**Author:**

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**Title:**

Experience of Students in Online Courses v. Students in Lecture Courses

**About the Author:**

I am a junior in chemistry. Having participated in the University of Illinois McNair Scholar Program over this summer my interest in research has increased. I plan to focus my current project on the experiences that students are receiving in an online chemistry class and in a traditional lecture setting.

**Keywords:**

online class, technology

**Abstract:**

My research project investigates the experience of students who are enrolled in online courses, specifically Organic Chemistry II and their experiences in Organic Chemistry I compared to those they are now having. The sample was composed of seven men, four whites and three blacks. One was a professor and the six students ages ranged from 20 to 22 years of age. The participants were interviewed and were asked to give their opinion about the format of Organic Chemistry II. The results indicted that race did not play a factor in which format was preferred by the subjects,  the majority of whom liked the online format.  Their  biggest complaint concerned the exam format. These findings could be used to find a balance that will be acceptable to faculty, but will enable students to effectively learn in different environments.

**Initial Exercises:**

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Assignment 1

I have always imagined the University as an institution where I could come and get a good education, meet new people, have an all around experience that will make me a well-rounded person that will eventually contribute to society in some shape or form. I also held the university on a pedestal because of the all the contributions that have been made by people who attended the university or taught there. I think I got this impression about the university due to the pamphlets that were mailed to me when I was applying, magazines and newspapers that glorified higher institutions, the media which bombarded me with images of happy students and professors that got along great and enjoyed being at the university. Another factor that shaped my belief of the university were people that attended a university, adults who influenced me and society that told me that I had to go to a university after high school or else I would not be able to succeed in life.

As of now I still believe that the university has a lot of opportunities and resources for its students, the highly ranked professors that are contributing a great deal to our society and some students that are happy like in the images that were mailed to me in the past. I no longer place the university on a pedestal that I once did when I was younger, naive and did not have any experience or contact with the university. Now that I am part of the university, I believe that there is still a long way for university to go in order for those pamphlets and media images to ring somewhat true on many campuses around the nation. One of the things that I believe needs improvement is the way students are "weeded" out of some classes in order to be left with students who are willing to do anything in order to get a good, but not necessary interested in the related field being studied. After being part of the university I feel that I belong in a larger scheme of things than just the university, I am part of a tradition that has been around for many years and one that will continue. I also have learned that I am not just here to get an education and succeed in life but to also leave footprints that will help others that come after me notice the different possibilities and opportunities that are there if they are willing to put in the time and effort.

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Assignment #2: Group Assignment ( Dinner Preparation)

Within the home, a kitchen is often where the production of food takes place. Yet, a kitchen is also often referred to as a woman's domain within the home. Thus, it can serve as a room that provides a kind of safe haven and warming environment for women to dwell in. Furthermore, a kitchen can also serve as a room for discussing and conversing about important issues, or even a room to fill with giggles, rumors, and gossiping. So, the meaning that a kitchen can provide includes different functions for different members and individuals who enter into it.

A function that we found particularly emphasized in the kitchen was that of a room in which conversing easily could occur. Naturally, working with someone else to accomplish a task, such as cooking dinner, would entail that you would have to speak to one another on a consistent basis. One would need to discuss with the other about how to prepare the food—what ingredients would go into the meal, the correct seasonings, the correct amount, how long the duration of the preparation would take, etc. However, whatever else the preparers discuss with each other would seem irrelevant to the preparation of the meal. Yet, conversing naturally during the preparation of a meal could very well become an important element in revealing how interactions fit into and influence the preparation of a meal. So, we turn our attention to the preparation of a meal.

Upon arriving at the apartment, it was instantly apparent that the girls were very friendly and enjoyed having each other for company. Furthermore, it also became evident that the roommates had wonderful, communicative relationships as well due to the ease with which they conversed with one another. While dinner was being prepared, one of the girls in particular, M seemed extremely talkative to her roommate D. She was keen on doing majority of the talking while D nodded, smiled, giggled, and occasionally responded verbally. Conversing throughout the dinner became a prevalent tool to pass the time in between adding spices, large amounts of salt, tomato paste, and constant stirring. Conversation also became vital when preparing the dish, Spanish soup. M early on became the dominant cook in the kitchen. M, acting as the mother figure, guided D in the preparation of the soup. D would look to M when deciding what to put into the soup, how long to cook it, and when to stir it. It was very reminiscent of a family atmosphere in which a daughter is taught and given instructions by her mother. Even though M was clearly more comfortable and aware in the kitchen, she did not dominant D to the extent that we felt that she was belittling her in anyway or causing her to feel inferior. The ease with which they conversed and their close proximity to one another in the kitchen proved otherwise; that the girls were in fact equals, but that one was just more experienced and talkative than the other.

It was further evident that D and M were equals due to the sharing of duties in the preparation. M would stir the pot of soup at one time, and D would soon take over stirring while M opened the tomato paste can. At one time during the preparation, M struggled to open a can of tomato paste. D stopped stirring the pot and came over to assist M in opening the tomato paste can and also poured it into the pot. This was a prevalent occurrence during the preparation—the alteration of cooking duties. Though, it was also clear that D would often seek M's approval whenever checking the soup over the course of the preparation. Therefore, the tool of communication was extremely vital in transferring duties and checking on the progress of the meal. Communication was also a source of enjoyment among the roomies. Most of the conversation between D and M was focused very little on the meal, but rather on personal issues regarding school, friends here and back home, and the problems they were encountering with one of their roommates. One such conversation went as follows:

D: I hope Sandy doesn't do anything for her birthday so that I don't have to go home.

M: I'm going home on the 4th and 18th.

D: I'm going home on the 4th.

We could sense the closeness and bond of the D and M even further as their conversation drew to an end upon our departure:

M: Supposedly my brother is being faithful. D's weird ass dreams.

D: (Looks at D) Tell them.

