Perceptions of Using Creativity
in an IT Ethics Course – A Case Study of
Students and Instructor

Elizabeth V. Howard
howardev@muohio.edu

Tonya M. Bulach
smithtm2@muohio.edu

Loree A. Carver
carverla@muohio.edu

C. Rochelle Creekbaum
creekbcr@muohio.edu

Robert J. Parker
parkerr3@muohio.edu

Lindsay G. Shockley
shockllg@muohio.edu

Miami University Middletown
Middletown, OH 45042 USA

Abstract

The literature says that using creativity helps students to engage more deeply in course topics but what would students say about using creativity? Students from an IT Ethics course and their instructor offer their opinions of how using creativity in position papers affected learning and engagement in the course. We will also share specific examples of the creative approaches that students used as well as describe the course structure.

Keywords: ethics, creativity, enhanced learning, writing, engagement, ownership

1. INTRODUCTION

As computing educators, we want our students to experience engagement and ownership of the course topics. We have often accomplished these goals by using hands-on class projects (Laffey & Gibney, 1996; Simpson, Burmeister, Boykiw, & Zhu, 2003). We know that when students design and implement a program or project, they are involved throughout the process - from development to debugging to delivery. How many of us have experienced the groans of students when we assign a paper or the frustration that a paper does not demonstrate the same level of commitment and ownership as does a project assignment?

Creativity has long been linked with deeper learning. In 1956, Bloom introduced his Taxonomy of Educational Objectives that educators have used to move students from Lower Order Thinking Skills to Higher Order Thinking Skills. In 2001, Anderson and Krathwol published a revised version of Bloom's Taxonomy (please see Table 1).

In traditional computing classes, moving students along Bloom's Revised Taxonomy is relatively easy since these classes are full of hands-on exercises and projects where students learn new concepts, apply them, and then create their own projects. Our colleagues have investigated fostering creativity within the curriculum (Lewandowski, Johnson, & Goldweber, 2005) and in creating computing-based systems to support creativity (Hewett, 2005; Lubart, 2005; Selker, 2005; Yamamoto & Nakakoji, 2005). Burleson (2005) offers a comprehensive summary on the effect that creativity has on facilitating deeper understanding, learning, and motivation. Burleson (2005) also states that to "facilitate deep understanding of a new concept, to facilitate learning, learners must have the opportunity to develop multiple and flexible perspectives." The important role that creativity plays in learning is not limited to educational settings as Kazanjian, Drazin, & Glynn (2000) suggest that creativity leads to technological learning in large-scale industry projects. In an IT Ethics class, certainly students must learn various ethical theories and understand them so that

Higher Order Thinking Skills
Creating
Evaluating
Analyzing
Applying
Understanding
Remembering
Lower Order Thinking Skills

Table 1. Bloom's Revised Taxonomy

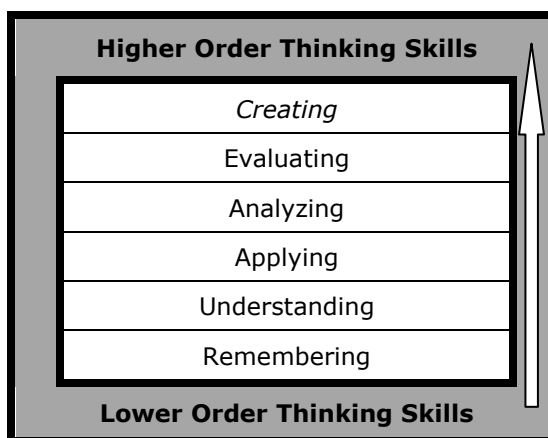they can apply those theories to various scenarios. Online discussion boards and in-class discussions, exercises, and games can help to move students to the higher thinking order skills of analysis and evaluation. The challenge for instructors in a reading, writing, and discussion intensive course is to provide students with an opportunity to create a product that encompasses the material from the course and makes a connection to the students' lives. As Burleson (2005) notes, "Notable educators and psychologists agree that learning is enhanced when it is pursued as a creative and self-actualizing passion."

The instructor's goal in the IT Ethics course is to encourage creativity as a motivation to engage students in the material. The instructor defined creativity in very broad terms but always with the caveat that all papers had to include the requirements, such as length, number of sources, citing classmates, and providing a convincing argument. For example, students could earn creativity points by writing position papers in a genre that is different from the traditional research paper, including, but not limited to, storytelling, transcripts from a court trial, closing arguments for a trial, mock or real interviews, journalism articles, speeches, comic books, songs, or comedy skits.

