

## INSTRUCTIONAL DESIGN AND ASSESSMENT

### A Pharmacy Elective Course on Creative Thinking, Innovation, and TED Talks

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**Objective.** To implement and assess an elective course designed to enhance student creative thinking and presentation skills.

**Design.** A two-credit elective course was developed that incorporated creative-thinking exercises, article discussions pertaining to creativity, TED Talk (TED Conferences, New York, NY) analyses, and presentation design and delivery exercises.

**Assessment.** Assessment instruments included pre- and post-course Torrance Tests of Creative Thinking (TTCT). A scoring rubric was developed and used to evaluate a final mock TED Talk presented to faculty and students. Course evaluations were also used to assess student experiences in the course. Students' TTCT verbal creativity scores increased significantly ( $p < 0.05$ ) during the course and their mock TED Talk mean scores ( $135 \pm 6.4$ ) out of 150 were rated highly.

**Conclusion.** The outcomes from this elective course confirmed that pharmacy students could develop and present an original "idea worth sharing" using the TED Talk format.

**Keywords:** creativity, innovation, TED Talks, communication

## INTRODUCTION

Innovative thinking, creativity, problem solving, and communication skills are becoming increasingly important for professionals in all fields. Exponentially increasing amounts of bio-medical information, advances in technology, and cost-efficiency requirements of health care are exerting demands on the health care system, making innovation a critical asset to all organizations.<sup>1</sup> A 2012 survey by the American Management Association revealed that executives consider "creativity and innovation" and "communication" as two of the four critical skill sets necessary for growing business in the 21<sup>st</sup> century.<sup>2</sup> Several health systems (eg, Mayo Clinic, Kaiser Permanente) have recognized the importance of creativity in addressing health problems of the future and have established "innovation centers."<sup>3</sup> Creativity is now an important element of business education with 80% of entrepreneurial programs requiring some form of creativity training.<sup>4</sup> Similar to entrepreneurial education, teaching future health care practitioners how to think creatively is one important factor in fostering innovation.<sup>5-7</sup> Across pharmacy education, critical thinking is a universally

desired outcome, but creative or innovative thinking is another valuable form of thinking that has received considerably less attention.<sup>8</sup> While not typically thought of with regard to pharmacy, the types of "soft" skills required of pharmacists to develop alternative and novel solutions to health care issues are becoming more evident and are included in the 2013 Center for the Advancement of Pharmacy Education (CAPE) Outcomes.<sup>9</sup>

The ability to effectively communicate innovative ideas is another essential trait addressed by CAPE.<sup>9</sup> Pharmacists in today's job market require highly developed oral and visual presentation skills and the ability to present ideas and solutions to a variety of listeners including patients, students, other health care providers, corporate leaders, and the general public.<sup>10-12</sup> Communication skills development is recognized as a key component of pharmacy curricula<sup>13</sup> and a 2010 review of communication skills in pharmacy education revealed that at least some schools have begun to include instruction for oral presentation skills.<sup>14</sup> Although pharmacists are considered to be highly intelligent and well-educated, many do not receive sufficient training necessary to become confident speakers.<sup>10</sup>

One popular contemporary media production that combines innovative thinking with a compelling communication style is TED Talks. The tagline of the TED (Technology, Entertainment, and Design) organization

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is “Ideas worth spreading. They’re not all perfect. But they are all short.”<sup>15</sup> Although innovative idea sharing is the crux, much of the TED Talk appeal can be attributed to the engaging presentation style, which is often the antithesis of traditional academia presentations.<sup>16</sup> Approximately one third of the presentations pertain to science and technology, and the TED initiative is believed to be one of the most prominent science popularization projects in history.<sup>17</sup> Because of their immense popularity, TED Talks provides a model for how to communicate unique ideas concisely and effectively to a diverse audience.

This paper describes an elective course at the University of Kentucky College of Pharmacy designed to enhance student ability to develop and present innovative solutions to healthcare-related problems. This unique course, which uses a variety of nontraditional teaching methods, leads students to develop original ideas and culminates in a mock TED Talk presentation to an audience of faculty and staff members and students.