M: I dreamed my brother got married.

D: That's weird.

M: No, that's random. It's done.

D: We're done. I'm super tired.

It was interesting how deep and involved D and M became in their conversation while preparing the meal. They would rarely navigate around the open kitchen area; rather, they remained quite stationary in front of the stove. More often than not they would face each, multi-tasking in that they gave each other as much or sometimes even more attention than the soup. In this respect, cooking became a relevant way of speaking to one another directly. Even further, while waiting for the soup, both girls relaxed on the same sofa chair that easily could not seat them both, but yet become another symbol of their closeness and ease of being in each other's presence. Only once did D and M sit separately in the living space. D got tired off sitting obviously uncomfortably, due to her constant shuffling and moving, on the sofa arm and once M got up to stir the soup and breathe in fresh air from the balcony, D sat on the sofa chair cushion and M sat on a nearby stool. Though there was brief separation between D and M, nevertheless their conversation never broke off and continued throughout their wait for the soup to cook thoroughly. It was clear that the use of communication became an essential element in the preparation of the meal. It was not only essential in initiating the preparation and continuing the cooking process, but it was also essential in that it relaxed both D and M, and thus allowed them to enjoy the process of preparing and cooking the meal.

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Assignment # 5

The University narrative that I decided to analyze is the undergraduate program in chemistry. When one first comes to the page there is a slide show of students and teachers interacting with one another and at the end showing a sky view of the quad, with a banner underneath it that says "Start Your Future At Illinois". Making this the first thing that a person sees when they arrive at the page seems that the university wants people to know that they are interested in diversity and want to promote a learning environment. Here, I feel that having students come to the university for the chemistry program is very important for them for many reasons such as creating diversity and increasing he number s students in the field. The first paragraph gives an overview on how the program ranks to other chemistry program in the nation by stating that it "ranks among the top five programs in the USA in the number of total majors and in the number of ACS-approved students who graduate in a given year. Our program is widely recognized by employers and graduate schools as one of the strongest in the U.S." This allows future students to view the numerous possibilities that they will have after receiving a degree from the university. After giving a brief summary of what a degree from the university can offer, it than focuses on the two different chemistry curriculum that one can choose from. The first one is a Specialized Curriculum which is a rigorous and intense program endorsed by the American Chemical Society, this degree is for people who are interesting in going to graduate school or becoming professional chemists. The next curriculum is the Science and Letters Curriculum which are for people who are interested in going to a professional field. There is also the Environmental Chemistry Option and the Chemistry Teacher Training program. These two curriculums and other options tells a story that the university has a program for everyone's wants and needs and is willing to compromise to make each student happy, which I doubt happens.

After giving an overview of the programs that are offered out of classroom opportunities to work "with the world-class chemists on our faculty, often leading to publications." This gives an incentive for a student to participate in research so that they will have the opportunity to be published which will open many doors for them. The problem that arises is that it does not go into detail about how one can pursue these opportunities at the university. The webpage concludes with how the university "has a long tradition of excellence in chemical education". The webpage assumes that there definition of success is everyone's, but it does not give a

concrete definition of what they mean by that word. The webpage has an appeal for people who are interested in chemistry or chemistry related studies that gives a welcoming feel to anyone who would like to pursue a degree at the university. I do not believe that the undergraduate program webpage does an adequate job about telling their stories such as the past and the future. They are mainly focused on the present and do not give enough information to a prospective who want to know more abut how and why many of these curriculum and options were created.

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Short Assignment # 4

The archives that I choose were two picture, the first picture is of two women working in a chemistry lab and the second picture is of Noyes laboratory. I choose these two pictures because I could relate to it since I am always in lab. It gave me a perspective on how the labs looked and the types of equipment that they had available to them. This picture was taken in 1948. There is not a lot of information on these two women that are working in the lab. This picture tells me that even in 1948 women were giving the opportunities to conduct scientific experiments in the chemical field.

I think that we have come a long way as a university from only having white males, than white females to now allowing everyone who is interested in doing experiments and research. Before I came to the university I did not know what to expect but I ah an idea of what I wanted to do because of my high school studies. I started off as a biology major and after many roller coaster rides with biology, I decided to switch to chemistry. Being able to work in a state of the art lab and facilities is a privilege that many people do not get. Looking at this picture reminds me of all the times that I was in a lab and complained about how boring, long, tedious and hard it was and how I could be spending my time doing something else at eight o'clock in the morning. On the other hand these women do not seem as if they do not want to be there or they were forced to conduct experiments, guess since there were not a lot of opportunities for women during the 1940s these women with other took all the opportunities that they were given. I now look at these pictures and reflect on how I blew everything out of proportional and did not realize how lucky I was to be able to conduct experiments that seemed trivial such as dissolving pop rocks and collecting the carbon dioxide from them or extracting a compound from three different compounds. Even though it would take all day, it was worth it.

The second picture that I chose was of Noyes laboratory with equipment which is circa 1927. Looking at the picture and the laboratory that I have been and worked in it is completely different. This laboratory has many equipment that I might have seen but have not had the opportunity to use. The laboratory is very bland and is difficult to tell exactly the type of equipment that they have stored in there since the picture is in black and white. Comparing Noyes laboratory circa to Noyes today is a transformation. Noyes today has more laboratories and equipments even though the picture only shows one laboratory in the building. I picked this picture because it was where I am when I am not in class or doing something else with the limited free time that I have.

These two picture brings me back to a time that I did not exists ad gives me an idea of how the chemistry laboratories worked and who were involved in experiments. Even though I did not find a picture of a minority in a lab, I at least found pictures of women working in a lab and conducting experiments instead of being secretaries. This makes me proud that the university back then where interested in allowing females into the laboratories, if they did not than I do not think that I would have had the opportunities to work at a lab since I am a minority and a woman. The archives gives us the opportunity to travel to the past and look at places, events and things that we currently have so that we can compare and contrast the progress that we have made along the way and the progress that we will continue to make.

