

Perceptions of the Adult Classroom Environment and Motivation to Learn

David B. McLaughlin

University of Central Oklahoma

Abstract

The purpose of this study was to determine whether there is a correlation between the adult classroom environment and motivation to learn. There is much research with regard to the physical and sensory environment and how it relates to learning among K-12 students. Little research exists among adult learners exploring the same relationship. The researcher surveyed adult students among four university classrooms of varying types: an accounting class, a biology class, a computer class, and a political science research class. A convenience sampling of 93 subjects were surveyed to determine their perceptions of the classroom environment and their motivation to learn. Subjects were also surveyed to determine their comfort in relation to room temperature as well as whether they believed the physical classroom environment influenced their academic performance. The research indicates there is a correlation between the physical and sensory elements of the adult classroom environment and motivation to learn. Most students self identified as “comfortable” or “somewhat cold” in relation to room temperature. Most students also reported the physical classroom environment influenced their academic performance. This research can be beneficial for instructors of adults who desire to create an optimal learning environment for their adult learners.

Perceptions of the Adult Classroom and Motivation to Learn

The importance of the learning environment is widely accepted in the field of education. The psychosocial aspects of the learning environment, such as the relationship between instructors and students, is broadly studied and understood. The physical environment and its relationship to learning performance among children and teenagers is a field of study that has been explored (Dockrell & Shield, 2006; Knecht, Nelson, Whitelaw & Feth, 2002; Uline & Tschannen-Moran, 2008; Walinder, Gunnarsson, Runeson & Smedje, 2007). There is a need for more research in the area of adult learners and how the physical environment impacts learning performance and motivation to learn. It was the desire of the researcher to determine what the perceptions of adult students are of the physical and sensory elements in their classrooms and how those elements impact their motivation to learn. Raymond Wlodkowski's Motivational Framework for Culturally Responsive Teaching suggests four conditions to promote motivation to learn among adult learners. One of those conditions is "developing attitude." This condition is when teachers help students create a favorable attitude toward the learning experience (Wlodkowski, 2008). The physical and sensory elements of the learning environment can play an integral part of a students' attitude toward the learning experience.

Statement of Problem and Variables

There are many physical and sensory elements that complete a learning environment. As soon as a student enters a room he or she begins to experience those elements and they affect the attitude the student has about the learning experience. There are also "...a number of studies that demonstrated a relationship between student achievement and building quality, newer buildings, improved lighting, thermal comfort and indoor air quality, as well as specific building features such as science laboratories and libraries" (Uline & Tschannen-Moran, 2008, p. 56). When

students experience stress due to an uncomfortable environment it is likely they will experience a lack of motivation to learn (LePine, LePine & Jackson, 2004). The research question studied was, “Does the physical and sensory environment in a classroom influence the motivation to learn in adult learners?” The continuous independent variable was motivation to learn. The continuous dependent variable was student perceptions of the classroom environment.

Operational Definitions of Significant Terms

Physical and Sensory Environment

Physical and Sensory Environment refers to the temperature, visual, auditory and olfactory sensory elements of the environment as well as the classroom components such as the furniture and design and arrangement of the room. The operational definition of Adult Classroom Environment for this study was measured by the scores on the survey and items related to the physical and sensory characteristics of the current classroom.

Classroom

Classroom refers to any physical area utilized for the purpose of the formalized instruction of students.

Motivation to Learn

Motivation to Learn refers to “...the tendency to find learning activities meaningful and worthwhile and to benefit from them...” (Wlodkowski, 2008, p. 5) The operational definition of Motivation to Learn for this study was measured by the scores on the survey items related to motivation to learn in the current classroom.

Adult Learner

Adults categorized in three groups: younger adults, working-age adults and older adults (ages 18-24, 25-64, and 65 and older, respectively) (Wlodkowski, 2008). These adults are

cognitively and emotionally able to learn and are engaged in the process of learning. The operational definition of Adult Learner for this study was those equal to or older than 18 years of age.

Purpose of the Study

The purpose of education is to transfer knowledge and to allow students to learn. There are many aspects of the learning environment that can promote or prohibit learning. Psychosocial elements that promote and prohibit learning are well documented and continue to be studied. “The learning environment in formal educational settings can be described as the tone, ambience, culture or atmosphere of a classroom or school. It evolves from the relationships between students, and teacher and students, and the types of activities, actions and interactions that are rewarded, encouraged and emphasized in the classroom” (Logan, Crump & Rennie, 2006, p.67). It is reasonable to think the physical and sensory elements would also influence the performance and motivation of learners. While there is research on this topic in the K-12 grade ranges there is a need for more data in regard to adult learners. The purpose of this study was to determine how adult learners perceive the physical and sensory elements of the classroom and whether those perceptions influence the participants’ motivation to learn. The study was based on learning in a traditional classroom environment. The research can be beneficial for instructors of adults who desire to create an optimal intrinsically motivating learning environment for their students.

