

## Inspiring Student Engagement through Two-Minute Follies

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# Inspiring Student Engagement through Two-Minute Follies

## Abstract

Short, in-class, student presentations are an effective way to inspire student engagement while simultaneously improving communication skills. As part of three different civil engineering courses including infrastructure, structures, and sustainability at West Point and Mississippi State, the authors have introduced a student presentation concept dubbed “Two-Minute Follies.” This paper discusses and demonstrates with supporting data that Two-Minute Follies are simple to execute, consume a small amount of time, and engage students more directly in their own education while at the same time building the student’s presentation confidence and style. By engaging the student in a direct way that provides an opportunity to share with their peers, the student is encouraged to progress in Bloom’s Taxonomy. The student also builds skills that are necessary for life-long learning, a traditionally difficult skill set for undergraduates to fully embody.

The concept is to assign a two-minute student presentation which will open each class session. Creativity is encouraged, but the timing is rigidly enforced. PowerPoint or other media content is tightly constrained such that the two minutes are focused on the student’s presentation skills and the topic at hand rather than the media employed. Direct observation, course-end feedback by students, and external observation by educators not in the course all indicate that the technique works very well. Specifically, the benefits demonstrated include:

- Allowing students to investigate a topic of their choice increases their engagement with the material
- Student presentations considerably enrich the educational experience by introducing topics that students are excited about and which would otherwise be absent from the course
- Observing fellow students directly engage course-related material encourages life-long learning through peer modeling
- Students develop essential summarizing and presentation skills
- Very little instructional time is lost if executed in a disciplined way

The authors discuss the details of the Two-Minute Follies technique and its measured benefits as well as provide support for employing this assignment in a variety of courses.

## **Introduction**

Educators are always seeking ways to encourage their students to grow and learn. Like an experienced carpenter, most experienced teachers have more tools in their box than they are able to use on any particular project, not because they don't care about the quality of the finished product, but because the time available for those critical enhancements and finishing touches is very limited. The carpenter and the teacher both must make daily decisions that balance value added against time invested. With this in mind, the concept of Two-Minute Follies has been developed at West Point and adopted by Mississippi State as a means to motivate and teach students in an effective and time-efficient manner.

The basic concept of the Two-Minute Folly is that the students are given a relatively wide-open assignment where they choose a presentation topic related to the course, but they are given a very short time window in which to make that presentation in front of their peers and instructor. This has proved a very effective and efficient teaching tool, and is highly motivational to students despite comprising a very small percentage of their final grade. This motivation is discussed in detail.

This paper also discusses and demonstrates with supporting data that Two-Minute Follies are simple to execute, consume a small amount of time, and engage students more directly in their own education while at the same time building the student's presentation confidence and style. By engaging the student in a direct way that provides an opportunity to share with their peers, the student is encouraged to progress in Bloom's Taxonomy. The student also builds skills that are necessary for life-long learning, a traditionally difficult skill set for undergraduates to fully embody.

## **Background**

In his book *Drive: The Surprising Truth about what Motivates Us* (Pink), Daniel Pink argues convincingly that extrinsic motivation is adequate for simple, straightforward tasks while intrinsic motivation is necessary for tasks requiring conceptual, creative thinking. Mr. Pink further states that three factors lead to better performance and personal satisfaction: autonomy, mastery, and purpose. As humans, we have a desire to be autonomous and self-direct our efforts. Mastery involves the dedication of significant time and effort to improve one's knowledge and abilities. Purpose gives us a reason for dedicating our precious resources of time and effort to any given task in the first place. The bulk of educational research is supportive of this evolving view of what motivates students to learn, with topics like Active Learning, Project-Based Learning and the Flipped Classroom movement speaking strongly on this topic. Bishop and Verleger (Bishop and Verleger) present an exceptional summary of the existing research into the Flipped Classroom concept, and this strongly supports the general concepts of self-learning and student-driven content. That said, Bishop and Verleger are very clear that while the outcomes

have been generally positive, further high-quality research is needed to validate the overall Flipped Classroom model.

