's study that emotions might impact teachers and affect their quality of teaching towards students while implying that the factors observed in Mott, Granito & Santana, and Brookes' studies could be applicable towards teachers as they were to students. Due to this implication, future research would be necessary to interpret whether the physical condition would be influential towards teachers to impact their ability to teach in class, which might intertwine with the perception made by students to further enhance or inhibit their ability to learn.

Altogether, the new understanding merged itself with the implication to diverge out of the realm of impacting students and towards a broader community of teachers. From this implication, it would be justifiable for future researchers to observe how teachers would be influenced by lighting and space availability as the results from Mott and Brookes' study along with Tables 2.1, 2.2, 3.1, 3.2 were only applicable towards students. This indicated an emerging gap that teacher perceptions regarding the physical condition were rarely considered yet Uline & Tschannen's study affirmed that the physical condition impacts their teaching quality, thus verifying the need to replicate this study from the perspective of teachers.

Future Directions

Since the current study evokes high school students' perceptions regarding the physical condition, future researchers should observe how the physical condition impacts teachers as their perception may unravel physical factors that subvert teaching. A peer-reviewed study by Glen Earthman, from Virginia Tech, was able to unify that teaching is dependent upon the physical classroom when 43.8% of teachers in unsatisfactory buildings agree that classrooms hinder their efforts in teaching (Earthman & Lemasters,

2009). This finding branches out in the educational community in support of the implication which justifies the need to replicate this study towards high school teachers as the physical condition may impact student learning based on teacher perceptions that may skew their teaching abilities.

Moreover, the physical condition of a classroom persists amongst students and teachers to impact functionality, making it necessary for the discipline of educational psychology to conduct research towards this implication since educational outcomes may be indirectly impacted by others in the school community. If significant evidence discovers that teaching quality is influence by the physical condition, funding may be directed towards refurbishing influential aspects of the physical condition to improve teaching quality and ultimately allow high school students to academically excel.

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Appendices

Appendix A Survey

Research Survey

My name is _____ and I am inviting you to allow yourself to participate in my research study, which investigates student perceptions towards physical aspects of a school and how it impacts their ability to learn. Participants will be asked to answer 13 questions (with two demographic questions) in this online survey to help analyze the extent to which high school students believe the physical aspects of their school impact their ability to learn. This research study is intended to assess how students perceive the condition of their classrooms to impact their learning through the question: to what extent do high school students, between ninth grade and twelfth grade, perceive the physical condition of a school to impact academic learning?

By completing the following survey, you thereby have obtained parental consent to the following statement.

Certificate of Consent

"I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate as a participant in this study."

Directions: Please answer the following questions to the best of your ability
1= Strongly Disagree
2= Disagree
3= Neither Disagree nor Agree
4= Agree
5= Strongly Agree

* Required

1. **Please select your current grade level.** *
Mark only one oval.

- ◯ 9th grade
- ◯ 10th grade
- ◯ 11th grade
- ◯ 12th grade

2. **Please select your gender.** *
Mark only one oval.

- ◯ Male
- ◯ Female
- ◯ Other:_____

3. **I believe that the physical condition of my classrooms make me feel motivated to actively participate in academic activities.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

4. **I will learn more if my classrooms are in good physical condition.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

5. **I will academically succeed if my classrooms are in good physical condition.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

6. **The poor physical condition of my classrooms negatively affect my ability to learn.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

7. **I perceive my classrooms to be cluttered with desks.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

8. **I feel that classrooms cluttered with desks limit movement in classrooms for academic activities.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

9. **I feel that classrooms cluttered with desks distract me from paying attention during class.** *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

10. **I feel that classrooms cluttered with desks serve as a distraction towards my learning.** *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

11. **Based on the previous question, explain why you chose your answer.** *

_____

12. **I believe that bright lighting in my classrooms does influence my ability to learn.** *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

13. **Based on the previous question, explain how this impacts your ability to learn.** *