2. STRUCTURE OF COURSE

As previously described (Howard, 2006; Howard, 2007), the IT Ethics course is designed as a discussion and writing intensive course. The instructor does not present lectures and acts more as a moderator or facilitator during course discussions. To ensure that students are prepared to participate in class discussions, each new topic begins with an in-class quiz. The quizzes are chosen from the review questions at the end of the chapter. Students must bring two (2) full pages of notes for each quiz and the notes count for 50% of the quiz points. Students are permitted to use their notes for the quizzes. Also, before each class meeting (the class met once a week), students posted comments in an online discussion board. In some online discussions, students respond to an article or case study; in other online discussions, students must include articles to support their arguments.

To ensure that students listen to and carefully consider their classmates' opinions, students must cite their classmates in their papers, as suggested by Sanders (2005). For grading position papers, the instructor

adopted a modified version of Sanders' (2005) "7 Cs" grading rubric that is based on seven categories all beginning with the letter C:

- **The Truth**
  - Correctness
    - Proper syntax as well as technical correctness
    - Whether the conditions of the assignment have been met
  - Critical Thinking (Cogency)
    - Logical validity and relevance of the arguments and examples presented (in other words, your argument is convincing)
- **The Whole Truth**
  - Completeness
    - Whether everything relevant that could be said has been said.
- **Nothing but the Truth**
  - Conciseness
    - Whether there is useless prose, irrelevant material presented, or redundancies of material.
- **Told Well**
  - Clarity
    - Whether the presentation is clear and understandable without a need for additional explanation
  - Concreteness
    - Whether abstract concepts are grounded in concrete specific examples
  - Creativity
    - Imagination and innovation in both the presentation and in the substance of the paper.

Each paper is worth 50 points with a possibility of earning five extra points if the paper is particularly creative. Table 2 contains the number of points available for each category. Each student receives a table with their score for each category along with comments for each category.

A variety of exercises and methods were used for in-class discussions. For several discussions, students were randomly divided into small groups and researched or discussed a topic then each group would report to the entire class. To encourage students to "think outside the box," students participated in a session involving Photoshop™ where they created a graphical design to represent a specific ethical issue and the

rest of the class guessed at its meaning. In another session, students used the open source software package called Audacity to experience just how easy it is to edit audio files. Throughout the course, guest speakers visited the class including:

- staff from student services to demonstrate how it is easier to follow a discussion if you are familiar with the topic

- library personnel to demonstrate research techniques and to lead a discussion on virtual worlds (including a session of Wii ™ boxing)

- Director of IT for a local hospital to share privacy concerns

- Director of Research Computing who facilitated a hands-on session on network sniffing

- Guest faculty member from Computer Science department who led a session on whistle blowing using a game that he had created (Brinkman, 2009)

Category	Maximum Number of Points Available
Correctness	10
Cogency	10
Completeness	7.5
Conciseness	5
Concreteness	7.5
Clarity	7.5
Creativity	7.5 (2.5 points with a possible 5 additional points)
Total Points	55

Table 2. Points for Position Papers

In addition to position papers throughout the semester, students, in randomly assigned groups, created group final projects on an ethical issue in IT. Students were free to choose their ethical topic for the final project but were restricted to 15-20 minutes for the presentation. The initial requirement for the project was to create a set of criteria to evaluate the projects, their teammates' contribution, and their own individual contribution. The instructor then used these criteria to generate the grading rubric for projects and student contribution. Involving the students

in the decision process fosters a sense ownership in the project. Rubrics for both the project evaluation and individual evaluation contained a category for creativity.

3. STUDENT EXAMPLES OF CREATIVITY

One student (Lindsay) chose to write a series of newspaper articles for the position papers using classmates' quotations as local responses or as industry experts. Another student (Loree) began the semester writing in a traditional research paper format and voiced frustration with the process. At the end of the semester, her paper on privacy contained aliens monitoring her thoughts and using classmates' quotations both as part of her thoughts and in face-to-face conversations that she was having.