## DESIGN

The two-credit-hour elective course, Creative Thinking for Innovation, was offered each spring semester to third-year student pharmacists from 2013-2015. The course was delivered in a hybrid format with 11 face-to-face class sessions and the equivalent of five additional class sessions completed online or outside of regular class hours. Each class session (traditional or otherwise) was approximately two hours. The five online sessions consisted of reading assignments, TED Talk video reviews, creative-thinking exercises, and presentation development. Desired student outcomes to be achieved by the end of the course are contained in Table 1.

The unique nature of this course’s outcomes required a nontraditional approach to teaching and learning. Unlike most other courses, enrollment was intentionally capped at five students to ensure that every student engaged fully in course dialog and activities. From a teaching perspective, this course consisted of elements similar to graduate education or even experiential teaching, in which more instructor time was allocated to individual student work. As was announced to the students, the course contained no

lectures, no content-based quizzes/examinations, and no memorization. Students were informed that success in the course required diligent attendance, completion of all assigned activities, preparation for class discussion, and most importantly, a significant amount of sustained thinking combined with an acceptance that being “wrong” does not necessarily equate to failure. Four hundred total points were available within the course, with 100 allocated to class discussions, 150 to in-class and take-home activities, and 150 to the mock TED Talk.

The types of instruction required to enhance creative and innovative thinking differs from typical content-based didactic instruction. Sternberg cites creative learning as one of the key types of successful intelligence. Thinking creatively involves the ability to redefine problems rather than accept how problems are presented; a willingness to take intellectual risks; the ability to overcome criticisms of being creative; the willingness to convince others of the value of one’s creative ideas; and the self-confidence that one has the ability to produce creative ideas.<sup>18</sup> Course activities were designed to accommodate a logical progression of attitudes and skills throughout the semester culminating in a final mock TED Talk presentation to college faculty members and students (Figure 1). The five key course components that in combination drove the instructional strategy decisions were establishing a creative and innovative mindset, developing divergent-thinking skills, utilizing creative-thinking strategies, developing presentation design skills, and developing public speaking skills.

Most of the instructional elements were designed to guide students toward the development of an original idea. Students were tasked early with identifying a list of healthcare-related problems or issues for which they would be interested in pursuing possible solutions. Student identification of a problem of interest and the resulting exploration of solutions was a key element designed to increase student motivation and engagement in course activities. According to the National Survey of Student Engagement (NSSE),<sup>19</sup> student-selected projects that involve significant interaction with faculty members is a type of “high impact” educational activity that promotes psychological and cognitive investment and leads to better learning outcomes.

Establishing a culture with characteristics<sup>20</sup> that support creative development was an underlying focus of the first half of the semester. This included helping students become comfortable with sharing ideas, pursuing personal interests, and most importantly, taking risks and releasing a fear of failure. Fear of failure is believed to be almost institutionalized within the education system and inhibits a host of innovative thinking patterns.<sup>21</sup> Best

Table 1. Learning Outcomes for the Creative Thinking for Innovation Course

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Employ strategies to increase creative thinking
Examine healthcare issues/problems from a variety of perspectives
Develop innovative approaches to addressing healthcare issues/problems
Develop a visually appealing presentation
Communicate a novel idea to a broad audience

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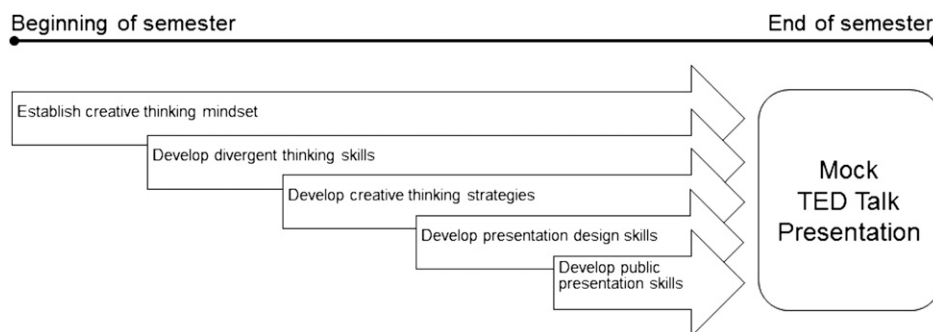


