## Using Comic Oriented Instruction to Create a Joyful Learning Environment

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Characteristics of joyful learning include being highly engaged in the task or experience while having a sense of wonder, curiosity, and satisfaction. The original structure of courses required everyone to sit through the same basic instruction which was designed for the majority of the students. Unfortunately, it has found that this leaves the savvy student bored and resentful, while the challenged student can easily fall behind. A number of improvements have been discussed and used to help with student learning including "flipped table", "blended learning", etc. This presentation will bring a new method using comic oriented instruction aimed at achieving a sense of shared interest and purpose of all students in a classroom. The objective of this presentation is to study an experiment of comic oriented instruction that could attract students' attention and encourage their engagement and interaction in class. The experiment hypothesizes students are interested in comic designed questions/examples presented by the instructor and are engaged in class discussion and interaction with other students. Key questions are focused on whether this is a good approach to allow the instructor to bring together comics and lecture materials that could make learning a joyful experience. An upper division course (Highway Engineering) was selected to study the effectiveness of comic oriented lecture on the improvement of student learning. Lecture materials have been designed in the mixed use of story-telling, comics, alone with class notes to create a unique and innovative lecturing style aimed at creating a joyful learning environment where students feel comfortable to share their interest and ideas with the entire class. A final survey to the entire class was done at the end of the fall semester of 2014. Forty one responses were received. Ninety-eight percent of students agreed or strongly agreed that the comics/drawings embedded lectures attracted their attention so as to help focus on lectures in the classroom. Hundred percent of students agreed (12%) or strongly agreed (88%) that the comics/drawings are helpful tools in creating a joyful learning environment across the semester. Other comments received include "your drawing kept me awake through the entire class time", "the drawings are awesome", "your class should be in the early morning, so we won't be sleepy" etc. A continuing course evaluation has been performed to a course "Heavy Civil and Highway Construction" in the spring of 2015 to compare the feedback and comments between two different classes and student populations (construction management versus civil/environmental engineering). Final results will be used to reinforce the structure of comic oriented lectures and prepare a paper submitted for review for the 2016 Annual ASC conference. The purpose of this experiment is to bring a new lecturing method to be used by some interested instructors to create a joyful learning environment as well as a positive learning atmosphere to allow interactive discussions and ideas being circulated in the entire class.

Key Words: Comic Oriented Lectures, Joyful Learning Environment, Drawing Embedded Lectures