Review of the Literature

The theoretical framework for this study was based on Raymond Wlodkowski’s Motivational Framework for Culturally Responsive Teaching. One of his four conditions is that of “developing attitude.” The goal is to create a favorable disposition toward the learning

experience through relevance and personal choice. Wlodkowski proposes attitude influences behavior. The learners' attitude impacts their motivation to learn (Wlodkowski, 2008).

The current literature contains a broad spectrum of mostly K-12 related research in regard to the psychosocial elements of the learning environment; that is the emotional and cognitive relationship of the learner in relation to the teacher and other students. The literature also reveals there is an interest for educators to learn more about how the physical and sensory environment influences learning performance and motivation to learn. The link between student performance and building quality is well documented to the extent of researching such elements as "...building age, climate control, indoor air quality, lighting, acoustical control, design classifications, and overall impression" (Uline & Tschannen-Moran, 2008, p. 57).

Anything that creates stress for a student can influence their performance. All stress; however, is not equal. What researchers call hindrance stress is that which prohibits learning or demotivates students; whereas challenge stress can promote learning and motivate students. Educators endeavor to create enough cognitive stress to challenge students toward learning achievement under which circumstances students respond behaviorally. If the stress is too much students respond cognitively in a negative fashion (LePine, LePine & Jackson, 2004). There are factors other than learning performance challenges that can create stress in the learning environment. Some of those include competing physical and sensory stimuli.

One of those stimuli is visual. We generally see the classroom before we experience it with any of our other senses. "It has been said the visual environment affects an individual's ability to perceive visual stimuli and affects both mental attitude and performance" (Veltri, Banning & Davies, 2006, p. 521). Color selections in a room have also been found to affect absenteeism, productivity and morale (Veltri et al.). The ability to see well is impacted by the

design of the room, the furniture arrangement and the lighting. The visual learning environment is also impacted by the teaching methods chosen by the instructor. Preferred learning styles among students are varied. One survey of accounting students showed 49% chose visual learning as their preferred learning style (McVay, Murphy & Yoon, 2006). Students highly value their ability to see important aspects of the room such as the instructor, chalkboards, whiteboards, and projector screens. A student in a community college survey said if she could not see from where she was sitting she did not want to pay attention. Other students in the same survey said low lighting made them lethargic. Some said windows were a distraction that made them want to look outside while others appreciated the natural ambience (Veltri et al.). Visual cues in the environment also influence learners. For example, potential female computer science majors were deterred from that field of study because of stereotypically male visual cues on the walls of the classroom such as *Star Trek* and video game posters (Cheryan, Plaut, Davies & Steele, 2009). These visual cues can be detected by students "...rapidly, even from a cursory glance at a few objects" (Cheryan et al., p. 1046).

Another of the stimuli that impacts learner performance and motivation to learn is room temperature. The behavior of the learner may be influenced by the temperature in the classroom as it can have both emotional and physiological effects. Temperatures above 74 degrees Fahrenheit can adversely affect learning outcomes as can temperatures below optimal levels (Veltri et al., 2006). In the community college survey students complained about rooms that were both too hot and too cold. When windows were opened to cool rooms down students complained the window blinds banged against the walls causing noise distractions (Veltri et al.). Norback and Nordstrom (2008) have demonstrated several temperature related issues in the classroom. The more populated a classroom is, the higher the temperature becomes in a room which may

lead to discomfort as well as the perception of poor air quality. Large windows can also create thermal problems when the temperature outside is high. They also demonstrated room temperature is the highest climate element that caused medical symptoms among students in classrooms. Physical symptoms included eye, nasal, throat and dermal symptoms, breathing difficulties, sinusitis, headaches, tiredness and nausea. Computer classrooms can experience an even greater degree of temperature difficulty because of the heat effect of the equipment.