_____

Powered by Google Forms

Appendix B

Appendix B Classroom Space and Desks		
Category	Gender	Responses
Has No Effect	Male	• I don’t actually mind rooms cluttered with desks because I understand that some teachers may need the desks due to overflowing students switching in from worse classes • I dont exactly have an opinion for that question. • If i focus, it's not an issue • I disregard small factors of interruptions for my learning such as these. Staying focused no matter what is a good technique • I don’t get distracted easily. • I don't know how desks are distractions • The physical condition of a class can surely impact my learning, but the class isn't crowded with desk and nor will it impact my learning. • it doesn't distract me • We do not really move around in class, therefore I cannot say that the desks bother me when learning, even if they may be a hindrance . • cluttered desks don’t bother me that much • I find tinsel distracting • Like they are there but they’re not distracting me • Like they are there but they’re not distracting me • Desks don't really distract me. • With a cluttered desk i have to worry about thing falling off and is a real distraction • it is fine • b/c its not really a problem • The desks don’t have make a difference of how I comprehend the subject. • unless there is people in them the chairs themselves just take up space but dont distract me. • I don’t really notice them. • I slightly disagree because even if a classroom has a lot of desks, they may not all be filled, creating a more open environment than if there were students in every desk. It almost creates a "cozy" environment with deeper interaction with classmates and with the teacher. Additionally, even if there are a lot of desks in a classroom, some classrooms are large enough to still remain open. • It's not a distraction but it is an annoyance
	Female	• I chose disagree because in my class with 37 students in a small classroom, I have no issues learning. • They do not distract from my learning but I do feel that if there were less or just enough desks that there could be

		room for other things like carpets or larger tables where students could collaborate and participate in group work • My learning is not based on desks but how the information is given to me and how much I am allowed to participate in the discussion. • I don't really care about the desks, most of time I just pay attention to the teacher • dOES NOT IMPACT ME • Clutter doesn't really affect my learning. • I believe the physical condition of the classroom does effect learning abilities but not the cluttering of desk. • I do not often get distracted from the lessons by the desks in any way. • Over many years of schooling, I have adapted to learning in "classrooms cluttered with desks". At times, I almost feel like it makes the class more formal, leading me to pay attention more as opposed to classrooms with very to little or no desks. • I do not feel as if cluttered classrooms negatively impact my learning. • I chose this answer since I do not feel that cluttered desks impact my learning. • Because I sit near the front of the class, the clutter of desks behind me does not necessarily distract me from the papers in front of me and my teacher. I also come from another country (Trinidad) in which there were 45 people in my class, so I feel accustomed to having many desks in the classroom • Cluttered desks do not serve as a distraction. • Classrooms always have a lot of desk, no matter where you are, therefore it does not distract my learning. • I don't really have an opinion on this • I've never really been distracted because of desks • Once I'm sitting in a seat, I can focus in on the teacher and don't really think about the desks around me. • I don't care for desks in a classroom They don't distract me • It doesn't • A desk is simply used for sitting and writting and should not limit a student's ability to learn. It is up to the individual student to pay attention in class and if they are distracted by desks then it shows that the student is unfocused and should seek help. • The desks don't distract me from looking at the board at what is being taught. • I don't think that classroom cluttered with desks serve as a distraction to my learning. • Well although there are many desks in a class room. It's not like there are any activities we are going to do . And I personally enjoy just hearing a lecture and taking notes . That's personally how I learn . But when a room is more enduring and well "pretty" I feel more welcomed and I usually ask more questions . Supposed to a dark gloomy class room I usually keep to my self