Other students chose to use a different style for each paper, including:

- a story about a fictitious software pirate caught in a lawsuit with Microsoft (Robert)

- a fictitious online discussion board on data mining vs. privacy (Robert)

- a memo to the U.S. Senate Committee on Commerce, Science, and Transportation about Internet Legislation Policy (Robert)

- an interview on intellectual property with the student as the interviewee (Robert)

- a newspaper article on copyright infringement (Tonya)

- a scene from a play about a courtroom drama on internet censorship (Tonya)

- a story about a woman who is trying to decide whether to turn in her boss for trying to force her to illegally copy software (Tonya)

- a story about a woman who was arrested for violation of the Online Child Protection Act because of the websites that she visited for her IT Ethics class (Tonya)

- a newspaper article on a proposed Senate bill to censor the internet and the protests on both sides of the issue (Chelle)

- the minutes of a corporate meeting on the unauthorized use of copyrighted ma-

terial in one of the company's marketing products (Chelle)

- a chapter of a novel that cites George Orwell's *1984* and the saga about the conspiracy to invade our privacy by a virus released by the BBC (Chelle)

4. STUDENT AND INSTRUCTOR PERSPECTIVES

At the conclusion of the course, the instructor invited five (5) students from the IT Ethics course who had used creativity well in their papers to respond to a number of questions concerning their perspectives and opinions of using creativity in the course. The students' responses, along with the instructor's perspective, are summarized below:

How familiar were you before this class with applying ethical theories to various scenarios?

The students all reported that they were not familiar with any of the ethical theories (Kantianism, Act & Rule Utilitarianism, Social Contract Theory) before taking the course. When the instructor first taught an IT Ethics course four (4) years ago, she, too, did not have experience in applying ethical theories and she worked extensively with her colleagues in the Philosophy Department to become more comfortable with the theories. One student (Loree) shared the following insight: "However, after taking this class I see many references to these theories in popular culture. I watched one of the CSI shows and they talked about ethical theories, and the mystery novel I am currently reading referred to the moral question of doing things for the greater good, and if so does that make the characters actions more ethical. In the past these references would have gone unnoticed. Now I read about ethical theories with a smile on my face, because I know what they are talking about." Another student (Lindsay), responded "The terminology associated with ethics is not only frightening but also intimidating. It actually took me making real life connections to the theories through my coursework for me to understand. Relating the theories to my own life made them easier to evaluate and apply to various scenarios."

Why did you choose to use creativity in your papers?

All of the students responded that they chose to use creativity to make the course more interesting. One student (Robert) said, "A creative approach to the papers allowed me to take a fresh approach to each paper. This added novelty, which helps me to learn and to integrate what I have learned into my daily life. Using creativity also helped me to process the subject matter and to see each topic from multiple points of view." Another student (Chelle) writes, "Coming up with a creative means of expressing my opinion while still fulfilling Lizz's requirements actually became something of a game, a challenge. Not only did I end up having fun writing my position papers, I think that I actually learned more from the extra research I did trying to find citations that meshed cleanly." Lindsay shares, "Throughout the course I approached my paper as if I were a reporter or newspaper journalist. Assuming this role I threw myself into my research which ranged from learning how to write like a reporter to adapting my classmates' thoughts and comments to fit my resulting article's needs."

The instructor reported, "I chose to allow students to use creativity in their papers because I want my students to be fully immersed in the course material. I truly believe that every person could use a course in IT Ethics and using creativity allows my students to experience the material in a more meaningful way."

What did you enjoy about using creativity in your position papers?

All of the students replied that they enjoyed the creative process. As one student (Tonya) wrote, "Using creativity turned the assignment from work into enjoyment." Another student (Loree) said, "I had numerous writing assignments in every class last semester so having the freedom to use creativity and thinking outside the box made the assignment more appealing." Lindsay noted, "Creativity is part of who I am and has helped me at difficult times make meaning. No matter what I am taking part in creativity for me equals happiness. In this instance I was able to put myself in someone else's shoes and take on an entirely different somewhat objective viewpoint. Disconnecting from my own insecurities and playing the part of someone else is always

interesting and fun for me. I was given a new alternative outlet which created more possibilities when it came to my own understanding." Chelle shares, "Being creative with the position papers not only gave me a chance to stretch my muse in a course that I never imagined would offer that opportunity (Creative writing in CIT? Puhleeze!), it also forced me to read a little further, to research a little deeper in order to find that perfect citation to fit into my storyline."

Did you find that using creativity helped you or made it harder to cite your classmates in your position papers?

The instructor commented, "I don't know if being creative helps students to find good quotations from their classmates, although the quotes that creative students use seem to fit more smoothly than students who attempt to write a more traditional style paper." The students' responses echoed the instructor's perspective that finding good quotes became part of the creative process itself.

