

AC 2007-603: ADHERE TO YOUR STYLE BUT BE FLEXIBLE WHILE TRANSITIONING FROM ONE INSTITUTION TO ANOTHER

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Adhere to your Style but be Flexible while Transitioning from One Institution to Another: A Case Study in Assessment Teaching Style

Abstract

Adjusting to new and different institutional settings remains a challenge for young faculty members. It is argued that one should not change their teaching pedagogy, for instance, in the first year or two, to adapt to a new institutional culture. A literature review reveals some tips and advice to new faculty to be successful in academia. Oftentimes, these guidelines are general in nature and require interpretation to fit one's actual needs and struggles. A civil engineering graduate of the University of Florida (UF), the author's first academic post was at The City College of New York (CCNY). These two institutions differ in teaching atmosphere, research environment, history, demographics, and culture. In this paper, the author highlights the lessons he learned as a new faculty member while adapting to a new institutional environment. He believed that the use of visual aids such as PowerPoint presentations and video clips were a proven teaching method. However, most faculty members at CCNY were convinced that such an approach would not be effective given that all the graduate classes were held in the evenings and 90 percent of the students held full-time employment. Based on surveys conducted in four separate evening classes during four different semesters, both the author's performance rating and student learning levels improved in quality while the method of teaching remained unchanged. The results of these findings were based on both student and senior faculty evaluations of the author's teaching style. This paper represents a successful case study of the author's struggles while transitioning into a new institution. Some measures, which are presented in this paper, may be helpful, especially to new faculty, to ensure smooth integration into a particular school's culture.

Introduction

Adjusting to new and different institutional settings remains a challenge for young faculty members. There are helpful materials that are provided in the literature^{2,3}; however, they may not be specific enough to deal with one's actual struggles. When a new faculty member joins a new institution, they may be pressured to adapt to that institution's teaching style, research interests, and its cultural environment. This pressure may be driven by the administration and/or the individual may simply feel pressured to fit in. Graduating from the University of Florida (UF), the author's academic career started at The City College of New York (CCNY). CCNY and UF differ in teaching atmosphere, research environment, history, demographics, and culture. The author believed that the use of visual aids such as PowerPoint presentations and video clips could be an effective teaching method as compared to the conventional method of lecture.

In this paper, the conventional method of teaching (CMT) is defined as a more verbal type of approach to teaching with very little or no use of multimedia supports. In other words, the instructors lecture and write on the board, whereas, the students listen, copy the materials, and take notes. At CCNY, the norm of teaching pedagogy is that CMT is encouraged. This

information was based on discussions with other colleagues during lunch meetings and comments from some senior faculty during classroom observations. They feared that student learning is difficult to stimulate in evening classes because almost 90 percent of these students held a full-time job. Their comments were well taken because PowerPoint presentations can be misused. As mentioned by Estes et al., PowerPoint presentations may incorporate more material than the students are able to absorb, provide an inflexible structure that can hide spontaneity, and cause passivity⁴.

The author valued the comments from other faculty but did not want to be pressured to completely change his teaching style to adapt to the CCNY norms of teaching. The fact of the matter is that people have different learning styles that are reflected in different academic strengths, weaknesses, skills, and interest⁵. In this paper, the author presents a successful case study of his own struggles for a smooth transition into a new institution without causing problems with student learning. To justify the proposition, the author used visual aids and demonstrations such as PowerPoint presentations, overheads, images and pictures, physical demonstrations, and video clips as an example of teaching style in four different graduate and undergraduate senior classes during four different evening classes at City College of New York. The faculty performance rating and student learning increased in two consecutive semesters. This assessment was based on student evaluation from the classes. Some measures, which are presented in this paper, may be helpful, especially to new faculty, to ensure student learning and smooth integration into a particular school's culture.

Objective

The aim of this paper is to demonstrate that the teaching method based on visual aids such as PowerPoint presentations and video clips is effective even in the evening classes. The author also provides some guidelines that ultimately may be used to ensure a smooth transition and encourage student learning, especially to new faculty, while adapting to a new institutional environment.