		• Because it doesn't matter if there are too many desks because I have seen the for 9 years of my "school life". • Because Im not paying attention to the other desks around me while im learning • because i am used to desks being around me so it doesn't bother me • Because desks do not provide a distraction to me. • because it depens on your motivaton if you want to learn it you will learn it anyway. • The desks do not bother me. • It doesn't bother me or affect my learning. I sometimes forget there are a lot of desks in the classroom. • I don’t care about how many desks there are in the classroom. • As long as im near the front of the classroom, there's no reason to turn around and get distracted. • It doesn't really affect me. • It doesn’t really distract me, but when people are trying to walk and they hit a desk, it’s disruptive. • It doesn’t really distract me, but when people are trying to walk and they hit a desk, it’s disruptive. • I do not believe that desks will impact my learning The cluttered desk really don’t distract me as much as other stuff do • Desks don’t distract me too much, it is more the people in them • I mean having many desks is not distracting but if is cluttered I find the reorganization very annoying and distracting. • It doesn't contribute or take away from my learning experience • it doesnt bother me • When learning and actively engaged, I'm not concerned about my surroundings. • A classroom filled with many desks are fine. I don't mind studying among others or the objects placed in the room. However, many times the other students are very loud in a crowded room. • I don’t pay much attention to it • The desks don’t have make a difference of how I comprehend the subject. • I like when the desks are spread out in an unconventional way, but it doesn't distract me from learning if they are cluttered in a typical lay out. • objects can't justify how much you learn in a classroom. Learning comes from paying attention and listening intently in class unless you have the attention span of a five-year old, and cluttered desks may alter your focus/ attention. • I do not see it as a distraction that much, but class sizes should be smaller. • It doesn't really impact my concentration • desks are not a distraction to me

	Other	Not applicable
More Desks Attribute to More Students Which Serves as a Distraction	Male	• It's not really so much that the desks distract me but if there are too many desks with too many students thats what sort of inhibits me • If there are a lot of desks and people then I wont be able to see what the teacher has on the board or listen to what the teacher is saying. • More People, more talking • If their are a lot of students around it's a distraction • With more desks, come more people. As a person who is easily distracted, more people being near me makes me want to talk more or do other things.
	Female	• If I am taking notes or doing independent activities in class, I want to have a semblance of comfort. It am repeatedly distracted (ie. people bumping into me, hearing close conversations), it would be harder for me to actually focus. . • with so many desks around me, it's easy for me to turn and talk to my friends. • Desks are just designated areas for sitting and dispensing the school supplies of a student. They are not distracting in any wayx except for the fact that, if the desks are full, the crowdedness of students may be distracting • If there are too many people in the room, I am not able to easily listen to my teacher and understand the material being taught. • The more students, the less paying attention during class • It feels like there are too many people around me • Too many desks=too many students = harder for teacher to control • when your teacher is trying to teach something, too many desks can distract people because it gives them the attention to see all the cluttered desks instead of the lesson that they are supposed to be learning • I get easily distracted so with so many desks i would be counting them instead of paying attention to my teacher • More desk means more student • Its a distraction because theirs more noise next to you. • Having to many desks in a classroom causes me, a student, to look around instead of paying attention to my teacher. • Because more students in desk are talking and desk can be noises • too many ppl • more desks more friends around more distractions • You can easily talk to your friends • I feel like classroom with lots of student makes me less active in my learning and if there is more friends then I have more distractions • If their are a lot of students around it's a distraction

	Other	• Theirs more students so it poses a greater chance to get distracted
Feelings of Claustrophobia and Anxiety	Male	• Limited space in a classroom decrease space for learning. • The cluttered desks in the class creates a claustrophobic atmosphere which is distracting to those who want to learn.
	Female	• Cluttered desks just give me anxiety. For example, when there's a test and everyone is finishing it makes me fusturated hearing everyone get up, especially when the desk are so close together • Clutter makes me anxious • Usually, I do not focus on the desks in the room, but rather the wall decorations, cleanliness, and overall organization of the classroom. However, a room that is cluttered with desks can make one feel confined and even claustrophobic. Many of favorite classes are very open, brightly decorated, and organized. • they are in personal space • I suffer from claustrophobia • I feel suffocated • Having lots of desks just means more space to spread out materials so my working space on my desk is more open. • Having lots of desks just means more space to spread out materials so my working space on my desk is more open. • My anxiety level raises and I cannot focus on anything else. • It is hard to focus on the teacher or the material I am learning if I feel cramped in a room with many desks. • Could feel worried about not having enough space and not focused on the material being taught • Cluttered desks creates a cramped environment and provides extra pressure and distraction. • I get very claustrophobic if there's a lot of desks so I'll end up just trying to focus on getting out of the classroom and not the work. • Not a distractions, but a chlostrophobic feel.
	Other	n/a
Feel Disorganized	Male	• Cluttered desk is not only a distraction but a message towards how organized the teacher is
	Female	• It'll cause me to not be organized. You need to be organized to succeed. • I try to keep everything super organized and if desks are cluttered it becomes difficult to find what I am looking for. • I would be too focused on how messy and cluttered the classroom is.