The auditory component of the learning environment has already been briefly addressed while examining room temperature. Students are distracted when blinds bang against walls as the wind moves them. That is only one of many possible sources of auditory distractions. A fascinating study of ringing cell phones in the classroom artfully illustrates the dangers of such noises. Despite the fact students are familiar with cell phones and ringtones, they found them not only distracting in class but negatively impactful of learning (Shelton, Elliot, Eaves & Exner, 2008). “This finding suggests that the presence of a ringing cell phone in the classroom led to significant disruption in students’ memory for information presented while the cell phone was ringing” (Shelton et al., p. 519). The study also showed the ringing is not only distracting but the events surrounding the ringing, like reaching into a purse or bag to retrieve the phone, are also distracting. If cell phones were the only distraction in the classroom, learners would likely be able to cope. Students in the community college survey listed many annoyances such as the “pop man” who refilled vending machines, construction outside the classroom, the humming of media equipment, pens and pencils dropping on tile, and even wallpaper falling from the wall, as distractions (Veltri et al., 2006).

Maintaining the proper auditory balances in the classroom may not be as easy as it sounds. The key components of hearing include background noise level, reverberation (echo)

time and signal-to-noise ratio (Knecht, Nelson, Whitelaw & Feth, 2002) defined as “the difference between the signal (in this case, speech) and background noise in a room” (Dockrell & Shield, 2006, p. 510). Sounds are reflected off surfaces inside a room such as “...walls, ceiling, floor, tables and whiteboards” (Dockrell & Shield, p. 510). When unwanted sound, called noise, is created students experience physiological responses associated with stress (Walinder, Gunnarsson, Runeson & Smedje, 2007).

The layout of room design is another physical element integral to student learning. “Sociologists began to study the influence of spatial heterogeneity in educational settings decades ago; recognizing student learning may be influenced by an individual’s location within a class, by the students around him or her, or by other physical characteristics of the classroom” (Espey, 2008, p. 764). How the room is arranged determines what type of learning activities the participants are able to engage in. Flexibility in the classroom is the key component to a successful learning environment. Teachers have different teaching styles and students have different learning styles. Modern classrooms must have flexible design capabilities (Veltri et al.). Two difficulties in achieving this flexibility are the facts a) that many classrooms in universities are located in old buildings that were not designed to accommodate modern furniture and amenities (McVay et al., 2006); and b) budgets often do not allow for complete renovations so they must occur in phases which leave the learning environment less than optimal (Hill & Epps, 2010). The more open the floor plan, the more labor required to rearrange the space for different users (Bradley & Postlethwaite, 2003).

Poor classroom design has accounted for as much as 10-25% of decline in student performance (Rudolf & Griffiths, 2009). When students in the community college survey were allowed to create “wish drawings” of what they wished for in the ultimate classroom, two

common themes were rooms that allowed for line of sight to the instructor and for flexible arrangements that would allow for interaction (Veltri et al.). Furniture in a classroom should be ergonomically suitable. “Being a student can be looked at as a person’s occupation so the classroom becomes the workplace and can be assessed for ergonomics and Americans with Disabilities Act ADA Guidelines” (Rudolf & Griffiths, p.475). Although budgets are unlikely to be available, ideally furniture would be available to accommodate students of various body sizes in order to suit proper posture (Rudolf & Griffiths). In short, “Uncomfortable room temperatures, uncomfortable chairs, ergonomically incorrect furniture, and poor aesthetics and lighting create student uneasiness and a feeling of helplessness” (Veltri et al., p.518). One study even shows that “more comfortable desks and chairs, tiered seating, and lighting are more important to students than computing equipment in classrooms” (Hill & Epps, p. 77). Even the design of how students flow through the hallways of a building makes a difference in the climate of the learning environment. When students violate each others’ personal space their stress is increased (Uline & Tschannen-Moran, 2008).

An element of the physical and sensory classroom environment often not thought about is the olfactory environment. The smell of the classroom can be neutral, pleasant or offensive. Many things can contribute to the odor of a classroom such as the perfume or cologne of the students, the hygiene of the teacher, or the location or purpose of the room. Many classrooms are located near kitchens, cafeterias, metal shops, science labs or swimming pools for example. Ventilation has also been found to be insufficient in many buildings which can contribute to airborne contaminants polluting adjacent rooms (Godwin & Batterman, 2006).

Hypothesis

The hypothesis for this study was: There is a relationship between the perceptions of the adult classroom environment and motivation to learn. It is unlikely that students are attending classes in rooms that are completely unacceptable. It is likely the potential of hindrance stress created by the elements of the environment unsatisfactory to students decreases their motivation to learn. The null hypothesis was: There is no relationship between the perceptions of the adult classroom environment and motivation to learn.