Figure 1. Course Activities Progression Throughout Semester

describes aversion to risk as one of the primary barriers to creativity.<sup>22</sup> Similarly, reluctance to share ideas and fear of failure are cited as 2 additional impediments to creativity.<sup>23</sup> Because of these factors, altering students' mindsets regarding failure was one of the most important course design elements. Developing a class culture that valued innovative thinking over "avoidance of being wrong" was primarily accomplished through a series of readings and class discussions. The first two weeks focused on debunking the myth that creativity is an inborn trait and convincing students that creativity and innovation requires overcoming a mindset that every idea must be perfectly formed and validated before it is shared.

Required readings and videos addressing creativity and associated attitudes came from a variety of sources including *Harvard Business Review*, *The Wall Street Journal*, and TED.com (Appendix 1). Other readings and videos used within the course are available upon request.

Two important instructional design components of this course pertained to the development of creative- and divergent-thinking skills, which require educational strategies that differ from traditional education perspectives.<sup>24</sup> Traditional courses typically teach to and assess convergent thinking, which involves finding a single correct answer to a well-defined problem. Divergent thinking (often associated with creativity) involves producing an assortment of appropriate responses to an open-ended problem.<sup>25</sup> One of the specific strategies of this course was to regularly engage students in problem-solving activities that required sustained thinking and development of alternative thinking patterns. Throughout the course, but concentrated primarily in the first two months, in-class sessions contained one or more brainteasers or puzzles that students had to solve individually. Solutions required students to adopt divergent-thinking strategies and, in most cases, the puzzles forced them to spend considerable time (often to the point of discomfort) concentrating on possible solutions. In addition to facilitating creativity, one potential side benefit of

practicing divergent-thinking exercises like these is that it helps students become less stressed over experiencing failure.<sup>24</sup>

One example of the in-class divergent-thinking exercises was the "coin cross" activity in which students were presented with a vertical row of six pennies and a horizontal row of five pennies (intersecting at the third penny down in the vertical row and fourth penny across in the horizontal row). Students were tasked with moving only two coins to another position to form a symmetrical cross with two rows containing six coins each when summed either horizontally or vertically. The solution is to move one of the pennies on the horizontal row to the opposite end of the row and stack one of the vertical row pennies on top of another where the rows intersect. It typically took students between five and 15 minutes to complete these activities. Another in-class example used to promote creative thinking was the "What if" activity. Students were asked to describe what a community pharmacy would look like if it were operated like a restaurant. The purpose of this activity was to teach students to examine opportunities outside the traditional paradigm and consider uncommon perspectives by using associative thinking.<sup>26</sup>

A required text, *ThinkerToys: A Handbook of Creative Thinking Techniques*,<sup>27</sup> was used to guide students through specific creative-thinking methods to discover potential solutions to their identified problem. Some of the learning activities required them to choose one or more techniques to apply to a problem in order to develop divergent viewpoints. The acronym SCAMPER (substitute, combine, adapt, modify, put to another use, eliminate, reverse) is one example of a technique for developing creative answers. The acronym is a mnemonic device for the different questions one can ask to reframe a problem.

Although students continued to work on developing and refining their innovative idea throughout the semester, the latter half of the course focused on the creation and

delivery of compelling presentations. The instructional strategy for this portion of the course consisted of readings and discussions pertaining to effective presentation design and delivery, student analysis of design and delivery techniques used in various TED Talks, and a trial run of each student's presentation followed by feedback from the instructor and classmates. The readings and Ted Talk analyses highlighted aspects of visual design and oral delivery that impact audience interest and attention levels. One of the required readings was the TEDX Speaker Guide,<sup>28</sup> which provides guiding principles for presentation design and delivery. For example, a typical TED Talk consists of a few slides with limited text, images that portray information, content that tells a concise and compelling story, and a delivery that captures the audience's attention early and ends with a bold statement or call to action. The TED Talk format was chosen because of the engaging presentation style that relies on the speaker's ability to succinctly present an idea in an interesting manner.