		• Too many desks takes away from an organized, clean classroom and could therefore be destructive to learning • If things are messy then i start to feel messy and can't get any work done
	Other	n/a
Mixed Response	Male	• If the classroom feels too cluttered with desks filled with other students, then I would be distracted because of all the side conversations; but if these are empty desks, this would be no problem except for the lack of mobility in the room for academic activities. • Well to start its quite annoying and a little uncomfortable. • While it will not directly effect my learning I feel it is destracting and it prevent teachers from giving a good amount of attention to each student.
	Female	• In classes where there are too many desks we have no room to do anything other than sit and listen. This, I've noticed, causes many students to lose interest and get distracted or even fall asleep • Because, the board far from sight when the teacher needs to turn their back to me and explain to the rest of the class, while forgetting that their are other students. • On one hand they could but on the other hand they might not • Sometimes i would be distracted, while other times i won't. • Harsh learning conditions • I chose this answer because i think that students need their personal space to work • I keep thinking about moving because there is too many option and others feel the same. ALSO, DURING ACTIVITIES, WE HAVE TO MOVE THEM AND ITS ANNOYING AND NOISY. • I have found that in the classrooms with less desks in my school, the students are closer to the teacher and have found learning and comprehension of learning to be much easier. Of course this would mean a smaller class size as well but when the desks in the room are of a lesser amount, and the free floor space is more, students tend to be able to feel less trapped and have more of an opportunity to learn and move freely while learning within their classrooms. • It depends on the activity and whether movement around the classroom is required. • They are decently separated • I learn better in a structured environment • If we need to move around during the lesson too many desks will be a distraction but if not i will sit down and forget about them • A crowded classroom is not a proper place for learning and restrict movement.

	Other	n/a
Vague Response	Male	• Because desks are cool • Hola Burma's • In actuality, its the white board • Never took notice • My seat is in the front • they're just desks
	Female	• A little
	Other	n/a

Appendix C

Appendix C Lighting		
Category	Gender	Number of Participants by Gender
Has No Effect	Male	• I can see fairly easy in both light and dark conditions so it doesn't really affect me • To be honest I wouldn't care • it does not affect my ability to learn because I don´t have any visual problems • It doesn't • It doesn't... if anything it's just annoying but doesn't influence my ability to learn. • The lighting doesn't make an impact on me. • doesn't effect me
	Female	• Does not impact me at all • The light does not bother me. • It doesn't • Lights don't have a major affect on how I learn. • It doesn't. • it doesn"t have an impact
	Other	n/a
Impacts Visibility	Male	• It helps to see • If there is a lot of light then I wont be able to see well and if there is little to no light I will not be able to see what my work. • you can see and be more inspired to learn • I prefer dim lights to see the board
	Female	• if lights are too dark it's hard to read • I can see better and clearly