Method

Participants

The population for this study was adult learners enrolled in the University of Central Oklahoma. The voluntary participants were recruited from four classes selected from different buildings on campus. No control group was needed for this research.

Research Design

A convenience sampling was used. The sample size was 93 subjects. The research study was based on a descriptive study design. There were no associated risks or direct benefits for the subjects who participated in this research study.

Instrument

A two-part survey was designed to collect demographic information, the adult students' perceptions of their physical and sensory classroom environments, and how their environment influences their motivation to learn. The survey was based on a Likert-Scale with responses ranging from 1= Strongly Disagree to 6= Strongly Agree to test student perceptions of the environment and motivation to learn. The survey used for this study was created by the

researcher as no similar scale could be identified among the literature. A copy of the survey instrument is included in Appendix A.

Data Analysis

SPSS 18 was utilized to analyze the data for correlations between student perceptions of the classroom environment and motivation to learn using a Pearson r Test as well as calculating mean, median, mode, standard deviation and frequency of the data and for graphing and charting purposes. Quantitative information was collected from the surveys. Qualitative information was also extracted from the surveys through open response questions. These responses were analyzed for patterns and themes.

Ethics and Human Relations

All participants in this study were 18 years of age or older and had the choice to participate of their own free will. All were notified that participation in this study was completely voluntary. There was no coercion or incentives used to sway anyone into participating. Each subject was given an Informed Consent Form notifying them of their rights and the confidentiality of their participation. Participants were notified their responses will be held with the utmost confidentiality and will in no way affect them academically. Informed consent forms and survey instruments will be kept separately in a locked cabinet to keep the participants' information secure. No data was collected electronically. The researcher obtained IRB approval for this study to protect human subjects. Investigators obtained PHRP certificates.

Results

In eight out of ten categories there were moderate correlations found between the classroom environment and motivation to learn. In two categories there were low correlations. Table 1 shows the Pearson correlations for the categories of the learner perceptions of the overall

classroom, ability to hear, comfortable temperature, adequate lighting, non-offensive smell, ability to see, comfortable furniture, arrangement of seating, noises from inside the room, and noises from outside the room with how each of those elements of the classroom motivates the subject to learn. Only lighting and smell had low correlations of .242 and .266 respectively. All other correlations were moderate as they were between .456 (furniture) and .604 (hearing). The ability to hear (.604), noises inside the room (.619), and noises outside the room (.553) were the three highest correlations indicating the ability to hear is extremely important to adult learners. Other than the overall correlation, the next highest correlation was the ability to see (.494). These results correspond to what subjects wrote in the qualitative section of the survey as what was most important to them and most frustrating to them. The qualitative responses are included in Appendix B.

Table 1. Summary of Correlations Between Classroom Environment Factors and Motivation to Learn

	Overall	Hearing	Temperature	Lighting	Smell
Pearson Correlation	.497**	.604**	.502**	.242*	.266**
Sig. (2-tailed)	0.000	0.000	0.000	0.020	0.010
N	93	93	90	93	93

	Seeing	Furniture	Arrangement	Inside Noises	Outside Noises
Pearson Correlation	.494**	.456**	.491**	.619**	.553**
Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000
N	93	92	93	93	93

Subjects were asked to guess the temperature in each of the four classrooms: an accounting class, biology class, computer class, and political science research class. The actual temperature was taken with a digital thermometer. In every class the average guess was lower than the actual room temperature by a range of 1.37 to 4.33 degrees Fahrenheit. Table 2 shows the actual temperature as well as the average guess, the difference, mean, median, mode, and standard deviation for each class. Table 3 illustrates the responses of subjects to their opinion of

the temperature in the classroom ranging from very cold, somewhat cold, comfortable, somewhat warm, to very warm. 51.6% were comfortable while another 22.6% were somewhat cold.

Table 2. Classroom Temperature

Class	Actual	Students' Guessed Answers				
		Difference	Mean	Median	Mode	Stand Dev
Accounting	73.90	-2.29	71.61	72.00	70.00	2.76
Biology	72.20	-4.33	67.88	68.50	68.00	9.59
Computer	76.40	-1.37	75.03	75.50	70.00	3.80
Research-PoliSci	74.10	-1.73	72.37	72.00	70.00	5.25

Table 3. Classroom temperature comfort

In your opinion, the temperature in this room is:

	Frequency	Percent	Valid Percent	Cumulative Percent
very cold	12	12.9	12.9	12.9
somewhat cold	21	22.6	22.6	35.5
comfortable	48	51.6	51.6	87.1
somewhat warm	11	11.8	11.8	98.9
very warm	1	1.1	1.1	100.0
Total	93	100.0	100.0	

Subjects were also asked to rank to what degree they believed the physical classroom environment affects their academic performance on a scale from 1-10 (1=none, 10=very much). Responses resulted in a median and mode of 7 and a mean of 6.8.