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Assignment # 6

The narrative that I choose to write about was the University of Illinois Extension. The University of Illinois Extension claims that they are an "University of Illinois Extension is the flagship outreach effort of the University of Illinois at Urbana-Champaign, offering educational programs to residents of all of Illinois' 102 counties – and far beyond." Honestly, I have never heard of this group until I decided to write about it. As I continue to read through the website I realize that the Extension program is through the college of ACES, no wonder I have never heard anything about them. If they claim that there goal is to help everyone in all counties of Illinois, I think that it would be wise for them to advertise it on the main page of the university's website instead of a specific college in which many people do not explore the website. Their idea of giving back to the community by making sure that the adults as well as the children are being educated is a very noble cause but my problem with it is if the majority of people do not know about the programs that the offer in "healthy society, food security and safety, environmental stewardship,sustainable and profitable food production and marketing systems,enhancing youth, family and community well-being" how can they take advantage and use of it. They claim that their website draws in over 10 million page views every year, how do we now if the viewers were interested in their causes, passed the information along to other people or if the accidently came to the webpage. If the University of Illinois Extension wants more people to benefit from their efforts they have to find a better way t advertise their organizations. I cannot relate to this narrative and it does not connect to my Illinois story for many reasons. Two of them are the lack of knowledge that I had about the organization and what their goals were and me not being part of the college of ACES, which I believe if I was a part of I would know some information about the organization. One good thing about this narrative is that the organization is willing to help people in the different counties of Illinois to educate them about their surroundings. Their objectives are good but they need a better way to expose themselves to broader ranges of people..

**Question:**

Does the experience of student's in an online chemistry class differ from a traditional lecture?

**Plan:**

My plan for this project is to answer my three main research questions. I will do this by interviewing past and present students of Organic Chemistry I and Organic Chemistry II. I also plan on doing fieldwork by going to lectures and observing examinations. I also plan on interviewing the professors of the courses.

Research Questions

1. How does the experience of learning differ between an in class setting and an online setting?

2.How doe the different format of the exam affect students perception of their performance?

3. Do students engage in collaborative learning in both formats?

Interview questions

Orgo 2

What do you want to do after undergrad?

How often do you use the internet?

What type of activities do you use the internet for?

Do you use the internet for social activities?

How old are you?

What is your major?

What influenced you to decide on that major

Why did you decide to take Orgo 2?

Where did you take orgo 1 at? How was your experience?

How do you study for exams?

Do you go to office hours and why?

How do you do your homework? Ex by yourself or with others

How do feel about the course format?

What do you think are the pros and cons of having an online class/ exam format?

Do you plan to stay in the class or drop it, why?

Did you specifically sign up for the online class during the time of registration?

Which learning setting would you prefer lecture/ online and why?

How do you feel during exams?

What are the teachers expectation for this class and for you?

Why do you think the professor made this into an online class?

Do you have a tutor?

Do you the exam reflects the materials that has been taught?

Do you like the immediate feedback during the exam or would you prefer not to know until a few days later and why?

Does receiving immediate feedback from the exam change your outlook for the rest of the exam?

Orgo 1

How old are you?

What do you want to do after undergrad?

How often do you use the internet?

What type of activities do you use the internet for?

Do you use the internet for social activities?

What is your major?

What influenced you to decide on that major?

Do you go to office hours and why?

Are office hours helpful? Why?

How do you do your homework? Ex by yourself or with others

How do feel about the course format?

Do you plan to stay in the class or drop it, why?

How do you think you are doing in the class?

How do you feel during an exam?

Would you prefer an online version of the class?

Do lots of students attend lecture?

Do you regularly attend lectures? Why?

Do you do the suggested hw problems?

Do you have a tutor?

Do you the exam reflects the materials that has been taught?

Do you have a tutor?

What are the teachers expectation for this class and for you?

What do yo think are the pros and cons of having a regular lecture class?

How would you feel if you received immediate feedback on your exams?

The three articles that I have choose from the EUI website are there to give me a reference about the views and experiences that students have dealing with technology, choosing a major and their learning eniornement. The articles will be a tool for me to use to find other works that will help me with my project. I plan to look at how each of the authors find and invesigate the information that they use in their project and use those techniques to guide me through my research.

**Data:**

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Before I began interviewing people I thought that many of them would share the same views and ideas that I have of the class. I thought that they would not like the online format of the class and would complain until the professor would decide to change it (an unlikely event). Since I did not know any of the people that I was interviewing on a personal level I had many assumptions about them based on their behavior, reactions and interactions with other people in order for me to get a sense on what type of person that they are or that they would possibly be. Most of the guys that I am interviewing age ranges from 20- 23 years old and most of them are all taking organic 2 in order to get a minor in chemistry, fulfill their requirement for medical, dental, or pharmacy school or just taking it because they are chemistry majors. The first assumption that I had was that many of them would have a major that would be in the biological of physical science department because those majors require organic chemistry 2 , but I forget that in order to go to a professional school after graduating from college you do not have to major in any science related field but it would be beneficial since you would not have to take so many classes. So that was one assumption that I had to try to get out of my head before interviewing the people to make sure that they all might not come from a science background but they are just taking this class in order to fulfill some requirements. Another assumptions that I have is that since guy enjoy being online mot of the time by playing games, checking email, blogging and chatting that they would enjoy the online format since they would not have to go to class and could watch the lectures anytime that they wished and they did not have to watch them if they chose not to. After interviewing the guys from organic chemistry 2 ,I realized that there was a mix of reactions toward the online format. Two of the guys that are constant internet user did not have a problem with the online format because of the freedom that they had to do the work at anytime that they wish. They also said hat since they were constantly on the internet they were able to utilize the internet when thy would take exams in order to find the answers or get more information about the question that they were trying to answer. They also liked not having the lectures since it would be at 8am but they would have prefer to have lectures if it was at a later time instead of in the

morning. This gave me a deeper understanding that the students would rather come to a lecture hall then have an online class if it was later on the day but due to pure laziness they would settle for the online class and loose the personal interaction that they would gain from being in the class with a professor and TA. Another assumptions that I had was that maybe the white students would be doing better in the class from the other minority student. I have not conducted enough interviews in order to make any conclusion if my assumption I correct, but the few interviews that I have had so far has led me to believe that mot of the students prefer the online format of the class but they are longing for the personal relationship that they would have received if it was a regular lecture class.