City College of New York

The City College of New York (CCNY) was founded in 1847. At the urging of School Board President, Townsend Harris, CCNY was established to provide access to higher education for bright young men from working class and immigrant families who could not afford to attend a private college¹⁰. CCNY is located in New York City – one of the world's major global cities and the largest city (based on population) in the United States. CCNY is one of the 11 senior colleges in The City University of New York's system. Although it is a small university of approximately 12,000 students, in 2003 U.S. News and World Report ranked the campus as the most diverse in the nation. The students who enrolled in CCNY are from local high schools, and they are working adults and immigrants. It is primarily a teaching based institution

University of Florida

Contrary to CCNY, University of Florida (UF) is the nation's fourth largest university and the State of Florida's largest university. UF was founded in 1853. It is the flagship university of the State University System of Florida. It is located in a small town of City of Gainesville. The U.S. Census Bureau projected the 2004 population for the City of Gainesville to be a little under 109,000 people which is about 10 percent of the people who live in New York City. However, UF housed about 50,000 students in a 2,000-acre campus. UF is a research based institution. They have an extensive program in place to recruit students from the top performance high school in the state and throughout the nation. However, they are not nearly as diverse of a student body as The City College of New York.

Courses Taught

Four different classes were assigned to the author during four separate semesters as an instructor at The City College of New York (CCNY). Both graduate and undergraduate students were enrolled in the classes. The classes were structured using various media including PowerPoint presentations and video clips. Each lecture was loaded on to the blackboards, a course management tool within the university. If done properly, the author believed that the use of visual aids would provide the ability to communicate effectively to the students, stimulate classroom participation, create awareness on how student learn, present exciting and structured lectures that were well defined, facilitate in depth coverage of the materials, avoid ineffective use of time, appeal to a number of different learning styles, and enhance the quality of learning. Other qualities of effective presentation were presented by Ressler et al.⁷ and Estes et al.³. In each of the four classes, the author took all the necessary measures to ensure that the students understood the theory behind the structure, properties, and material characteristics pertinent to each subject. When applicable, he stressed on the practical applications of the related construction practice. Also, in each of the courses the student's communication and writing skills were also assessed. The student's final grade is presented in Fig. 1. Additional information about each particular class is described below.

Civil Engineering Materials Class

The Civil Engineering Materials class was the first class that was assigned to the author during his first academic post at CCNY. This course was designed for graduate and undergraduate senior students in the Civil Engineering department. A total of one undergraduate and five graduate students enrolled in the class. The objectives were:

- To teach students about the properties of the major construction materials including Asphalt Binder, Hot-Mix asphalt, and Portland Concrete Cement;
- To conduct relevant test procedures on these materials and analyze the test results; and
- To develop effective lab report preparation and writing skills.

At the end of the semester, the students successfully designed a Hot Mix Asphalt mixture using the Superpave mix design criteria. They also performed laboratory testing on commonly used

Civil Engineering materials including asphalt binder, hot mix asphalt, aggregates, and Portland concrete cement. They analyzed and evaluated the data to make useful conclusions. Each student wrote a final report on the mixture they designed. The student's final grade for this class is presented in Fig. 1. Two students obtained an A, two ended with a B+, while the other two finished the class with Fs. The low performance was mainly driven by the student's lack of participation and discipline to return and complete all the assignments and tests.