Conclusion

The null hypothesis was rejected. There was a relationship found between the perceptions of the adult classroom environment and motivation to learn among the subjects of the research.

There was a moderate correlation found in eight out of ten categories linking the adult classroom environment to motivation to learn. The other two categories were found to have low correlations. All correlations were positive.

Limitations of the research included a limited number of classrooms surveyed, the research was limited to a university setting, and the survey was limited to self-reported perceptions. Future research in this area would benefit from studying the corporate environment as well as studying actual learning performance as opposed to learner perceptions of motivation to learn and perceptions of academic performance.

This research is beneficial for all instructors who desire to create an optimal learning environment. More knowledge with regard to what influences learner motivation and performance can help building designers and educators create better opportunities for learners.

References

- Bradley, P., & Postlethwaite, K. (2003). Setting up a clinical skills learning facility. *Medical Education, 37*, 6-13.
- Cheryan, S., Plaut, V., Davies, P., & Steele, C. (2009). Ambient Belonging: How stereotypical cues impact gender participation in computer science. *Journal of Personality and Social Psychology, 97*(6), 1045-1060. doi: 10.1037/a0016239
- Dockrell, J., & Shield, B. (2006). Acoustical barriers in classrooms: The impact of noise on performance in the classroom. *British Educational Research Journal, 32*(3), 509-525. doi: 10.1080/01411920600635494
- Espey, M., (2008). Does space matter? Classroom design and team-based learning. *Review of Agricultural Economics, 30*(4), 764-775. doi: 10.1111/j.1467-9353.2008.00445.x
- Godwin, C., & Batterman, S. (2006). Indoor air quality in Michigan schools. *Indoor Air, 17*, 109-121. doi: 10.1111/j.1600-0668.2006.00459.x
- Hill, M., & Epps, K. (2010). The impact of physical classroom environment on student satisfaction and student evaluation of teaching in the university environment. *Academy of Educational Leadership Journal, 14*(10), 65-79.
- Knecht, H., Nelson, P., Whitelaw, G., & Feth, L. (2002). Background noise levels and reverberation times in unoccupied classrooms: Predictions and measurements. *American Journal of Audiology, 11*, 65-71.
- LePine, J., LePine, M., & Jackson, C., (2004). Challenge and hindrance stress: Relationships with exhaustion, motivation to learn, and learning performance. *Journal of Applied Psychology, 89*(5), 883-891. doi: 10.1037/0021-9010.89.5.883

- Logan, K., Crump, B., & Rennie, L. (2006). Measuring the computer classroom environment: Lessons learned from using a new instrument. *Learning Environment Research, 9*, 67-93. doi: 10.1007/s10984-005-9004-2
- McVay, G., Murphy, P., & Yoon, S. (2008). Good practices in accounting education: Classroom configuration and technological tools for enhancing the learning environment. *Accounting Education: An International Journal, 17*(1), 41-63. doi: 10.1080/09639280600843369
- Norback, D., & Nordstrom, K. (2008). Sick building syndrome in relation to air exchange rate, CO₂, room temperature and relative air humidity in university computer classrooms: An experimental study. *International Archives of Occupational and Environmental Health, 82*, 21-30. doi: 10.1007/s00420-008-0301-9
- Rudolf, M., & Griffiths, Y., (2009). Evaluating the ergonomics of a student learning environment. *IOS Press, 2009* (March), 475-480. doi: 10.3233.WOR-2009-0948
- Shelton, J., Elliot, E., Eaves, S., & Exner, A. (2008). The distracting effects of a ringing cell phone: An investigation of the laboratory and the classroom setting. *Journal of Environmental Psychology, 29* (2009), 513-521. doi: 10.1016/j.jenvp.2009.03.001
- Uline, C., & Tschannen-Moran, M., (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational Administration, 46*(1), 55-73. doi: 10.1108/09578230810849817
- Veltri, S., Banning, J., & Davies, T., (2006). The community college classroom environment: Student perceptions. *College Student Journal 40*(3), 517-527.