**Discuss:**

Academic Sources

Beaudoin, M. Learning or lurking? Tracking the 'Invisible' Online Student. Orlando, FL: Paper delivered at the 7th Sloan-C International Conference on Asynchronous Learning Networks, 2001.

Michael Beaudoin in a paper entitled, Learning or Lurking? Tracking the 'Invisible' Online Student, examines the relationships between student learning and interaction. In the study, he divides an online class into three groups the high interaction, moderate interaction, and low interaction. At the end the high interaction students achieved the highest performance, the low interaction group performed higher than did the moderate interaction group. The results concluded that a student's satisfaction and performance correlated with their active participation in the course, but there were any reasons why some students did not participate as much as others did. I think this will help me in my project because it could give me ideas on how the professors could improve the class by making it mandatory for active participation in the course.

Meyer, K.A., 2003. Face-to-face versus threaded discussions: The role of time and higher-order thinking. Journal of Asynchronous Learning Networks 7 3, pp. 55–65

Face-to-face versus Threaded Discussions: The role of Time and Higher-order Thinking.In this article Meyer compares the experiences of students in face-to-face (in class) discussions with online discussions. Her findings suggests that the face-to-face format were preferred because of its immediacy and energy, and some students found one mode a better "fit" with their preferred learning mode but others enjoyed the online discussion due to their own preference and style of learning

Picciano, A. G. Beyond Student Perceptions: Issues of Interaction, Presence, and Performance in an

Online Course. JALN, Vol. 6, No. 1, 2002.

Beyond Student Perceptions: Issues of Interaction, Presence, and Performance in an Online Course This article gave me a good idea of how students felt about taking online courses and their place in it. It stated that online courses supported the assumption that interaction was essential in order for the student to succeed and the nature and extent of the interaction also played a huge factor in the student's interaction and sense of presence in the course.

Introduction

For centuries there have been numerous battles on how students should be taught from the beginning of elementary school all the way through the university level. With the advancement of technology, many would think that there would be an effective way in teaching students and having them engaged in the the material that is being taught. Due to the boom of the internet and the access that many people have there has been a huge growth in online colleges and online courses where people are receiving degrees online while not interrupting their daily routines such as work, family commitments, etc. I found this to be interesting since most people go to traditional schools looking for a traditional education such as going to a lecture, meeting with professors, talking to TAs, going to discussion classes and taking exams at predetermined sites. Since there has been a change on the way the educational system is seen and taught many professors have decided that maybe an online format of a class will be better for students than the conventional lectures that have been taught throughout the years. I am currently taking Organic Chemistry II and it is an online class. The class consists of online lectures, online office hours that are held three times a week, online quizzes, and online exams where students go to a specific place on campus and take their exam on a computer with the aid of books, past exams, internet, quizzes and any notes that the student wishes to use. When I first heard that it was going to be an online format, I was indifferent about the situation. I first thought about the pros and cons of the class and how they would affect me. I knew that I would no longer have to wake up early and go to an 8am class, I would have all the time and leisure that I would need and want to complete the assignments that were given all in the comfort of my cozy room. Then realty hit, I realized that the class format was not going to be as easy as I had thought. I realized that I would have to be very dedicated and wisely plan my time in order to complete assignments for this class and my other classes. After being in the class for awhile I got a hang of it but it was not easy. I sometimes found myself skipping

some online lectures and office hours because I would be exhausted from staying up all night completing work for my other classes. So when I had the opportunity to conduct research for EPS 500, Ethnography of the University with Dr. Fortier I was unsure on what topic that I would focus on in order to conduct my research. I than remember the Organic Chemistry II class that I was currently taking and how the format is completely different from any class format that I and many of my peers have taken which made me wonder if I was frustrated in the class how many more of my peers were having the same kind of feelings about the class. This gave me the opportunity to find out how students feel about the Organic Chemistry II class that they were in and compare it to Organic Chemistry I which has a complete different setup than Organic Chemistry II in a sense that it is a traditional class with the use of live lectures and exams that are taken on paper instead of a computer. This all lead to my research project were I wanted to focus on the experience of students in online classes versus student in traditional lectures. I wanted to know if there was a difference on how they viewed themselves and the class. I also wanted to find out if there were certain aspects of the class that they liked and didn't like and if there was anyway part of the class that they wish would be modified in order to improve their learning and experience. I also wanted to know how they felt about the experience of the education that they were receiving when they were Organic Chemistry I compared to the one that they are receiving now. The questions that I really wanted to focus on were did the experience of learning differ between an in class setting and an online setting?, How does the different format of the exam affect students perception of their performance? and Do students engage in collaborative learning in both formats? In order for me to be knowledgeable about the subject of online education I had to find resources that would give me a sense of how this novel system of teaching affects the ways that student learn and the perception that they have about themselves throughout their experience. An article by Anthony G. Picciano entitled, Beyond Student Perceptions: Issues of Interaction, Presence, and Performance in an Online Course gave me a good idea of how students felt about taking online courses and their place in it. It stated that online courses supported the assumption that interaction was essential in order for the student to succeed and the nature and extent of the interaction also played a huge factor in the student's interaction and sense of presence in the course. As I continued to read articles I noticed one by Michael Beaudoin entitled, Learning or Lurking? Tracking the 'Invisible' Online Student, which looked at the relationships between student learning and interaction. In the study, he divides an online class into three groups the high interaction, moderate interaction, and low interaction. At the end the high interaction students achieved the highest performance, the low interaction group performed higher than did the moderate interaction group. The results concluded that a student's satisfaction and performance correlated with their active participation in the course, but there were any reasons why some students did not participate as much as others did. I think this will help me in my project because it could give me ideas on how the professors could improve the class by making it mandatory for active participation in the course. One of my ideal links Fear and Frustration Take on Educational Technology by Allison Wyler http://www.ideals.uiuc.edu/handle/2142/1847 focuses on how if technology was incorporated into everyday lives for many people it would not be difficult for people to utilize it. Having read many articles such as these gave me some information about my projects and the finding that they are having. I think that these articles gave me a good background about how many institutions are incorporating technology into their curricula. I think that there could be a lasting future for technology in higher institutions if a balance can be reach that will appeal and appease both the students and faulty that are involved. If this is reached there will be many different ways to teach students with different learning habits and preferences. After completing this research project I have noticed that there are a lot of things that can be done to improve education in all different levels from elementary school up now.