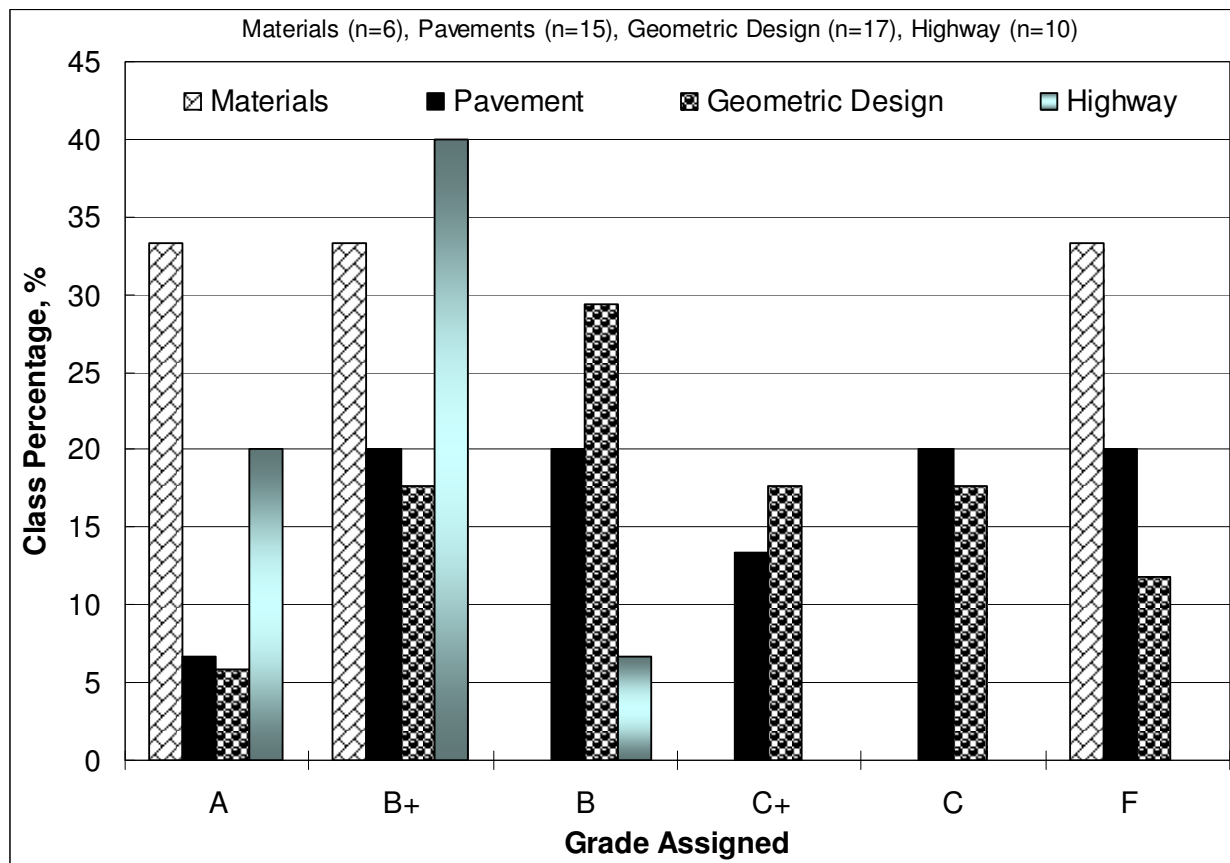


Figure 1. Student's performance level

Flexible and Rigid Pavements Class

This course was designed for both graduate and undergraduate senior students in the Civil Engineering department at CCNY. It was taught during the Spring of 2005. Seventeen (17) students registered for the class; however, two of them dropped the class before the drop/add period. This course was designed to:

- To explain the fundamentals of design principles of different types of pavement (rigid and flexible);
- To learn about the different elements of flexible and rigid pavement systems: characterization of soils, materials, traffic loads, and environment for design; and
- To develop effective writing and communication skills.

As opposed to the previous class in which the students performed laboratory testing, this class was mainly based on calculations to design different types of pavement. The students were instructed to apply design procedures from the Asphalt Institute, AASHTO, and the Portland Cement Association. The students were also introduced to computer programs such as KENLAYER, BISAR, BISDEF, and the 2002 AASHTO Pavement Design Guides. They were paired and they designed a pavement section from the New York State Highway. They were instructed to download the site from the Long Term Pavement Performance (a comprehensive 20-year study of in-service pavements database⁸). Also, they followed at least two design procedures from the Asphalt Institute, AASHTO, Portland Cement Association, New York State Department of Transportation Comprehensive Pavement Design Manual, and the 2002 Mechanistic-Empirical Design of New and Rehabilitated Pavement Structures. These procedures were introduced and explained in class during the semester. Each student wrote a term paper using the American Society of Civil Engineers paper guidelines.