The next to last class session at the end of the semester was devoted to a trial run of the presentation and provided students the opportunity to present in a "safe" environment. Each student presented their innovative idea and was asked to reflect on what she or he perceived went well and what could be improved. The instructor and other students then offered additional feedback. This trial approach allowed them to concentrate on improving their skills as opposed to just trying to earn a good grade.

The final mock TED Talk presentation occurred during the last class session of the semester with an audience composed of college faculty and staff members and students. Not including the instructor and students in the course, audience size ranged from 11 to 19, with the majority being faculty members. The topics of the TED Talks covered a variety of issues and each lasted from five to 10 minutes, followed by an additional five to 10 minutes of audience questions. Table 2 contains a complete list of presentation topics. This study received approval from the University's institutional review board.

## EVALUATION AND ASSESSMENT

Assessing creative thinking is not as straightforward as assessing knowledge-based learning outcomes. Penluna criticizes education's desire to measure student performance against fixed, consistent, and predicted learning outcomes when they pertain to novel and creative ideas.<sup>24</sup> Innovative thinking and ability to present novel ideas cannot be effectively measured with traditional forms of assessment, therefore effectiveness of the course was evaluated using a triangular approach consisting of pre- and posttests of creative thinking through the validated

Table 2. Final Mock TED Talks by Pharmacy Students Completing the Creative Thinking for Innovation Course

Year	Mock TED Talk Title
2013	The focus should be on wellness
2013	Can't we all just get along
2014	The pharmacist as portrayed in popular culture
2014	Using technology to communicate embarrassing health information
2014	Adequate pharmacy technician staffing
2015	Sustainable healthcare
2015	A new thought on intellectual disabilities
2015	We have to care
2015	What does Pandora radio have to do with pharmacy? The solution to alert fatigue

Torrance Tests of Creative Thinking (TTCT),<sup>29</sup> evaluation of mock TED Talk using a scoring rubric, and student course evaluations.

The TTCT is the most widely used and psychometrically sound measurement of creative thinking and has been validated by numerous studies.<sup>30</sup> This instrument essentially measures divergent-thinking ability, which is the type of cognition required for original ideas.<sup>31</sup> The TTCT comes with two tests (verbal and figural), each with two forms that cater to pre- and posttest measurements. Students completed TTCT verbal and figural form A at the beginning of the course and TTCT verbal and figural form B at the conclusion of the course. Instruments were scored by Scholastic Testing Services, Inc., and pre- and posttest scores were analyzed to determine if creative-thinking scores changed over the course of the semester. Although both tests were given for the sake of comparison, the verbal test is most appropriate for measuring creative thought. The verbal test measures divergent thinking in a variety of ways including one's ability to find alternative uses for objects, to make product improvements, and to ask questions and speculate on causes or future events. These skillsets are fundamental to innovation and this type of thinking is important to pharmacists in an ever-changing health care landscape that demands new approaches to health care services. The figural tests primarily emphasize drawing and visual creativity, which was not a focus of the course. Results from a paired *t* test of TTCT scores of verbal creativity indicated significant gains in overall verbal creativity ( $p < .05$ ). Interestingly, the course contained a mixture of students whose pre-TTCT scores ranged from low to high. With the exception of one outlier, all students experienced TTCT score gains. Table 3 illustrates the pre- and posttest scores of each student as a total, as well as the sub-categories of mental characteristics (fluency, flexibility,



Table 3. Torrance Test of Creative Thinking (TTCT) Verbal Scores for Pharmacy Students Enrolled in the Creative Thinking for Innovation Course

Student	Fluency Sub-Score <sup>a</sup>		Flexibility Sub-Score		Originality Sub-Score		Total Verbal Score	
	Pre	Post	Pre	Post	Pre	Post <sup>a</sup>	Pre	Post <sup>a</sup>
A	84	112	45	56	68	100	197	268
B	92	108	44	49	72	89	208	246
C	92	169	47	59	66	143	205	371
D	74	99	39	52	63	82	176	233
E	104	98	54	50	88	83	246	231
F	78	125	45	64	61	103	184	292
G	142	122	60	62	96	111	278	315
H	79	93	48	43	51	59	178	195
I	53	67	32	33	23	25	108	125

<sup>a</sup>Indicates statistically significant group differences (paired *t*-test) pre to post:  $p < 0.05$

and originality). The fluency index measures the total number of relevant ideas generated. Flexibility is a measurement for the number of different categories of responses and originality refers to the uniqueness of the responses. As expected, results from the figural (drawing) portion of the TTCT were not significant ( $p = .15$ ).