Research Methodology

Before beginning research project I had to narrow the group of subjects that I intended to interview and figure how I would find them and approach them to ask for their participation with the project. I first decided that I was going to focus on males and females from different races and compare and contrast their opinions about the course. I realized that would be a lot to do in the short amount of time that I had for the class. While conversing with Dr. Fortier she brought up the topic of just focusing on one gender and incorporating the race factor into it since I would not have enough time to conduct my interviews and I might not have a solid findings due to the number of factors that I would be working with. I decided that I would stick to one gender, males due to the fact that there are not many research conducted solely on males and their experiences with education and learning. After settling on gender, I decided that I would focus on four types of racial back ground: Blacks, Whites, Asians and Latinos. After finalizing my group of subjects that I would need in order to conduct my experiments I contacted many of my friends and acquittance that knew people who were currently in Organic Chemistry II and ones that were in Organic Chemistry I. In the beginning my plan was to interview subjects from both courses and than compare their opinions but it occurred to me that I would not get an adequate amount of information from the students who were just in Organic Chemistry I since they had not taken Organic Chemistry II and would not have been able to give me their personal opinions about both courses. Due to this unexpected issue that came along I decided to just focus on Organic Chemistry 2 male students who had already taken Organic Chemistry I since they would have a substantial amount of information to give to me because they all had experienced both spectrums of teaching. After dealing with this mishap into my research project I focused on finding subjects that would fit my current subject group: males that have taken Organic Chemistry I and II. After settling on interviewing all males from different racial backgrounds, I had a hard time finding a large pool of Asian and Latino males that were in Organic Chemistry II so I than had to edit my pool of subject by narrowing it down to White and Black males in Organic Chemistry II who had already taken Organic Chemistry I. I went into this project having many

assumptions and views about the two different class formats and I personally favored one over the other but I knew that I could not allow any of my beliefs and thoughts to influence the subjects that I would be interviewing. I wanted to make sure that I came into the interview process with the subjects by making sure that I did not have a close relationship with them so I would not have any preconceived notions and thoughts about how they would respond to my answers. I wanted to see my subjects as strangers that I have never encountered and to ask the the little remote questions such as age, name, and major. I wanted to make sure that I was being critically and questioning myself to make sure that I was not assuming many things about the subject throughout the whole interview. The assumptions that I had before interviewing my subjects were that many of them would share the same views and ideas that I have of the class since I was having conflicting thoughts and views about the different format. I thought that they would not like the online format of the class and would complain until the professor would decide to change it completely or make modifications that would please the majority of the class. Since I did not know any of the subjects well and on a personal level that I was interviewing, I had many assumptions about them based on their behavior, reactions and interactions with other people that I have witness in order for me to get a sense on the type of person that they are or that they would possibly be. All of the male subjects that I interviewed ages ranged from 20- 22 years old and all of them were taking Organic Chemistry II in order to get a minor in chemistry, fulfill requirements for medical, dental, and any other professional school or just taking it because their major is chemistry. The first out of many assumptions that I had was that many of them would have a major that would be in the biological or physical science department because those majors require Organic Chemistry II, but I failed to remember that in order to go to a professional school after graduating from college you did not have to major in any science related field but it would be beneficial since you would have to take many courses in that field. That was one assumption that I had to try to remove from my mind but also be aware that assumption would always be there and that I would have to take the necessary steps that would make me remember to ask what their majors were so I would not have to assume that they were part of any science related field ad that they might just be in the class in order to fulfill some requirements. Another assumptions that I had is that since males enjoy being online most of the time ( I know that this is a generalization) by playing games, checking email, blogging and chatting that they would enjoy the online format since they would not have to go to class and could watch the lectures anytime that they wished and they did not have to watch them if they chose not to. Another assumption that I had was that maybe the White students would like the class format than the Black students. I thought this would be true because of the different schools and education that the different racial groups would have received during their lives which could immensely impact how they view their education and their reception of different methods of teaching. During the interviews with the subjects many of my assumptions were justified and some were dismissed. I conducted interviews with six students: three whites and three blacks. Interviewing each subject gave me a deeper understanding into their reasons for liking some aspects of the online course. After I finalize my subjects that I would need for my project I began to interview each one to find out what they believe and thought about the format of Organic Chemistry II. The first person that I interviewed was Nick*. Nick is a 22 year old, senior in Community Health and was taking Organic Chemistry II in order to fulfil his requirements for the Chemistry minor that he is pursuing. I meet Nick through one of the classes that we had and I asked him if he would be interested in giving me his opinion and thoughts about Organic Chemistry II and his experience that he had with Organic Chemistry I. It did not take him long to think about it and agree to help me with my project. I noticed throughout the whole interview he was calm and at ease. That also made me feel calm and at ease. Being a senior, Nick wanted to finish all of the requirements that he had in order to graduate. He mentioned that he used the internet on a daily basis for news, sports, schoolwork and recreational uses. I eased into the interview by asking him how his day was and how his midterms were going. After we both had form enough trust for us to continue on the interview I asked him the questions that would seem obvious such as his age, major, and the reason why he was taking Organic Chemistry II. It did not take him a long time to answer these questions, After the introductory questions were asked I proceeded to focus on getting the information that I needed. I did not want to assume that Nick dislike the format of Organic Chemistry II so I made sure to ask him and to my surprise he did not have a problem with the online format such as the online lectures, online office hours and the online quizzes the problem that he did have was with the online format of the exams. I thought that that was very interesting and I had my own thoughts and beliefs of why he did not like the online format but I wanted him to reveal to me his reasoning instead of me assuming that he might have similar beliefs about the way I felt about the course. He stated that he did not like receiving the instant feedback and knowing whether his answers were right or wrong instantly. He would prefer to wait a few days to get his exam grade back because he felt that that would be a good thing for him "so he doesn't feel bad" during the rest of the exam. After Nick telling me this I thought to myself, wouldn't people want to know how they are doing on an exam while they are in the process and have another opportunity to correct what they had gotten wrong instead of waiting several days and thinking about all the question that they could have gotten correct if they had a second chance before getting their grade back? This question continued to comeback again and again during my interview with the other subjects. They all seemed to have a problem with the online format of the exams. I wanted to know how Nick felt about the two different formats of Organic Chemistry I and II and he preferred Organic Chemistry I format because he thought that the lectures were "more personal, he learned better and forced him to go to lecture," interestingly Organic Chemistry I lecture is posted online and students do not have to go to lecture because they have the ability to watch it in there room just the same way that Organic Chemistry II lectures is online. I wondered why he felt that he had to go to lecture even though it was online. He stated that knowing that there was a lecture he felt the need to go to it due to the fear that he might be missing out on something but since with Organic Chemistry II there is not a live lecture he did not feel the need to watch the lectures that was posted online and did not feel that he was missing out on what the professor was teaching. I ask if guilt might be a factor in his decisions on going to the lectures