The percentage of the students who obtained an A in this course dropped as compared to the first class (see Fig. 1). It may be because the level of difficulty and the workload were much higher than the previous class. The percentage of students who failed the class, on the other hand, decreased. The three students who failed the class struggled in all the other classes. One student recommended that the current teaching style should be combined with the conventional style lecture. This request was warranted and the author implemented more lectures in which he utilized the board more effectively. Doing so, he believed that this modification improved both the student learning and instructor's rating. Finelli et al.⁶ also noted that student feedback has the most positive impact of all on student ratings on teaching.

Geometric design of Transportation facilities

Both graduate and undergraduate senior students were enrolled in this course. The main objective of this course was to teach the students the principles pertinent to the planning and design of transportation facilities and their applications in the design of functional and safe systems to satisfy the demands of the transportation industry. No laboratory tests were conducted in this course. Contrary to the Flexible and Rigid Pavements, the amount of design computation in this course was minimal. Extensive reading and implementation of the American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets (formally known as the "Green Book") was expected from the students. As in the previous two classes, the student's verbal and written communication skills were also assessed in the class. Each student wrote a final paper using the Transportation Research Board (TRB) guidelines of a 2-lane highway term project that was assigned to them. Other project topics of choice were also provided.

Similar to the Flexible and Rigid Pavements class the trend of the percentage of students who obtained an A was lower than that compared to the Materials class course (see Fig. 1). Only 6 percent of the students obtained an A. The trend of students with Fs continued to improve. In this

class, one of the students who failed the class stopped attending it after two-thirds of the semester. The student was not disciplined enough to return or complete his work on time.

Highway Engineering

Highway Engineering was the last class that the author had to teach at CCNY during the two year period. One graduate student was enrolled in the course while the others were undergraduate senior level. The course was designed to prepare students to approach highway design as both science and art, combining good judgment with design considerations. At the end of the semester the students were expected to clearly demonstrate their understanding of the fundamentals of the design principles of the highway including pavement types, earthwork, and drainage. They were expected to explain the importance and consequences of maintenance, engineering economics, and life cycle cost analysis. Similar to the other classes, they had to demonstrate a high level of effective verbal and written communication skills.

Contrary to the arrangement in previous classes, the students were divided into two groups to design a major highway project in New York City or Florida. Both were actual projects that were designed and constructed by their respective State Department of Transportation Engineers. Each group presented their design; however, each student was required to clearly explain their role and contributions to the project. Similar to the other classes, the presentations were graded by other professors in the department and invited guests. Each group wrote a final report based on guidelines by Alley et al.¹. The student's performance on this course was much better compared to that in the preceding two courses. There were no failing grades. The author was aware that this argument alone cannot be used to assess student learning. However, he sensed that perhaps his teaching style improved due to experience. More importantly, it can be argued that the use of visual aids such as PowerPoint presentations and video clips are an effective teaching method. One may also imply that while the author's teaching pedagogy remained throughout, he was able to transition smoothly into the new institution without sacrificing student learning. This information was also supported by the student evaluation which will be presented in the next section.

Evaluation Results

At the end of each semester, a survey was conducted to determine as to which kind of teaching style the students preferred, measure their learning, and rank the instructor's performance level. A similar approach has been used in the literature⁶. A copy of the survey is presented in Appendix A. As can be noted from the survey, the response choice had to be modified to fit the particular question. To simplify the interpretation of the survey result, a score of 100 was assigned to the first answer of any questions, 80 to the second, 60 to the third, and so on. In other words, excellent, strongly agreed, and too heavy (see Appendix A) were interpreted on the same rating (100). The CCNY online survey was not used because the number of students who filled out these surveys oftentimes is very low. In one of the classes, only 10 percent (relative to the score assigned) of the students completed the survey. The author believed that inferences made under such conditions may be misleading.