		• If i cant see i cannot learn. • If the room is dark i wouldn't be able to see my teahcer teaching and because i am a visual learner it would be hard • If the light in the room isn't bright it affects the way I see my paper. • Because if it's too dark or dim I can't see anything or barelt ee anything, but if it's too light it doesn't affect my ability to learn. • you can focus better in classrom with better lighting and you can see better (focus) • If there's not sufficient lighting, it makes it difficult to focus on what is being taught through documents/readings. • I can see clearly and not stress • Very low lighting makes viewing presentations more difficult
	Other	n/a
Induces Sleep and Impacts Alertness	Male	• If it's too dark i get sleepy and my attention span is lower • Natural light and artificial light can encourage an individual to stay alert and attentive; Unlike, dim lighting or darkness encourages individuals to become lazy and tired. • lights help keep me awake • When lights are off I usually get more sleepy but with the bright lighting on I focus on the subject more. • It influences my learning a positive way because if my class were dark i would just fall asleep because it is dark. • A brighter light will keep me from falling asleep. • prevents me from falling asleep and makes it easier to see the board • It makes it easier because I'm less likely to fall asleep. • When it is dark I always fall asleep
	Female	• If the lighting is better, we are more likely to stay awake. • While bright lights can encourage me to gain more focus as I grow sleepily in class, fluorescent lights to deem harsh at some times. • It'll help me be awake and alert as I learn • i believe that we should have more natural lighting in the classrooms. the lighting now makes me fall asleep • when its brightly lit it makes me want to close my eyes • The more light in a classroom, the more visibility we have. It also helps wake us up to be able to learn because in a dark classroom we would all want to go back to sleep after getting up early. • It makes me focus more and be less tired. • When in a classroom with dim lights, i find to get more tired and less focused. • The bright lighting in the classrooms allows me to stay focus and alert during class. • When the lights are bright inside classrooms it keeps me awake during the lesson, and when the lights are dim I start to get drowsy and want to sleep.

		• When the classroom is dim, I feel that I am less focused and more tired. • keeps me awake in class • Bright light encourages students to stay awake and focus during the class period. Light fixtures are an essential part of a learning environment and can either positively or negatively effect academic success. • Well lit rooms help me focus on my rooms, more than dim rooms because it causes me to become tired. • Dimmer lights tend to make me sleepier and less focused • wake up • It keeps me awake because I'm usually tired since school starts so early. • They help me stay awake • Natural lighting helps me keep an internal clock and keep me awake. Windows make the classroom environment more comfortable. Bright lights from artificial lights can be annoying, but they are usually mostly off so the projector can be seen better. • When the classroom is lit, i don't feel tired and it makes me feel awakened and ready to learn a little bit better. • It's easier to fall asleep in a dimly lit classroom versus a bright one • A dark room makes many feel more tired where as a brighter lit room may help keep students alert • More light makes me feel more awake and eager to learn as opposed to dark rooms make me sleepy. • If it is bright, you feel more awake • It makes you feel more awake and ready to learn. • Brighter lights makes me more awake to learn • If the room is dark, I feel more tired and want to sleep. • Bright lighting makes me feel more awake, but it could also be a hindrance if it's too bright. • Depending on the lighting, including fluorescent and natural light from windows, affects how much I pay attention in class and whether or not a fall asleep. • When the lighting is dim I tend not to be able to focus and get sleepy instead • When the lights are darker, I become sleepy. • keeps me awake • If it's dark, you can easily fall asleep • If there is dim lighting I am more inclined to sleep. • A lit up class makes me more awake and active were as a fun on I would be less interested and may fall asleep • The brighter the light is the more awake I feel. • Sunlight shining in the class helps wake u up and helps u concentrate • Bright lighting helps to keep me awake, especially on days with little sleep. When teachers turn off all the lights to watch a video, how are we supposed to write? • I believe it does influence me, because it somehow keeps me awake. If the lights were dimmed I will take a nap • If my classroom is dark it makes me sleepy.