Walinder, R., Gunnarsson, K., Runeson, R., & Smedje, G. (2007). Physiological and psychological stress reactions in relation to classroom noise. *Scandinavian Journal of Work, Environment and Health*, 33(4), 260-266.

Wlodkowski, R. (2008). *Enhancing adult motivation to learn: a comprehensive guide for teaching all adults* (3rd ed.). San Francisco, CA: Jossey-Bass.

Appendix A

Survey Instrument

Please complete the following questions:

Gender: Male Female Age: _____

Ethnicity: African American/Black American Indian Asian Pacific Islander
 Caucasian/White Hispanic Other _____

Classification: Freshman Sophomore Junior Senior Graduate

Classroom Environment Scale

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

Please rank your personal experiences of the classroom you are **currently in**:

Overall, this is a good classroom.	1	2	3	4	5	6
I am able to hear in this classroom.	1	2	3	4	5	6
The temperature is comfortable in this classroom.	1	2	3	4	5	6
The lighting is adequate in this classroom.	1	2	3	4	5	6
The smell is non-offensive in this classroom.	1	2	3	4	5	6
I am able to see everything I need to in this classroom.	1	2	3	4	5	6
The furniture is comfortable in this classroom.	1	2	3	4	5	6
The arrangement of seating is appropriate in this classroom.	1	2	3	4	5	6
The noises from inside this room do not distract me.	1	2	3	4	5	6
The noises from outside this room do not distract me.	1	2	3	4	5	6

Please answer the following questions thinking about how **this classroom** influences your motivation to learn.

Overall, this classroom motivates me to learn.	1	2	3	4	5	6
My ability to hear what I need to in this room motivates me to learn.	1	2	3	4	5	6
The temperature in this room motivates me to learn.	1	2	3	4	5	6
The lighting in this room motivates me to learn.	1	2	3	4	5	6
The smells in this room motivate me to learn.	1	2	3	4	5	6
My ability to see what I need to in this room motivate me to learn.	1	2	3	4	5	6
The comfort of the furniture in this room motivates me to learn.	1	2	3	4	5	6
The arrangement of seating in this room motivates me to learn.	1	2	3	4	5	6
The noises from inside this room motivate me to learn.	1	2	3	4	5	6
The noises from outside this room motivate me to learn.	1	2	3	4	5	6

Please answer questions on next page.

Please guess the current temperature in this room: _____ degrees Fahrenheit

In your opinion, the temperature in this room is:

____ very cold ____ somewhat cold ____ comfortable ____ somewhat warm ____ very warm

Please circle the number on the range below which best describes how much the physical classroom environment affects your academic performance:

None 1 2 3 4 5 6 7 8 9 10 **Very Much**

Please describe what physical or sensory element of a classroom is most important to you: _____

Please describe what distractions or discomforts in the classroom are most frustrating to you: _____

Appendix B

Qualitative Responses

Please describe what physical or sensory element of a classroom is most important to you:

01. Comfort. Quiet. Atmosphere.
02. Sound. I take a lot of notes. If I can't hear what is being said I cannot learn.
03. The more important elements to me is being able to (see) the projector and hearing Dr. XXXXXXXX.
04. Desks that are big enough, such as the ones in this class.
05. I like for the room to be at a comfortable temperature and the air is so loud where I can barely hear my professor.
06. Being able to see what the teacher is teaching.
07. Temperature/comfort. If I'm not comfortable in class then all I can think about is what time I can leave.
08. The furniture and temperature.
09. Usually I like to feel comfortable in a classroom, in this class the temperature highly affects my attention. Most teachers think if its cold we will stay awake, either way if a student is tired their going to sleep so lower the temperature please!!!
10. The temperature is freezing!
11. Being able to see and hear about the notes.
12. It is important that I can hear the lecture, and able to see the board clearly.
13. Furniture comfort and room temperature
14. The temperature and the ability to hear the professor
15. I can see the projector screen
16. Comfortable temperature and a quiet atmosphere.
17. The temperature is most important. Too cold or too hot can be very distracting. Also, no loud appliances.
18. Temperature of the room and ability to see and hear.
19. (blank)
20. Being able to see the notes in the corner of the classroom.
21. Being able to stay awake.
22. A comfortable temperature and good seating is where I can see the board.
23. Fresh scent and being able to hear the teacher!
24. Temperature and smells
25. Never hear the noises
26. An engaging professor
27. The temperature. Almost every classroom I sit in is freezing. It makes sitting in the classroom during lecture extremely uncomfortable.
28. Presentation of the front of the classroom. The teacher is what you should be paying attention to.
29. Seeing what the Professor is teaching, working through the problems and listening, so that you get three different prospective to learn.
30. Ability to see and hear the instructor clearly.
31. (blank)
32. Being able to see the teachers illustration on the projector and being able to hear him explain.
33. Noise volume
34. (blank)