Teaching quality is difficult to measure quantitatively. In an attempt to do that, Question L (Q-L) (see Appendix A) was included in the survey in an attempt to determine the effectiveness of using visual aids as a teaching style. The results for of Q-L are summarized in Fig. 2. In both the Materials and the Flexible and Rigid Pavements classes, almost all of the students selected the author's teaching method, which included the use of PowerPoint presentations and video clips. During this time, the choice was strictly to select between visual aids and the conventional style of teaching. In the comments sections from the Rigid and Flexible Pavements course, one student suggested a combination of visual aids and a conventional style teaching approach. The instructor valued the student's recommendation and implemented the technique in subsequent classes. In both the Geometric Design and Highway Engineering, all the students who took the survey chose the use of visual aids along with the effective use of the board. This observation should not be translated to mean that conventional style of teaching is not effective. In fact, this was never the intent of this paper. The point is that the students who took the survey supported the fact that the use of visual aids was a sound and effective teaching method.

Four other questions (Questions # 2, 7, G, and 11) were selected from the survey (see Appendix A) to determine the possible factors that may contribute to this author's successful case study. The results are presented in Fig. 3. In all four classes, it was consistent that the instructor was enthusiastic about teaching to stimulate the learning interest of the students. Over 88 percent (relative to the score assigned) of the students supported this argument. The author believed that being enthusiastic and demonstrating passion for teaching along with qualities including a strong knowledge and clear explanation of the subject matter were important qualities to ensure student learning regardless of the teaching style used. Estes⁴ noted that students cannot be passive observers; teachers need to maintain a high degree of contact and engagement. Academicians generally share views on some important characteristics of a good teacher such as interest, enthusiasm and passion for teaching, knowledge of the subject matter, communication skills, and helping students understand the process of learning.

The student learning level along with the instructor's rating started high (close to 80 percent) in the Materials course (Fig. 3). However, both criteria dropped after the second class. The exact cause of this drop was beyond the scope of this paper. Perhaps the instructor did not explain the subject matter as clearly as the previous class. The students also commented that the term project was introduced too late in the semester. It was suspected that the level of difficulty was a lot higher in the Flexible and Rigid Pavements class. A majority of the students mentioned that both the work load and the expectations were too high. Perhaps the instructor did not do a good enough job to define the students' level of expectations from the beginning of the term. The author also noted that some of the students who were enrolled in the class lacked the background necessary to grasp the materials. Finally, since the class required a lot more computations and problem solving, it could have been that the instructor did not use the board effectively. In fact, this was recommended by one of the students.