in Organic Chemistry I and he did not believe that guilt was a factor but just the process of going to lecture made him want to learn and he just preferred having the personal contact with his professor. Curious about which section he signed up for during registration I asked if he had signed up for the online format or the lecture format and he informed me that he signed up for the lecture format and that was how he had prepared himself for the class. Many of Nicks comments and insights surfaced again with the other subjects that I later interviewed.

My next subject Aaron* who is a 20 year old sophomore majoring in Animal Sciences interview added to the information that I was searching for. He too was an avid online user from playing games, to checking his Facebook, email and school work he also liked the online format of Organic Chemistry II but preferred the lecture format because he could get feedback and have his questions answered on the spot and the professor could slow the pace of the class if people were having trouble understanding the material. Once again, he took the class because it was a requirement for him in order for him to pursue a higher degree in the future. Aaron expressed that there are many pros and cons to having a class such as Organic Chemistry II online due to its complexity. He stated that in the beginning he did not take the class as seriously as he should have and that he fell behind on watching the online lectures because he was not required to attend a lecture or watch the lectures, but after a while he got the hang of things and caught up with the online lectures. I wanted to know if he took advantage of online office hours and he did not attend them because he felt that it "wastes too much time" that he could be using for something else. I thought this was very interesting because office hours are there to help students get additional help if they need it, but when I thought about it if the office hours are online, three days a week at 8am would I wake up just to watch other people ask questions if I did not have any of my own? This question seems to get an unanimous answer by all my subjects since the office hours are archived they could watch it anytime that they wanted and use that time to catch up on sleep instead of going to online office hours during there actually time. Aaron felt that the online course format would be difficult for non traditional students who are not use to technology. This again brought to my attention that even though there is a surplus of computers and new technology being created everyday not everyone has access to them. Talking to Aaron brought out one assumption that I had never thought would be a huge problem. I assume that everyone had access to a laptop, computer and the internet. Aaron made a good point if a student does not have access to their own computer it would be harder for them to manage in the class since they would always have to schedule time throughout their day to locate a computer and complete the assignments and watch the lectures if they wanted to do well in the class. Interviewing Aaron left me with more questions that I wanted answers such as did the professor ever considered about the different background of the students that he would have taking his course, how the students feel during the exam and how most of them missed the personal interaction that is possible with a lecture? Interviewing Mike* reconfirm all the things that Aaron and Nick had said during my interview with them. Mike is a 20 year old junior who is majoring in Molecular and Cellular Biology and plans to go to medical school therefore taking Organic Chemistry II is a requirement for many of the schools that he plans on applying to. Mike on the the other hand was not an avid internet user he just used it to do school related work and check his email. He did not like the online format of Organic Chemistry II and would prefer a class that was similar to Organic Chemistry I where there is a lecture and he is able to take his exams on paper instead on a computer. The one thing he did not like about Organic Chemistry II was taking the exams online. He did not like the instant feedback that he received after submitting an answer to a question because every time he incorrectly answered a question he felt bad and his "confidence level fell" until the exam was over. I thought to myself how hard that would be to sit through an exam knowing all the problems you got wrong and were expected to keep trying until you got them right or until time ran out. Personally experiencing that, I knew that it is very difficult to build up the confidence that I had in the beginning of the exam when I was correctly answering the questions, but once I began to answer the questions incorrectly I just wanted to give up and the thought of having more problems to complete frustrated me and made me focus on that one problem to see if I could get the right answer and the points while the clock ticked away. I knew were Mike was coming from and I knew he was not the only one that I would interview that would have the same feelings of lost of confidence during the exam due to having the instant feedback after submitting an answer to a question. Mike would have preferred to wait a few more days to know how he did on the exam therefore he would not have to worry abut it during the exam and focus on the questions instead of worrying about the question and the incorrect answer associated with it. Mike being able to express his frustration about taking an exam that immediately gave him feedback gave me a framework that I could use when I continued my interviewing process. Interviewing Tom* went effortlessly, he agreed instantly when I asked for his participation in my project. He is a 20 year old junior majoring in Chemistry. His reasons for taking Organic Chemistry II was because it was required for his major ad he wanted to go to pharmacy school afterwords. Tom was also one of my avid internet subjects who used the internet for everything such as YouTube, checking email, doing school work and playing games. He liked the format of Organic Chemistry II and believed that it gave students "the freedom to study on their own time." He had a mixed feelings about taking exams on the computer and getting the instant feedback depending on his preparedness for the exam. I wanted him to tell me what he meant about his preparedness for the exam so I asked him to elaborate on his respond. He stated that when he had really studied and took the time and put effort into it he did not mind getting the instant feedback during the exam. On his part he thought getting the feedback gave him a second chance to fix his mistake if he knew what they were and if he did not he would move on to the next questions and pretend that it was a whole different exam so he could still maintain the confidence level that he had brought with him during the exam. I thought that his thinking method for taking the the exam was intriguing and I wondered if there were other students who did the same thing and looked at the exam like a "game" and the questions after the previous ones were a new "level" that they had to play in order to finish the "game." Toms view on how he