35. (blank)
36. Seeing what is being taught
37. Temperature
38. Comfortable seating, easy to discuss thing with peers
39. (blank)
40. Being able to see the board
41. Noises must not be distracting, for example people loudly tapping on calculators, or people talking
42. Ability to hear
43. Temp and Visual and Noise Level
44. Being able to see the front of classroom and also being able to hear clearly.
45. (blank)
46. Visual learning
47. (blank)
48. Comfort of chairs, adequate room for books and writing
49. Seeing the powerpoints and writings on the projections screen clearly.
50. Vision, being able to see what is written down on projector/dry erase board
51. The ability to see and hear clearly.
52. Seating. I like these tables and chairs. I hate math chairs and desks. There should be 2 screens in this classroom
53. Seeing the problems worked
54. Noise, temperature, smell/odor
55. Visual
56. The temperature is most important to me
57. The lighting is most important. After working all day, if the lights are too dim it makes me tired and I don't pay close attention.
58. Having a computer in the classroom is nice.
59. To here the prof.
60. The lighting in a room changes the whole mood of a room. The more comfortable the room and welcoming I think the more students want to learn
61. Physical aspect – Room to use my laptop and write. Ability to see the projector. Lack of sensory – not any distracting noises from equipment or outside chatter.
62. The furniture. Separate chairs and desks are good. Personal space is great. An appropriate room temperature is best.
63. See and hear instructor/ what they say and write on the board
64. Being able to see the board clearly, or else to have the board broadcast. The current broadcasting software, however, is incredibly buggy
65. Comfortable chairs and technology presence
66. Silence is key to learning
67. Ability to see/hear all presented material.
68. The SMART board/chalkboard
69. Being able to see the teacher
70. Noise level, distractions, temperature, furniture, the importance descends in that order.
71. The most important element of this room for me is the board. I want to see it all clearly.
72. Temperature, some days colder than usual
73. The arrangement of the tables and chairs in reference to the prompter

74. Temperature too cold and I want to sleep too hot and my discomfort is all I can think about
75. There are no physical or sensory elements in this classroom that is important to me.
76. Well lit, able to see all information, comfortable seats
77. Attractive co-eds
78. The temperature. If I am too cold, I don't focus. The classrooms are always at a good temperature.
79. Good lighting, large whiteboard/chalkboard, good projector
80. Be able to hear the professor, comfortable temperature, and keep outside noises limited.
81. I cannot listen often because of my poor English in addition a little noise.
82. Bright and darkness of lights
83. Being able to see; temperature being comfortable.
84. Temperature and outside noise
85. Neutral or warm lighting. Low outside noise. No uncomfortable seating.
86. Being able to see the front.
87. The comfort and design of the seats. Also, the arrangement of the seats.
88. The element to which the teacher/lecturer brings to the classroom. [Mood]
89. I need to be able to hear to learn and because it is math I need to see.
90. Temperature and furniture
91. Seeing/hearing professor
92. Comfortable seating is the most important element of a classroom.
93. I feel that this room is not judgemental. There doesn't seem to be anything overtly negative or threatening.

Please describe what distractions or discomforts in the classroom are most frustrating to you:

01. Air conditioner noise. Extremely cold temperature. Leaking air conditioner. Outside noise.
02. People whispering around me. And if the room is really cold it can get hard to concentrate.
03. The distractions that are most frustrating are not being able to hear Dr. XXXXX over the A.C. and having to strain to see the screen. Discomforts-being ice cold in class.
04. It's always so freakin cold. Except for today, of course.
05. Loud trucks outside the windows. The air blowing so loudly.
06. Not being able to hear or see.
07. Comfort, seating arrangement. In this room I'm not comfortable and it's hard to see the material on the projector because it's so low it makes people be in the way.
08. The desk is too small and uncomfortable and the temperature is too low most of the time.
09. The temperature and how noisy it can be at times.
10. The temperature is freezing!
11. Typing on laptops, the room temperature (too cold)
12. The temperature is cold, the A/C unit is very loud, and the furniture is very uncomfortable.