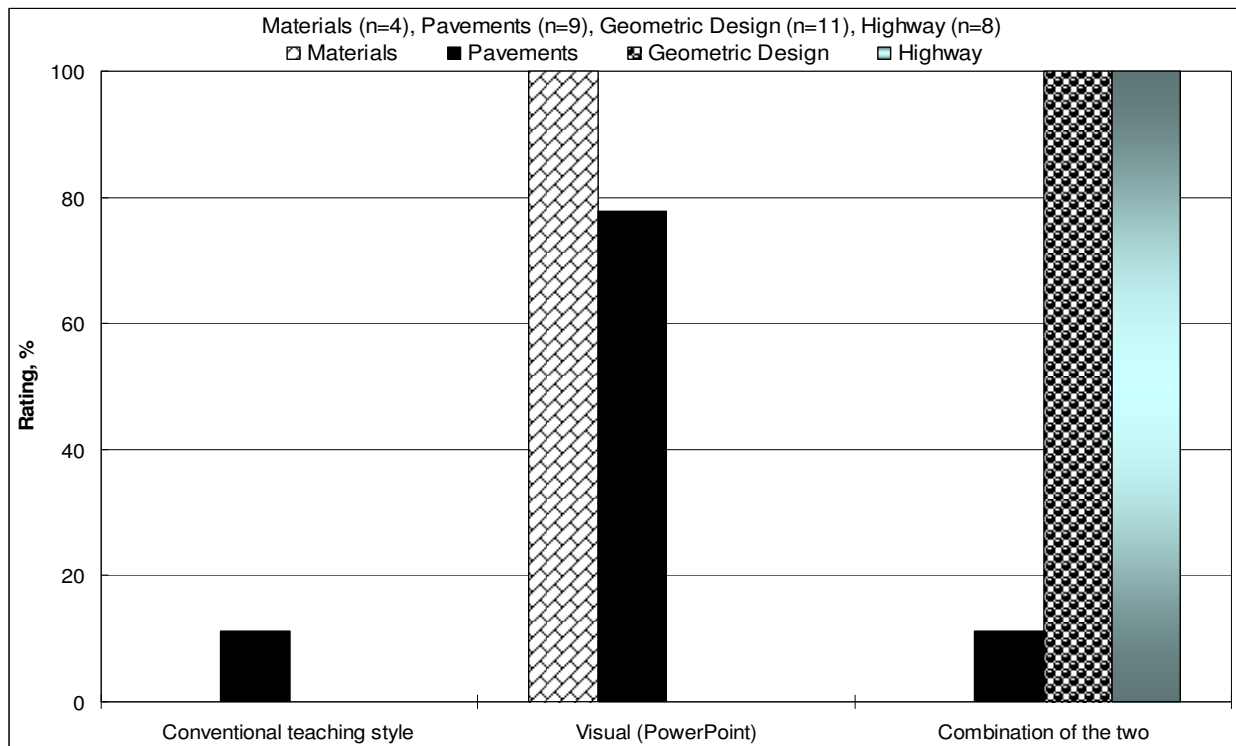


Figure 2. Student selection of teaching preference

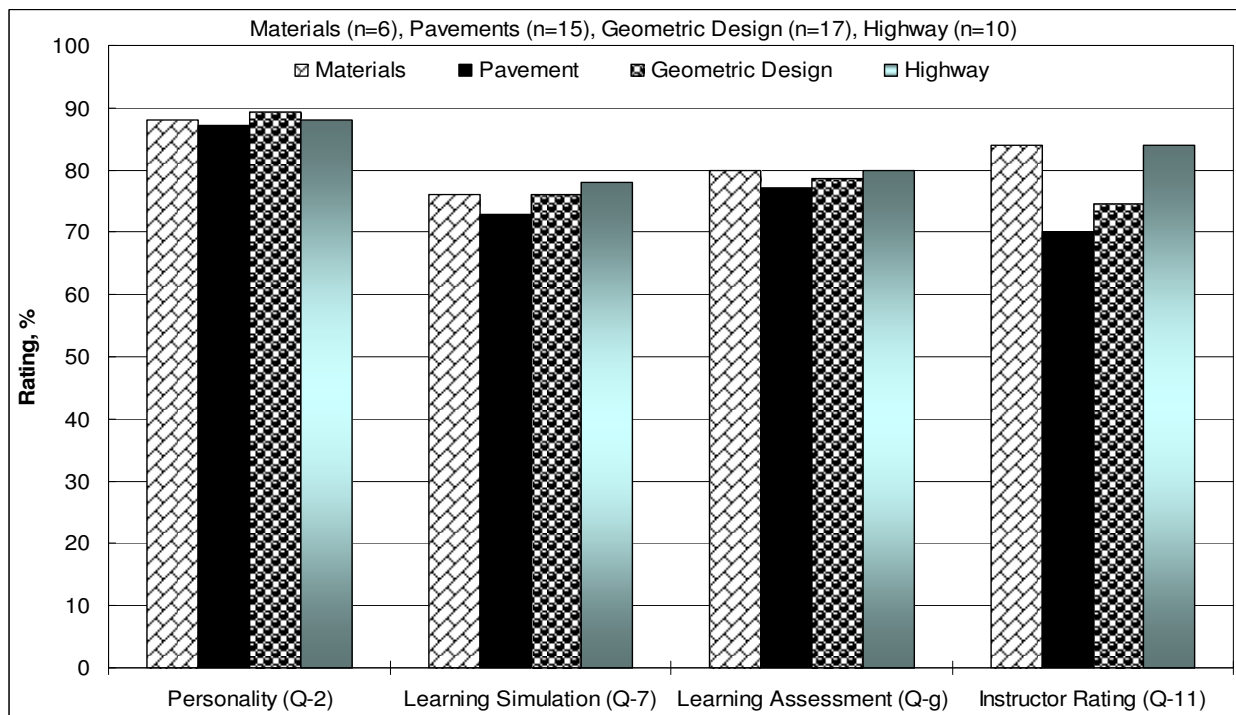


Figure 3. Graphical representation of student survey

Concerned with the student learning, the instructor improved the current teaching method by incorporating the student comments from the survey including a more effective use of the board. It is important to mention that the class structure was mainly based on the use of visual aids which included the use of PowerPoint presentation and video clips. Both the student learning and the instructor rating improved in the last two classes. In fact, the results from the last class were comparable to the first class the author taught at CCNY (Fig. 3).