Applying Mr. Pink's research to teaching and learning in higher education, one might similarly argue that the extrinsic motivation incurred by assigning grades to typical homework assignments and quizzes is adequate for learning. However, encouraging intrinsic motivation is much more effective in helping students to progress up Bloom's Taxonomy (Bloom) (Overbaugh and Schultz), shown in Figure 1. Following Pink's argument, in order for students to embrace solving wicked and other complex problems, they must be motivated to do so. What is viewed as traditional motivation, or in Daniel Pink's vernacular Motivation 2.0, involves

carrots and sticks. The rewards and punishments for doing well or not are imposed extrinsically on the students. Pink argues that the external based system of Motivation 2.0 is no longer (or possibly never was) as effective as the internal based motivation of an individual. (Pink, pg 31). In order to inspire students, the manner in which tasks and rewards are structured needs to progress beyond the test then grade paradigm. The students must feel they have autonomy, mastery (or the ability to strive toward mastery), and purpose to inspire them towards discovering how to solve the complex problems facing today's professionals; students must be given the latitude to develop their own internal motivation.

The Two-Minute Follies assignment is an effective pedagogical tool to encourage intrinsic motivation in a course and foster student autonomy, mastery, and purpose. Students appreciate the autonomy they are given to freely select a topic to research and present what they have learned to the class. They also appreciate the freedom to decide how best to teach others, whether that is through a presentation slide, a skit, song, demonstration, or some other means. When charged with teaching their peers, students' feel an innate responsibility to become "masters" of their chosen topic. Consequently, they spend more time and effort researching and learning about their topic than they might have otherwise for a different type of assignment. In a world where every task has points associated with it and there is little time for recreation, many students report that they experience satisfaction in simply learning more about something they are interested in but would not have the time to research otherwise. Finally, incorporating an assignment like the Two-Minute Follies into a course tends to change the students' perception of the course overall. The course becomes less about memorizing information and more about the transcendent purpose of improving oneself and refining skills in preparation to be successful in the future.



Figure 1: Bloom's Taxonomy after Overbaugh and Schultz, 2013

Autonomy speaks to the desire of humans to be their own masters and is a very powerful tool in the classroom. Students want to do something interesting and to feel like they have the ability to control their own destiny by picking and choosing where they place their efforts; sometimes the instructor just needs to get out of the way. There are numerous terms to describe pedagogical approaches to developing student autonomy in higher education, such as self-directed learning, independent study, independent learning, student-initiated learning, open learning, self-study, etc. Finding ways to incorporate autonomy in a course, some of which is captured in the Flipped Classroom movement, will result in students practicing skills required for life-long learning. That said, the Two-Minute Follies assignment is not totally autonomous; the student is not responsible for establishing the task or the assessment criteria. However, a key teacher/mentor task is moving our students toward being autonomous and in this assignment the students are given the flexibility to identify a topic for research, find resources, decide how best to teach others about the topic in just a short time, and then reflect upon their performance once the presentation is complete.

### **Mechanics of a Two-Minute Folly – Assignments and Classroom**

The Two-Minute Folly concept is simple; students are given a short, tightly enforced time window in which to educate their peers on a topic. For the authors, the general trend was that the time window expanded for elective or upper-level courses. In an introductory course in Infrastructure Engineering, each student was given only two minutes; for advanced courses in sustainability and structures, up to five minutes was allowed, but in all cases, the time limit was strictly enforced. Complete assignment sheets and grading rubrics can be found in Appendix A. Notably, the assignment sheets are short, purposefully open-ended and professional.

In an introductory course on Infrastructure Engineering, the Two-Minute Follies were a means to encourage students to improve their verbal communication skills while simultaneously illustrating to the students how vast and interrelated the various sectors of infrastructure really are. Each student was required to complete two Two-Minute Follies, one during the first half of the semester and one during the second half of the semester. The topic could be anything related to infrastructure, but the student was responsible for showing the class how his or her topic related to the course learning objectives during the presentation. The student was allowed to use only one PowerPoint slide and/or a physical model. Using a timer on the front desk, the student was responsible for completing his or her presentation within the two minutes allotted. As soon as the timer went off, the student was done. This timeline had to be strictly adhered to, as students are inclined to go long. This strict adherence to time has the dual advantages of fairness to all students and preserves valuable instruction time.