How did using creativity in your position papers make you feel more engaged or less engaged in the topic?

All of the students reported that using creativity made them feel much more engaged in the course and topics. The instructor observes, "When students use creativity in their papers, their thoughts just seem to come to life. They ask more questions – of themselves and me. The students using creativity just seem more interested and engaged in the process."

One student reports (Tonya), "Because the assignments became less like work, I looked forward to writing the papers and coming up with new ideas." Another student reports that creativity was key to his engagement in the material (Robert), "Without the freedom to write creatively, the process of writing the position papers would have become tedious very quickly. The novelty of a new approach for each paper kept me engaged in the process of writing the papers as well as in the topics. The novelty is important to my learning process. When I repeat a process such as writing a paper in the same style repeatedly, it seems like my brain becomes bored and disengages from the process.

The novelty causes me to stay engaged on multiple levels." Another student (Loree) says, "I told a story through documented sources, classmate quotes and my own imagination. Therefore I felt more engaged and challenged to take these words, tell a story, and defend my argument. This made the assignment more enjoyable." A student who wrote as a reporter during the semester reports (Lindsay), "Playing my role of reporter/journalist forced me to become more engaged in the topics at hand. I thought of myself as doing the same work that a real reporter/journalist would do. This entailed my complete immersion in a topic and truly educating myself before I was able to bring in my classmates and develop a storyline. Overall my role helped me to become more aware, involved, and in control. Being in control proved to be important because more often than not I find myself getting lost in topics I find challenging. In this case playing reporter kept my interest and focus." One student (Chelle) tells us, "It was always exciting to happen upon articles written by someone who agreed with my position that I could use in my paper. Finding that perfect quote that just had to fit in somewhere was actually fun!"

Did using creativity in your position papers help, hinder, or make no difference in how much you learned in the course?

The instructor replied, "I think that approaching an analytical subject from a creative standpoint might force students to use both sides of their brains. Anytime that I can get the 'entire student' involved in the material, I think that there is deeper learning." The students agreed that they learned and retained more about the course because they used creativity. One student (Chelle) wrote, "In order to come up with a creative story line that accurately portrayed my position, I had to make sure I understood each topic fully before beginning. I did extra research for each paper just to be sure that I was fully prepared to approach the subject from a knowledgeable standpoint. Creativity doesn't work if you don't know your stuff!" Another student (Lindsay) notes, "My position paper definitely helped me to learn more. Throughout my four years of college I have written many, many papers none of which stick out in my mind as much as my position articles do. The articles were so different from the text book research papers

I had done in the past, that I don't think I could forget about them. I think they not only helped me to understand more but also retain what I did learn. Throughout the course I became more confident in the topics which resulted in more class participation." Tonya: "Often in my papers, I took a stand contrary to my actual (initial) take on the subjects. By doing this, it became much more challenging and forced me to consider other perspectives and the reasons behind them. I feel it helped me to learn during the classes."

Did using creativity in your position papers help, hinder, or make no difference in making a connection between course materials and your own life?

One student (Robert) reported, "Using creativity helped me to make a connection between the course materials and my own life. The creative part of writing the position papers helps me to process the course materials on multiple levels. I found that the creative process made the course and the material personal for me." Another student (Chelle) wrote, "Some topics were easy – strongly for or against. Others took a little research to fully understand and form an opinion, but all of them made me view certain circumstances in a little different light. Working on the position papers made me ask questions, like why I feel the way I do and whether my feelings as to what is right and wrong are based strictly on my upbringing and my life experiences. Am I somehow rationalizing those two things when making decisions, or am I being ethical? And can anyone really ever see and understand all of the sides of a story and make a truly ethical decision?" One student (Loree) responds, "Incorporating my own life experiences in my creative paper integrated the material helping me make the connections from the course. We are faced with ethical issues in our daily lives, we hear about situations in the news, in popular culture and from our friends. For me looking at the ethical position I chose to take from a creative perspective helped me gain insight about the class material."

How did the online discussion boards help in writing your papers?

The students and instructor all agreed that the online discussion boards were invaluable to find quotes to use in their papers. Some

of the students were uncomfortable posting their thoughts while others found that the interaction allowed them to more fully form their opinions.

How did the in-class discussion help in writing your papers?