Discussions

The main objective of this paper was to demonstrate that teaching methods based on visual aids and demonstrations such as PowerPoint presentations and video clips are effective even in evening classes. This paper also represents a successful case study of the author's own struggles for a smooth transition into a new institution while at the same time making sure that the student learning did not suffer. The author of this paper used this style of teaching in four separate evening classes during four different semesters. Student evaluations were filled at the end of each semester to determine the effectiveness of the use of visual aids style of teaching, assess the student learning, and rank the instructor performance level.

Contrary to CCNY norms of teaching styles, the students overwhelmingly supported the fact that the use of visual aids, which included the use of PowerPoint presentations and video clips style lecture was an effective teaching style. All of the classes were scheduled in the evening, and the students held a full time job in the daytime. This observation should not be translated to mean that the type of lecture style presented in this paper should be the method of choice for every class. In fact, it may not be effective, especially for classes that require a lot of computations and problem solving. Felder et al.⁵ pointed out that students' learning styles differ from one to another. The goal is not to determine each student's learning style and teach each student exclusively in the manner that either he or she prefers. It is rather to "teach around the cycle," making sure that every student is addressed to some extent in the instruction. Also, the author is aware that this milestone could have been achieved using a conventional style of lecture. The key message is that when done properly, teaching pedagogy, that is mainly based on visual aids, can be used (even in evening classes of fulltime working students) to ensure that teaching and learning quality takes place effectively. An individual needs to identify his or her strength, be open to other comments, and identify a teaching pedagogy that would ensure teaching quality that best serves student learning. Therefore, one should not feel pressured to fundamentally change their teaching style when moving on to a new institution.

The survey results also showed that both the student's learning levels and the author's performance rating improved in quality while the method of teaching remained unchanged. The author would like to point out that this success story would not be possible if the instructor did take the student's comments into consideration. The ideas presented in this paper should not be generalized. This style of teaching is not for everyone and may not work in every class setting. As mentioned by Estes et al.³, teaching effectiveness is often dependent on personality and the individual talent of the instructor. What works quite well for one teacher may not work at all for another. The author strongly believes that one has to be a good listener and also an excellent

observer for smooth transitioning into a new institution. Among other qualities, one should be energetic and enthusiastic and encourage positive rapport and more importantly demonstrate good knowledge and a clear explanation of the subject matter to simulate student learning in any style of teaching. The author hopes that these recommendations shed light, especially to young faculty, to ensure high student learning and smooth integration into the culture of a particular school.

Conclusions and Recommendations

This paper focuses on the author's experiences to adapt his teaching styles to fit the teaching settings of a new institution. This is very limited data. As such, it should be considered as a case study; therefore, no true conclusions can be made. However, based on student evaluations from four separate evening classes during four different semesters, the following conclusions and recommendations were drawn:

- The use of visual aids is an effective style of teaching, even in evening classes. Academicians need to be knowledgeable about the subject matter, and be enthusiastic, energetic, and confident to be able to simulate student learning.
- Instructors do not necessarily need to be pressured to fundamentally change their teaching styles completely when changing institutions. They need to identify their strength and adapt a teaching pedagogy that best serves student learning.
- Instructors should be good listeners and excellent observers. They should conduct student evaluations regularly.

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Appendix A – Sample of student survey questionnaire (the selected questions for Figure 2 and Table 1 are in bold)

May 10, 2006

Dear Students,

First I would like to thank all of you for your patience and collaboration in the Highway Engineering class. It was a joy and an honor for me to teach you.. I have learned a lot from you, and I hope that you feel the same. I am very pleased with your behavior. You have all proceeded in a professional manner.