The students chose the topic independently with limited assistance from the instructors. The instructors would only help the students pick out a topic if the students asked for assistance. Even then, the assistance was often times limited to the instructor saying “talk about something you are interested in” or “that sounds like a great idea, now impress me with your knowledge.”

After each presentation, students were given feedback via a standardized rubric that had been supplied in advance (Appendix A). After their first presentation, the students had the opportunity to take the feedback and incorporate it into their next presentation. The ability to incorporate feedback and improve is a strong argument for presenting twice in the same semester.

In advanced elective courses for senior-level or graduate Civil Engineering students, one author used Three-Minute Follies and another, independently, decided on 3 to 5 minutes per presentation. Most students at XXXX had already taken the Infrastructure Engineering course and had presented two Two-Minute Follies the previous year. As an “advanced” level of presentation, the students were given one additional minute and no restrictions as to the number of slides. The timelines were again strictly adhered to.

For the advanced course at XXXXX, each student’s presentation was video-recorded. Each student received a copy of this video and was required to watch himself give the presentation. To complete the assignment and in a movement towards Pink’s assertions about autonomy, the student was required to write a one-page reflective essay that answered the following questions:

- 1.) What were your initial reactions to watching your own presentation?
- 2.) Did you come across as you wanted?
- 3.) How was your stance, gestures, voice (pitch, pause, power, and pace)?
- 4.) Were you captivating or boring?
- 5.) What will you do different the next time you give a public presentation?

Additionally, each student had to grade himself according to a rubric with criteria such as:

- 1.) New Information
- 2.) Well Organized/Well-Rehearsed
- 3.) Thoroughly Researched
- 4.) Compelling Presentation
- 5.) Inspiration
- 6.) Stickiness

The instructor then gave detailed feedback to each student (typically one to two paragraphs worth) discussing the student’s performance and recommending the top one or two things to work on for the second presentation (in this case the final project presentation for the course).

### **Outcomes with Commentary**

As part of the process of an evaluation for a TUES program (NSF’s Transforming Undergraduate Education in Science, Engineering and Math), one of the authors developed the following rubric for rating active learning activities such as the Two-Minute Follies.

### *Klosky's Rubric for High-Impact Active Learning*

The following simple full-spectrum rubric works well for assessing the effectiveness of an active learning event from instruction to product; the resulting score would be indicative of the relative value of the proposed exercise or assignment. Based on the instructor's own experience, or in consultation with peer instructors, a relative score in terms of effectiveness is given to each of these critical elements, with the score representing a rough distribution among observed assignments of a similar nature in other courses and university programs. For instance, a score of 95% would indicate residence in the top 5% of all observations; this means that a 50% is not to be considered failing but instead is simply an indication that the activity was in the top half of all observations. Clearly, the more participants and thus teaching experience represented in the execution of the evaluation rubric the more telling the ultimate score. However, lacking the opinion of others, the proposed rubric still might be highly effective in guiding the efforts of a single instructor who is trying to inspire active learning in her students. The three elements proposed as essential to success are described as follows:

*Engagement:* For an active learning event to be successful, the learning community, including the teacher and students, must not only engage in the activity, but also actually want to be part of the event. This is perhaps the most difficult of all the elements to achieve, but is essential to addressing ABET Criterion 3i, Lifelong Learning, a notoriously difficult but essential undertaking. In the entertainment and journalism industries, engagement is referred to as "The Hook" and can be broadly classified as the element that makes the story or activity interesting or relevant to the participants. Assignments that point directly towards helping people in need or that lead to a tangible final result are examples of highly engaging exercises.

*Excitement:* Once engaged, the student's interest must be sustained to be effective. This can be achieved in many ways, such as through a sense of accomplishment, wonder or fun. Excitement is what keeps the student pushing through obstacles, making the ascent to higher levels in Bloom's possible; the underlying principle of active learning is that student accomplishment is gained, not given, and excitement is essential in this pursuit. In general, excitement is driven by the nature of the educational activity itself, with straight lecture usually scoring quite low in terms of excitement and well-designed student-driven team exercises usually scoring high. This is consistent with the assertions of Pink (Pink).