Again, the students and the instructor agreed that the in-class discussions were helpful to better understand an issue because sometimes it is different to hear someone's voice rather than read their words. Few of the students used quotes from the in-class discussion in their papers but all agreed that face-to-face interaction was important to their understanding of the material.

If you could change anything about writing the position papers, what would it be?

The students offered a variety of suggestions, including having a pair of students work together on one of the papers, open the style of position papers to include more genres (video newscast, blog, comic strips, studies), and to more clearly define the possibilities for creativity. The instructor notes, "I would have every student try being creative in their papers - at least once. I firmly believe that students would enjoy the process more if they tried to think outside the traditional research paper box."

What aspects of the course did you think were successful?

The students offered a myriad of opinions on the successful parts of the course and mentioned the online discussions, guest speakers, clear organization of the course, and the final project. Overall, the students thought that the course was successful. One student (Lindsay) especially appreciated the final project, saying, "I would also consider the final presentation to be another major success in the class. Through collaboration, my group was able to discover and research a topic that I did not even know existed. I became so intrigued and engrossed in this topic that I still, now that the class is finished, find myself evaluating technology on an ethical basis daily. The final project seemed to be the perfect culminating conclusion to the class embodying everything the course was supposed to be."

What aspects of the course did you find frustrating?

Again, the students offered a variety of opinions on this question. Some mentioned that the course had a high workload, although part of that was because the class only met once a week. Others mentioned that the discussion board was sometimes frustrating because some students in the class would wait until the last minute to post their thoughts. The instructor mentioned, "As an instructor accustomed to teaching more technical material, I am still sometimes frustrated by in-class discussions. My intent for the in-class discussions is to allow open discussions, especially for those students who yearn for the chance to discuss issues in a face-to-face setting. I still struggle with facilitating closure to some of the in-class discussions and activities." One student agreed with the instructor and stated that she was not always clear on the point of some of the in-class exercises.

Were you surprised by anything in the course?

All of the students were surprised at how much they had enjoyed the course. They had expected a course filled with boring lectures when, in fact, the instructor did not present any lectures. One student (Robert) summarized the experience, "I don't remember exactly what I was expecting when I registered for this course. I do remember that I expected it to be boring. I expected for it to feel like a chore to come to class and complete the work. I would never have signed up for an ethics course had I not been required to. The experience was almost the opposite of the expectations. The questions asked here have provided a number of opportunities to address the creative aspect of writing the papers and my responses reflect the pleasure that I have taken in the creative aspect. There was much more to it than just having the option to write creatively. My experience was that the professor fostered creativity by demonstrating that she valued creativity and by using a creative approach to teach the course. I cannot say enough about the positive effects that creativity had on my experience of this course." Another student (Loree) commented, "The syllabus was very detailed so I was concerned the class would be very rigid. That was not the case and I was thankful,

however, I have never seen a syllabus with so many details in advance written out for the expectations of a course." The instructor reports, "I was surprised by the level of interest in the course material. The class was composed of all types of students from traditional aged students to returning adult students and from technically savvy to technically inexperienced. Each student was able to bring a unique experience to the course."

What should/could the instructor do differently in the course?

The students reported that they had a difficult time thinking of significant changes that they would make to the course. Most of the suggestions were on managing the course workload or grading, such as not having quizzes and papers due on the same day and not placing a weight on the number of times students are quoted in the position papers. The instructor responded, "I think that to encourage more creativity, I need to emphasize that creativity comes in many different forms – from telling a story to viewing our surroundings from a different perspective. In the future, I plan to share how I try to look outside my own technical box when I design activities for this course. I will also invite students to share ideas of how we can creatively use technology within the course."

5. REFLECTION AND CONCLUSION

The students who used creativity reported that they found the experience to be more interesting, engaging, and applicable to their own lives. When students creatively place themselves in a story, they have used their critical thinking skills and have looked at an issue from multiple perspectives. By citing their classmates in their position papers, students are forced to think and re-think the ethical scenarios, the ethical theories, and the opinions of their peers. The students reported that they had to better understand the topic and often did extra research before they could write creatively about it.

The instructor found that there were two key elements to encouraging creativity in her students: to reward creativity and to model that behavior in the classroom by using techniques outside the traditional classroom approach. As one student said, "the professor fostered creativity by demonstrating that

she valued creativity and by using a creative approach to teach the course."

Overall, both the instructor and the students found that creatively approaching the topics in their IT Ethics class to be a rewarding and engaging experience. Topics that at first might seem distant and abstract to the student became real and personal during the creative process.

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