As I matriculated into the profession, I would like to improve my teaching style. It is, therefore, important to get your feedback through your experience this semester in the Highway Engineering class. Enclosed is a brief questionnaire. I am asking you to please take it seriously, and give honest answers. Your input will be valuable as it will help me in the future.

Again, I thank you for your support.

Very best regards,

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Enclosures

Highway Engineering (CE 54000)
Spring 2006

Please only circle one answer:

Part A. This part of this questionnaire is about the teacher (Dr. Claude Villiers) experience in the subject (Highway Engineering class) and his ability to present the material to you.

Scale:	Strongly Agree (SA) Excellent (E)	Agree (A) Good (G)	Neutral (N) Adequate (A)	Disagree (D) Poor (P)	Strongly Disagree (SD) Very Poor (VP)	Not Applicable (N/A) Not Applicable (NA)
1. Did the teacher exhibit good knowledge of the subject matter?	SA	A	N	D	SD	N/A
2. Did the teacher stimulate an interest and enthusiasm in the subject?	SA	A	N	D	SD	N/A
3. Was the teacher able to explain the concepts clearly?	SA	A	N	D	SD	N/A
4. Did the teacher stimulate intellectual curiosity?	SA	A	N	D	SD	N/A
5. Did the teacher exhibit enthusiasm for teaching?	SA	A	N	D	SD	N/A
6. Was the teacher well prepared for each session?	SA	A	N	D	SD	N/A
7. Did the teacher structure the subject content in ways which assisted learning?	SA	A	N	D	SD	N/A
8. Did the teacher present the subject matter clearly?	SA	A	N	D	SD	N/A
9. Did the teacher present himself in a professional manner?	SA	A	N	D	SD	N/A
10. Was the teacher available and responded to questions in a timely manner?	SA	A	N	D	SD	N/A
11. Overall I would like to rate Dr. Villiers for the class	E	G	A	P	VP	NA
12. Remarks and recommendations						

Part B. This part of the questionnaire is about the book, class materials, and class structure.

Scale: Excellent (E) Good (G) Adequate (A) Poor (P) Very Poor (VP) Not Applicable (NA)
 Strongly Agree (SA) Agree (A) Neutral (N) Disagree (D) Strongly Disagree (SD) Not Applicable (N/A)
 Too heavy (TH) Heavy (H) Reasonable(R) Light (L) Too Light (TL) Not Applicable (NA)

Abbreviation: CTS → Conventional teaching style (Simply lecture without visual aids)

- | | | | | | | |
|---|-----------|----------|----------|----------|-----------|------------|
| a. In the beginning, my knowledge on this subject was? | E | G | A | P | VP | NA |
| b. Were the class's aims and objectives implemented? | SA | A | N | D | SD | N/A |
| c. Were the teaching materials (handouts and presentations) very helpful? | SA | A | N | D | SD | N/A |
| d. Was the book very helpful? | SA | A | N | D | SD | N/A |
| e. Was this class challenged by my thinking? | SA | A | N | D | SD | N/A |
| f. Did this class advance my understanding of the subject? | SA | A | N | D | SD | N/A |
| g. I have learned a lot in this course? | SA | A | N | D | SD | N/A |
| h. I received adequate feedback on my work? | SA | A | N | D | SD | N/A |
| i. Overall the assessment of this class was fair? | SA | A | N | D | SD | N/A |
| j. Overall the workload for this course was? | TH | H | R | L | TL | NA |
| k. All things considered, I would rate this course as? | E | G | A | P | VP | NA |

l. The teacher should have used (circle only one): **a. CTS** **b. Presentation** **c. CTS and Presentation**

m. The class should have been structured on: (circle only one answer in each category)

a. Tests: 1 2 3 **b.** Homework: None 2 4 6 8 **d.** Quiz: Yes No **c.** Presentation: Yes No **d.** Project Report: Yes No

n. The overall grade should be weighted more on: Rank 1 to 4 (1 is the strongest)

_____ Tests _____ Homework _____ Presentation _____ Paper

Remarks and recommendations: _____