*Expression:* The level of student achievement is demonstrated through the quality of the final product. It is a truism that great engineering ideas poorly expressed are of far less value than mediocre ideas clearly communicated to others. Expression can take many forms, from drawings to models to math, but to be useful these must be clear, correct, compelling and self-supporting. Expression is perhaps the aspect of this rubric best understood by teachers, since assessment of student work is at its root an exercise in judging student expression.

Direct observation of the entire learning activity coupled with a comparison of that activity to others for the same cohort of students is clearly preferable when providing a clear rating of each factor, particularly Excitement. However, for an experienced educator it is possible to get a

relative impression of each of these elements based on a comparison with that educator's own observations and knowledge. What is proposed is essentially grading of an instructional element such as a homework assignment, design problem, lab activity or group work. Given the grading scale, score of 50% or better would be indicative of assignments and activities which are consistent with current best educational practices.

Based on more than six semesters of observing Two-Minute Follies in Infrastructure Engineering, the assignment might be scored as 80% in Engagement (Highly engaging), 50% in Excitement (Medium) and 90% in Expression. Surprisingly, despite or perhaps because of the short length of each presentation, the quality of the visuals, the clear practice displayed by student presenters and the great rarity of late or low-effort submissions has been overall exceptional. The resulting score for the TwoMinute Follies is thus well above 50%, an indicator that the assignment is of high value in engaging students actively in their own education.

### ***First Data Set: West Point, CE350 Infrastructure Engineering***

The largest data set available for assessing student response to the Two-Minute Folly assignment is given in Appendix B. The vast majority of the data is in written form and is overwhelmingly positive. Data is presented for multiple semesters.

Looking in detail at the most recent semester, Fall 2014, via the end of course survey, there were 40 responses from a total of 55 students to a free response survey question that addressed Executive Summaries (EXSUMs, a one-page written report) and the Two-Minute Follies. Of those 40 responses, 21 addressed the Two-Minute Follies directly, and will be discussed here. Of those 21 responses, 14 were Positive, five were Conflicted, and only two were Negative.

The positive comments felt that the Two-Minute Follies contributed to the student's learning through improved communication and summarizing skills. The need to stand up in front of the class was helpful in inspiring students practice their presentation skills, indicating a likely improvement in growth in communications skills. Perhaps more significant is the observed result of a small assignment worth less than 5% of the course grade driving students beyond Motivation 2.0.

The Two-Minute Follies drove the students beyond Motivation 2.0 and closer to internal motivation perhaps due to the nature of the assignment. The assignment allowed the students to present any topic that was interesting to them and that could be tied, sometimes loosely, to the course's subject matter. In the case of CE350, the student only had to show that the topic related to infrastructure in some way; this resulted in briefs that focused on snowboarding (water and energy), Christmas light displays (energy), Cocaine smuggling (emergency services) and Roman Aqueducts (water) as well as more traditional infrastructure topics such as high speed trains and highway interchanges. The diversity of topics was not lost on the students and they enjoyed and were motivated by the latitude to research and discuss their own interests. A few direct quotes from students emphasize this point:



“It only maximizes the value of the briefs by making the students research something they are interested in.”

“I did appreciate the two-minute follies because we learned something new in just 2 minutes that related to infrastructure.”

This ability of a student to speak about something that is related to the course topic but is of their own choosing envisions moving beyond Motivation 2.0. The autonomy is encouraged and rewarded; the data suggest that simply saying that you can have two minutes of everybody’s undivided attention *during* class is a significant motivator.

Second on Pink’s list is Purpose. The student feels that they must relate the topic they are interested in to the other students. Students who major in medical studies, history or economics have all shown a strong motivation to make sure the rest of the class understands that while their majors may not be discussed at length in class, their topic is both relevant and important to the discussion at hand. The students latch on to the need to educate their fellow students which gives their two minutes a purpose well beyond their assignment grade.