took the exam made me want to incorporate some of his ideas into my own exam taking habits. Toms outlook on the class made me realize that it was not the class that bothered the students but what really was bothering them was that they had to adjust to a whole new system of learning, a whole new set of instructions, a whole new "game" in a short period of time and they were not notified about this change until a few days before the course began. It came down to the simple fact that they did not like the instant change they were dropped into. They were content with the old method of learning because that is what they have been used to during their whole academic years. My interview with Tom motivated me to find out if my other subjects would have the same opinions as him. Zack*, a 22 year old senior majoring in Molecular and Cellular Biology took Organic Chemistry II to also fulfill a requirement for his Chemistry minor and for pharmacy school. When I first meet Zack I did not think that he was going to talk much, because he was very quiet and had his hands over his chest. I immediate stopped myself from continuing the assumptions of what type of person that Zack would be. To my surprise he was very open and willing to talk to me about his experience with Organic Chemistry II and I. Zack mostly used the internet to do school work and check his email, he was not an avid internet user. He did not like the online format of the class because of the lack of interaction he had with his professor and peers. He felt that if he was in a lecture he could at least know people in his class in which he could work and study with. Zack's main emphasis was the lack of interaction with the students and the professor. He did not believe he knew the professor nor did the professor know who he was. He did admit that if it was a lecture he would not go all the time but at least he would know that he could go and physically ask questions to the professor. Zack did not enjoy taking exams online since he felt that it did not show his capabilities and what he had learn since if he got 3 sub-question out of 4 he would not get points for that specific problem because of not being able to figure out the last sub-question. I sympathized with him since I have had that experience of not being able to answer one sub-question therefore I did not get any points for that question. After interviewing Zack I began to notice a pattern among the subjects that I interviewed. The avid internet users did not mind taking the exams online but the ones that used the internet just for school work and checking email did not like taking the exams online. A theory that I came up with is that the avid internet users felt more at home and comfortable navigating the internet and finding resources to help them complete the exam while the less avid users were not prepare to handle the situation that they were placed in, but went along with it because they did not have any other options. The last student subject that I interviewed was Daniel* he is a 22 year old majoring in Integrative Biology. He reasons for taking Organic Chemistry II was that he needed it to fulfill the requirements for his Chemistry minor. Daniel was not an avid internet user, he mainly used it to check his email, complete school work and the news. He did not have a problem with the online format such as the lecture, quizzes and online office hour. Similar to most of the less avid user he did not like the online format because it would affect his test taking skills and he would not be able to concentrate on the exam. Once again the lost of confidence is a problem that most of the test takers had depending on the preparedness for the exam. Daniel's interviews mainly reconfirm most of the things that my previous subjects had already mentioned. After interviewing students I decided to interview the professor of Organic Chemistry II to get his opinion on how the class is going and what were his reasons for converting a previous lecture class into an online class. Dr. Moore was pleasant to work with and was wiling to answer all my questions. While siting at a small table in his office I asked him the one intriguing question that has been on many of my peers and my mind: his reasons for converting Organic Chemistry II into an online course. He believed that higher eduction was evolving that way and in the past he was against changing Organic Chemistry II into an online class. I was shocked to say the least, I never would have thought that a point in time he had been against an online class of Organic Chemistry II. So I pressed for more information as to why he made a huge change. He stated that he wanted students to have gained an experience in taking an online course and being familiar and comfortable using the technology and gain confidence to succeed in this type of learning environment. He wanted students to discipline themselves and be accountable for their actions, . help sharpen organization skills and force students into new habits that will aid them in future courses. Increase their confidence skills while taking the exams while gaining valuable skills in communicating science using online tools which will help many of his students who are going in to the science filed or to other students whose field will be incorporating technology into it. He also believed that his students are "reaching the end of the road in their formal education" where they will eventually have to become "self-learners" since the " process of becoming a critical thinker and self-learner is entirely up to you, and it has always been that way - even before the class was online." I thought this statement that he made was very true and poignant. Before the class was online you still had to think and find a way to understand the material in your own way and rely on yourself when exam time came. The longer I spoke to Dr. Moore I began to open my mind and see his point of view and where he was coming from. He was not a professor that was trying to weed students out, or hated to give out A's, he was a professor that wanted to give more than a grade to his students he want to give them a set of invaluable tools that a grade could never give. Finally he also said that he wanted his students to be able to adjust to a sudden change which is a valuable attribute in the real world because it will help them learn to be flexible, since "things don't always go the way we expect them to. We have to learn to make adjustments." After giving me the reasons why he decided to change Organic Chemistry II into an online class I agreed with him that those were all good ideas but did he ever think about how his students felt about the format of class? He assured me that he knew that this new system of teaching was not perfect and that there are many issues that they need to improve on such as the lack of social interaction between him and the students. I wanted him to expand on the answer in which he said that in the traditional class format he knew the faces of people but actually only knew a handful of the students and he does realize that many students miss the interaction of the lecture formats but there are many ways to socialize in the online format its different but it is there. One problem that Dr. Moore brought up that bothered him was the lost of accountability on the students side. In a lecture format he would know who would be coming to lecture and being attentive but on an online format that is somewhat lost but he is able to associate student's name with their comments and