13. The air conditioner is so loud and outside noises are distracting. The room temp, is usually uncomfortably cold.
14. The temperature it is always freezing and all the noise.
15. This classroom is very cold and noisy. I cannot hear the professor most of the time.
16. The heat and air system is very loud, the atmosphere is humid, everything feels sticky.
17. The loud noise coming out of the air conditioner in the back.
18. Temperature of the room.
19. (blank)
20. The temperature is too cold and the noises of the trucks outside are both really annoying.
21. I can't see. And the teacher doesn't talk loud enough. He does all his teaching over a slide show and expects us to stay awake with the lights off for 2 hours. That's a good nap time for me.
22. Way too cold in here and I usually can't see the board, but I am in the back.
23. The air vent in the back of the room; the location of the door bc people coming in late is distracting
24. When it smells bad it makes it extremely hard to focus on the lessons because it makes me sick.
25. Noises
26. A room too cold and an unmotivated professor
27. If I'm sitting behind someone or closer to the back of the classroom, I can't see the bottom of the projector screen.
28. Thin walls. Ability to hear in the hallway. I do sit by the wall however.
29. None.
30. The music playing in the parking lot and construction noises.
31. 3 people to a table is too couped. Temp is too up or down usually.
32. Sitting by the window – I can hear music, or sports practices that sometimes distract me from learning.
33. Outside noise volume
34. (blank)
35. People talking, opening food packages, typing on laptops
36. Large, tall people blocking the board; outside/hall noises
37. In other classrooms, nearest the outer wall of the buildings are hot in the summer making it difficult to concentrate. I get pissy when its hot.
38. Chairs are not very comfortable, sometimes it is too cold, too many outside noises.
39. (blank)
40. Seating and outside noise
41. Same as above
42. Cold temperatures, uncomfortable furniture, or loud external events
43. Too cold and when elmo is used hard to see in back of class.
44. Temperature – but I'm always cold.
45. The noise outside the classroom
46. Chair could be more comfortable. Less outside noises.
47. (blank)
48. Sometimes its too cold, makes me sleepy
49. Tempature – too cold – very uncomfortable
50. Noise, temperature, unable to see the board/projector

51. Not being able to see or hear.
52. The outside noises and in the hall noises
53. Talking around me
54. Noise (background), high temp (too hot), bad odor/smell
55. Noises from outside the classroom. Inside – cell phones, tapping, gum smacking
56. The outside noise from the mall are most frustrating
57. Noises outside are distracting. Also the projector clicks when its on so I breaks my concentration during quizzes.
58. The chairs are not that great. Also the lighting kinda stinks. Overall I think they need to bulldoze over this building and build a facility that is more up to date. With the advent of CS students, Math students, and Engineering students the building needs to be bigger.
59. Noises
60. (blank)
61. Physical – at times, the monitors (the ones on the desks) impede my vision of the whiteboard.
62. No personal space in other classes. High humidity.
63. Other students doing things unrelated to class. Web surfing, phones, etc
64. Computer science classes with no computers to work from OR very old computers that are so slow as to be unusable (quite common in our department)
65. If it is very cold or if my butt is complaining. Nothing physical about the room is that frustrating, simply ignorant people.
66. None
67. Talking in hallways. Extreme hot and cold temperatures.
68. None really to speak of.
69. Not being able to see teacher through monitors
70. Temperature, and the fact that we are being experimented on
71. The white board when the marker is out of ink or if the broadcasting is too slow.
72. The mirror than smartboard to computers needs to be updated or need new computers
73. Outside noise
74. Uncomfortable seats and extreme temperatures.
75. The distractions in the classroom tend to be the temperature.
76. Noise outside, cold classroom, hard, uncomfortable seats
77. Yellow paint
78. Outside noises of people talking loudly.
79. Uncomfortable furniture, loud noises from the hallway
80. Noises from outside the classroom.
81. Listening of lecture.
82. Solid surpaxe of chairs cause me to frustrate
83. Glares from windows and lights on board; being unable to see the computer pages being cast on the board. Being far too dark when lights are off to compensate for the glare.
84. Temperature and outside noise
85. Uncomfortable seating. High noise
86. Uncomfortable chairs. It feels like high school sometimes.
87. I do not enjoy learning in these uncomfortable chairs.
88. The seats are extremely uncomfortable and the hallway noise is extremely distracting.
89. When it's cold. When it is dark outside. When I can't see.

90. Temperature
91. Uncomfortable seating
92. Being able to look out the window distracts me.
93. Being unable to see videos or writings on the board because of the seating arrangement.