		• the bright lighting in the classrooms helps students stay more awake, and biologically speaking bright room decreases your bodies melatonin, therefore, making you less sleepy. • Bright lights keep me awake and keep me focused on my work. • When the room is dark, I tend to sleep. • Bright lights help students not fall asleep • i feel if its dark i may be more tired and less focused • More lights mean i feel less drowsy- but the lighting can't be too harsh
	Other	0
Hurts Eyes and Headaches	Male	• If the lighting is too bright it can cause strains to the eyes and possibly headaches which harm the ability to learn. • Too bright for the eyes • I have sensitive eyes so the room cannot be to bright or to dim. • as a person with dry eyes, the bright lights tend to irritate my eyes. However, lights that are too dim will make me want to go to sleep.
	Female	• The bright lights give me headaches • Bright lights hurts my vision and enduces headaches for me..so it does affect my learning • Bright lights give me a headache • If the lighting in the classroom is too dim then I won't be able to focus. Likewise, if the lighting is too bright it will bother my eyes and I will not be able to focus. • Articial light can sometimes make it difficult to concentrate in a learning environment. I believe that the bright lighting sometimes causes my eyes to strain and even result in headaches. • The bright light hurts my eyes. • In the morning especially, the brighter the light the more my eyes hurt which makes it harder to pay attention. • The light can be distrscting or hurt eyes • I don’t like having bright lights it just feels sensitive to my eyes • If they are too bright my eyes and head hurt which distracts me • To bright will hurt my eyes • The poor physical condition of my classrooms negatively affect my ability to learn. • Sitting for 1-2 hours in a brightly lit classroom can be tiring for the eyes and classrooms should not have to use all the lights. This wastes energy and light can be obtained from a few lights or windows. • Because of the bright light I tend to get headache and I'll want to close my eye • If its really bright my eyes start to hurt or if its dark i get sleepy. • bright lights give me headaches • Bright lighting sometimes irritate eyes and prevent clear focusing on the board
	Other	• I feel like very bright lights gives you headaches and makes it harder to focus

Impacts a Classroom's Aura	Male	• Lighting impacts the over all feel inside of a classroom , meaning that brighter lights makes me want to learn more • I can focus with dull lights and bright lights it does not affect my focus but it can effect mood so I'm calmer and understand more. • I agree with this question because I feel that bright lighting represents an environment that is focused more on in-depth, active learning and moving around, while dimmer lighting mostly represents note-taking, which can be less interesting than a hands-on learning experience.
	Female	• The bright light in some of my classrooms contributes to a lighter, happier environment which breeds learning. • It will make us happy and we will feel more alive • I prefer natural light rather than artificial lighting because it makes a learning environment more functional
	Other	n/a
Mixed Response	Male	• It's important to have adequate lighting so that I can stay awake and concentrated on my work, but too much fluorescent lighting can give me a headache and cause me to be distracted. • Depends if we were working on paper or using the projector
	Female	• If it's brighter in the room, it helps lessen the chance of a student falling asleep in class, but if it's too bright it might hurt your eyes or give you a headache making it difficult to pay attention • I strongly agree with this statement in the morning but on average at every other time I'm neutral. I feel warmer lighting or other lighting sources would be beneficial though • It gives a more positive atmosphere • Lights that are too bright will strain the students' eyes while a dark room will make students sleep. Therefore, a classroom should be moderately bright. • If the classroom is brightly lit, I believe I am more likely to stay awake during class, but sometimes if it is too bright I may feel agitated and have a headache. • I like it when lights are a bit more dim , and natural sunlight is allowed in. • I think bright lighting does influence my ability to learn. Personally, I think the bright lights of a classroom are distracting. I find that being in an excessively bright classroom, I end up looking more at the lights than I actually do the work. I prefer a much dimmer room that is lit by sun through a window. It is more natural, less intense, and much less distracting. Sporadic lighting around the classroom is also better than just bright lighting shining atop every students head. It feels much more calm and less like what one would believe an asylum to feel like as being in a school, most people feel trapped. Students feeling less pressured and more calm are probably more likely to succeed. • for the people that have glasses dim lighting may affect there learning abilities • i may possibly become tired but it doesn't affect my learning

	Other	n/a
Vague Response	Male	• I find that dimmer lighting helps me focus on lesson better. • W • florescent lights are too artificial • It depends on the situation of the classroom • … • my seat is under a light • I find tinsel distracting • It sometimes makes it easier sometimes harder. • Just cus • more light
	Female	• It impacts my ability to learn because it determines whether or not I'm paying attention to the material presented. • I find that dimmer lighting helps me focus on lesson better. • The only time I like it darker in a classroom is when we are doing something using the pulldown screens. • one light dimmed is best • I cannot focus enough to learn. • cause bright lights help me focus • Previously stated • i need to see • I believe that lights may affect my learning to an extent • The bright lighting inside the classrooms are quite irritating; I'd rather have dimmer lights that are not as harsh.
	Other	n/a