the personality that they show during online office hours and on the course discussion board. It seemed to me that he was trying his best to get to know his students but having over 300 students in a class it will be hard for any professor to learn and have a personal relationship with every single one of them. It seemed that either format did not provide the professor student relationship. On one hand with the lecture format the professor is able to see the faces of the students but not know their name on the other hand with the online format he will know the name of the students and be able to associate them with a comment but would not know their face. It seems like a lose-lose situation for both parties. He said that he dealt with this problem by creating a banner with the pictures of the students who had added their pictures to their profile to at least give him a visual aid on who was in his class. I was glad that he noticed this problem and took some initiative to create a way for him and the students to have a way to know who is in the class. Since most of my subjects did not like the online format of the exams, especially the instant feedback that they received I wanted to get concrete reasons for the format of the exams. One of his reasons is that it is a fair way to grade exams because it brings uniformity and removes the non-uniformity that comes with human graders such as miscounting points, overlooking simple mistakes, etc. He mentioned that the exams are on the side of the students because it gives them more than one chance to submit an answer. I agreed with him on that point, but I brought up the issue if the way the exams were structured were fair and gave the student the chance to show what they learned and know when a question could have four sub-questions, while a student might be able to complete three out of the four but they will not get any credit for not getting all four of them right. He told me that it currently is unfair because everyone is being tested differently around the world and and the nation is not on the same learner plate and maybe if the online method works it could be somewhat fair. He wanted to make sure that students are detailed oriented and could "diagnosed" the problem on the first try. He brought up the analogy of an auto-mechanic. He said if something is wrong with your car and you take it to get fix you want it to be fixed the first time not the second, third or fourth time. He believed that the problem in higher education is that we "don't mimic real life" and in real life we are always under pressure, such as short deadlines. He believes that the instant feedback on the exam is imitating life since in life you get instant feedback on everything that you do and that confidence is the key when taking the exam and in any situation in life. After this I asked if he planned on keeping the format the same for next semester and he said that he wanted to see how the semester ended and the feedback he will receive from his current students about the class. If it does not go the way he wants and does not work he will revert back to a lecture format and forget about the online format but he believes that there is potential on this new system of teaching and he will only give up when he sees that it is incapable of improving and is convinced that it is inferior.

After completing the interviews with the students and Dr. Moore, many things stood out to me. The first thing was that the avid internet users enjoyed taking the exam online and had no problem with it but the less avid internet users did not like the online format. I believe that this is true because the avid internet users are comfortable utilizing the resources that the internet has in order to help them with the exams. I also noticed that race did not play a factor into the preference of the class formats. Both blacks and whites had different opinions and since the majority of the students did not have a problem with the online format of the class I concluded that race was not a factor. All of the students registered for the lecture format instead of the online format during the time of registration. They all participated in collaborative efforts in doing homework and when it came to studying for exams. Many did not go to the online office hours at the time it was being held but did watch the archives of them, I found this interesting because when I go to office hours it is mostly females that are in attendance maybe there might be a difference on how males and females view online courses. If race is not a factor maybe gender could play a role. Many of the subjects were in the class because they had to take it in order to graduate, fulfill a requirement or it would help them in their professional endeavors after their undergraduate eduction. The one topic that everyone had an opinion on was the online format and how there are mixed feelings associated with it. Lastly the majority of the student missed the lack of interaction between the professor and the students. I think that after doing these project my thoughts and beliefs of the online course has changed. I know that there are many aspects of it that is good and other parts that need to be worked on. If there comes a point in time where a balance can be found that will help students effectively learn and teachers teach I think that it will be a big improvement for our educational system.

*All the participants name with an asterisk have been changed.

**EUI Links:**

Chary, Anita. "Lucking Out" with a Good TA: One Lecture, Several Discussions. http://www.ideals.uiuc.edu/handle/2142/3497

Harounn, Elizabeth. What factors affect how student's choose their majors?. http://www.ideals.uiuc.edu/handle/2142/3765

Wyler, Allison. Fear and Frustration Take on Educational Technology. http://www.ideals.uiuc.edu/handle/2142/1847

These projects are focused on technology, learning environments and students expectations for classes. I think that these projects will give me some examples to work with but my research project is mainly focuses on the experienced of male students who are currently taking online classes from male students who are in traditional lecture classes.

**Reflect:**

If I had more time I would have interviewed more subjects to give me a larger pool of information and evidence that I could use to support and enhance my findings. I think I would have also interviewed females to get their perspective of the class and how they felt and compared it with the males to see if there is a difference of opinion or if it is the same. I think that if someone decides to take this project to the next level by focusing on females and the the grades that the students received and if that correlated with the amount of time, energy and resources that they used for the class. I believe that this will give a good idea if there is a difference between how males and females learn when it comes to an online format of a class.

**Recommendations:**

The recommendations that I would give to the University is that there should be more research done on how different learning settings and environments affects the way students learn and if it has an impact on their performance. If this is done than that would give the University ideas about how to improve the quality of the education that students are receiving at the University. With the findings different programs and workshops can be created to focus on the aspects that students might be missing because they are in an online course or in a lecture format.