The primary “product” of this course was an original idea for addressing a healthcare-related issue, delivered in the form of a mock TED Talk. Best argues that the creative process can only be described in relation to the product and therefore the product must be the focus of assessment.<sup>22</sup> The instructor used a scoring rubric (Appendix 2) to evaluate the different components of the final product, which included the innovative idea, the approach used, and the presentation design and delivery. The rubric was developed by the instructor in consultation with an assessment specialist. A faculty member and fourth-year pharmacy student reviewed the rubric for clarity and face validity, resulting in minor revisions to final rubric wording. All students ( $N = 9$ ) scored relatively well on the final mock TED Talk presentation ( $135 \pm 6.4$ ), which was worth a maximum of 150 points.

Finally, student course evaluations were used to gauge student perceptions and other aspects of the course. All students reported spending an average of three to five hours per week outside of class working on course assignments. The course received excellent ratings across all three years, with maximum mean scores (4.0 on a 4.0 scale) on most items, including overall value of the course and overall quality of teaching by the instructor in the course. Open-ended comments from evaluations indicated that students were pleased with the course and perceived they were more adept at finding innovative solutions to problems and at presenting ideas to an audience of peers and authority figures. Appendix 3 contains a representative sample of open-ended comments on student evaluations.

Because of the nontraditional instructional design of the course, initial development was relatively time

intensive. Becoming familiar with creativity and innovations research and the search for appropriate instructional materials (textbook, readings, videos, puzzles, etc) was the most time-consuming part of course development, and took an estimated 50 hours. However, actual time spent outside of class hours during the semester averaged approximately one hour per week, consisting primarily of grading and preparing for class sessions. The class met in a small-group learning room equipped with a video monitor and moveable tables and chairs seating up to 12 students. Minimal resources were needed to teach the class. The only major expense was the TTCT starter packet, which cost \$253 and contained complete tests for 20 students.

## DISCUSSION

Educators (of all fields) often lament that students are more concerned with getting a good grade as opposed to thinking and learning. As some pharmacy educators have stated, most of our programs do not foster student development of innovative thinking.<sup>32</sup> The purpose of the Creative Thinking for Innovation elective course was to teach students how to invoke creative thinking, develop an original idea pertaining to health care, and use an engaging presentation format to communicate that idea to a public audience. Through the development of divergent-thinking skills and the focus on innovative ideas for health care issues, this course directly addressed CAPE subdomain 4.3: Innovation and Entrepreneurship.<sup>9</sup> Results from evaluations indicate that the instructional strategies employed within the course were successful at achieving the desired learning outcomes.

From a scholarly perspective, it is important to view this course as designed: a small enrollment, highly interactive course with focused attention on individuals and their projects. Compared to most other classroom-based courses, the number of students in this study is small. The

mentor-like nature of this course warrants that it be examined more like graduate student education in which fewer students studied over a period of time is appropriate. From the instructor's perspective, results from the course have been more positive than expected. In addition to data collected for evaluation purposes, it was clear that most of the students embraced an innovative mindset and spent considerable time developing their ideas. The course philosophy and culture regarding risk-taking and innovative thinking may have been the most instrumental to the course's success. One of the primary goals was to expand the boundaries of student thinking, but prior teaching experience has shown that students will not venture beyond the safety of the grading scale. As was discussed throughout several readings and class sessions, creativity and innovation are severely limited if one is unwilling to risk failure. Unfortunately, the cost of being wrong is very high in traditional courses because educators typically only reward convergent thinking and students are often penalized for alternative approaches to solutions. Gaining student trust and convincing them their grade would not suffer for taking risks was critical for getting them to think creatively. For most, it took several class sessions to engender the trust that taking intellectual risks and developing an idea worth sharing was more important to obtaining a good grade than was the production of a fail proof idea. Note that this is not a philosophy that can be adopted by the vast majority of pharmacy or other health care professions courses. Most courses require convergent-thinking skills and the ability to produce a singular right answer is imperative. This course is complementary because in the larger scheme of problem solving, both convergent- and divergent-thinking skills are necessary for creative problem solving to be effective.<sup>6</sup>

A learner-centric, small-enrollment course design that evoked both cognitive and psychological engagement from the students was also crucial to ensure student commitment to the process. Each student's personal interests formed the foundation upon which most of the course activities were conducted, thus teaching this course was facilitative in nature and more akin to graduate student mentoring than classroom instruction. The limited class size may also have encouraged increased engagement among students who fear embarrassment from being ill prepared. Anecdotally and from course evaluation comments, students appeared to have enjoyed the course and the individual class sessions because they were not boring, made them think, were of personal relevance, were fun because of the differentiated teaching style, and emphasized learning and progress as opposed to points and grades. Although beyond the scope of this paper, each

of those five points could evoke a philosophical discussion regarding the design of educational experiences.

In addition to course outcomes, the mock TED Talk presentations have also been well received by other faculty within the college and have become a small showcase for student ideas and abilities not typically observed in the required curriculum. From the instructor's perspective, the trial run of the presentations was vital to developing student skills and confidence. The experience of giving a presentation that did not use slides as "presenter notes" allowed the students to refine the weaker points of the delivery. Anecdotal conversations with students afterwards indicated that this was one of the few times in their educational experience in which they were given the opportunity to practice a presentation and receive instructor feedback without it counting for a grade. Although a simple design strategy, the no-stakes practice was important to reducing student fear of failure and improving their overall TED Talk performance to a live audience.

The number of students (N=9) who have taken the course is one limitation to the study. In some respects, that number is small, but the study spans three years and the nature of the course as one with high faculty-student interaction warrants an analysis slightly different than typical classroom-based courses with larger enrollments. Similar to evaluations of graduate student mentoring or student precepting, the overall number of students evaluated may be less important than the replication and consistency of results across three years.

A second limitation to study results is that students' mock TED Talk presentations were evaluated only by the course instructor. This was a subtle aspect designed to help alleviate student fear of "being wrong," but it does somewhat limit interpretation of the results.

A third limitation is the inability to scale the course in its current design because of the high faculty to student ratio. While maximum course enrollment could potentially be increased slightly without a decline in learning outcomes, effectiveness of the strategies would likely suffer in a large course. Logistics of the strategies themselves limit the ability to teach numerous students simultaneously. More importantly, the very personal and engaging nature of the in-class sessions would be compromised with large enrollments, in which some students could be more apt to "hide" from participation.

The individual instructional strategies within this course were designed to be effective as part of a whole; however, there are elements that theoretically could be implemented in other courses. First, there is always value in students thinking about problems and how to potentially solve them. Assignments or projects in which students select a specific health care challenge to address can

still be a worthwhile exercise in other contexts, regardless of whether it increases creative thinking. The aspects of this course that could be adopted most easily elsewhere are the educational components addressing presentation design, development, and delivery. As was the case in this course, many of the fundamental activities regarding effective design and presentation principles can be completed by students online and the more practice they receive presenting to various types of audiences, the more comfortable and skilled they should become.

Future considerations for the course include potentially opening enrollment to medical or other health professions students if spots are available. The course can easily span across disciplines and introduction of different perspectives could be valuable to the innovative-thinking process. Follow-up research is also necessary to determine the long-term effects of the course. Results from the creativity tests indicate that student creative-thinking skills are increased after the course, but they do not reveal if students will transfer their creative mindset/skills beyond the course itself. From a longitudinal perspective, one question to answer is whether graduates become innovators, use creative-thinking strategies to solve problems, and are engaging presenters in their professional careers.

As educators continue to address domain 4 CAPE outcomes in their curricula, perhaps alternative course designs and mentor-like teaching exhibited in this course should be considered. Most faculty members would probably agree that the nature of teaching and learning is different in small group settings. Instructors can devote personalized attention and students cannot easily conceal weaknesses or lack of effort. The likelihood that domain 4 “non-content” outcomes (eg, self-awareness, leadership, innovation, and professionalism) will be achieved may be improved when students are under close personal watch and guidance of a faculty member(s). The biggest issue with instructional models like this innovation course is they are very time inefficient as compared to large enrollment didactic courses. The looming question then is do faculty members and schools have adequate time and resources to deploy alternative instructional models on a large scale. Although the answer is most likely no, the academy must continue to strive to balance optimal course designs against cost and efficiency.

## SUMMARY

The Creative Thinking for Innovation course was designed to increase student divergent-thinking skills and develop presentation design and delivery skills. Nontraditional instructional strategies fostered a creative mindset, required students to use creative-thinking

methods for solving problems, and illustrated principles of effective presentation skills. Evaluation results from TTCT tests and their final mock TED Talk presentations indicate that the course was successful in increasing divergent-thinking skills and enabling students to use engaging presentation styles to present an original idea.

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Appendix 1. Sample Readings and Videos

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Appendix 2. TED Talk Scoring Rubric Used for the Creative Thinking for Innovation Course

	<b>Outstanding</b>	<b>Satisfactory</b>	<b>Unsatisfactory</b>
<b>IDEA (50 points)</b>			
Originality	Offers a novel/unique idea or question that also creates new knowledge or knowledge that crosses boundaries. (27-30 pts)	Offers a novel/unique idea or question. (21-26 pts)	Offers an unoriginal idea. (0-20 pts)
Analysis	Demonstrated critical thinking by analyzing issue, making connections, and anticipating implications. Thoughts revealed new, unique, or atypical combinations of ideas. (18-20 pts)	Demonstrated critical thinking by analyzing issue, making connections, and anticipating implications. (14-17 pts)	Analysis of the issue is incorrect or incomplete. (0-13 pts)
<b>APPROACH (30 points)</b>			
Creative approach	Excellent use of ideas/thoughts/processes from disparate subjects. Issue approached from a novel perspective. (27-30 pts)	Issue approached from a novel perspective. (21-26 pts)	The approach to the issue was neither novel nor creative. (0-20 pts)
<b>PRESENTATION (70 points)</b>			
Verbal	Presentation and thoughts flowed well. All points were articulated clearly and concisely. Presentation style was natural and confident. (18-20 pts)	Presentation flowed logically. Most points were articulated clearly and concisely. Presentation style was somewhat natural and confident. (14-17 pts)	Presentation did not flow well. Points were unclear or not concise. Presentation style was unnatural. (0-13 pts)
Visual	Demonstrates extraordinary use of presentation medium and/or body language. Visuals contribute substantially to the presentation. (18-20 pts)	Demonstrates skillful use of presentation medium and body language. (14-17 pts)	Does not demonstrate skillful use of the presentation medium or body language (0-13 pts)
Overall	The presentation was compelling and maintained audience attention. (27-30 pts)	The presentation was somewhat interesting. Audience attention waned. (21-26 pts)	The presentation was uninteresting and did not maintain audience attention. (0-20 pts)
Points	135 – 150 (90% threshold)	105-134 (70% threshold)	
Presenter: _____ Total Points: _____ out of 150 possible			

Appendix 3. Representative Student Evaluation Comments From the Creative Thinking for Innovation Course

“He lets this class be about you. I always had my doubts of successfully completing the tasks, but he never made me feel bad for taking longer than the other students or having to explain things multiple times. He made this class individualized. It was about my success in growing as a creative thinker, not about a test score.”

“This class is awesome and Dr. Cain is the perfect person to teach it. We get so stuck in pharmacy here, it’s nice to be forced to step outside the box and think about other things in different ways.”

“This is one of the best courses of my pharmacy school career. It was the first time I had to get over my fear of failure and just try to learn and practice the concepts. It was more about learning than about grades.”

“He really forced us to interact and speak. When you are normally in a class of over 100, you can get used to not participating. He was good at getting us interested and think of new things.”

“I learned how to back myself out of the figurative thinking corner. It gives you tools to channel your creativity into a productive and useful way.”

“I have never had a class that attempted to achieve what this course does. It is completely unique, and I do believe my creative thinking has improved. Because of this, my trouble shooting and critical thinking has improved.”