Finally, students and professors both want to see movement towards Mastery. A student felt “they [Two-Minute Follies] were appropriate - although I think two minutes forced many of us to rush and perhaps skip over some details of the subjects of our briefs.” Perhaps without realizing it, the student was asking for more time to improve and expand upon their topic. Another student proposed that the two minute follies be extended to three minutes “to require more organization of the material being presented.” The student again wanted to master the topic. Of note is that both of those responses used to support Mastery were counted as Conflicted since they showed a positive and negative aspect of the Two-Minute Follies.

To take the analysis of whether or not the students are moving beyond Motivation 2.0 to internal motivation, one of the authors asked the students in one semester of CE350 whether their performance would 1. Get Better 2. Get Worse or 3. Stay the Same, *if* there was no grade associated with the two minute follies. Forty out of a possible 55 students responded to the survey question. The results were overwhelmingly positive. Eighty percent (32/40) of students felt that their performance would stay the same or get better if the assignment was not graded. In a student’s life, their effort is perceived to be driven by the number of points that an assignment is worth and point/assignment triage happens on a daily basis; it is an impressive response that taking an assignment’s points value down to zero would have no affect (or even a positive effect) on the students 80% of the time.

### ***Second Data Set: West Point, CE490 Energy-Efficient Buildings***

The results of the second data set, gathered from a Fall 2014 offering of an elective course to seniors in Energy-Efficient Buildings, were much the same as the first data set, but perhaps even more positive. The data for the written feedback is presented in Appendix B, and as stated earlier

for this course three rather than two minutes were given. Of note, 2 of the 35 students surveyed listed the Follies as their favorite aspect of the course; an unusual response, since assignments are very rarely listed in that response field. Student reflections on watching themselves give the presentation are strong, emotionally loaded in some cases, and clearly high-impact. Students were strongly affected by watching themselves present and this technique has significant promise. Two course-end questions were also posed numerically, and the strong positive response to this activity can be seen in Figure 2.

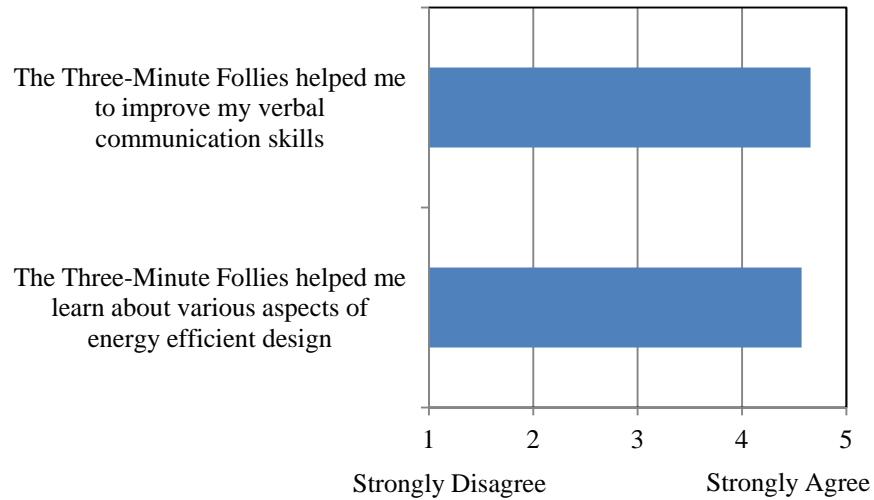


Figure 2: Data from CE490 at West Point

***Third Data Set: Mississippi, Concrete Structures II***

Based on early experiments with Two-Minute Follies at Mississippi State, one of the authors implemented the same assignment style at Mississippi State. The assignment is shown in Appendix A, and student feedback is given in Figure 3 and the complete unedited student comments are included in Appendix B. The more generic term “Follies” is used, since the format at Mississippi State was that each presentation was 3-5 minutes. The additional time was thought to be appropriate because the students were seniors in an elective course and there were only twelve students. The assignment was classified as highly successful by the instructor, indicating that the performance observed at West Point was not unique to the institution.

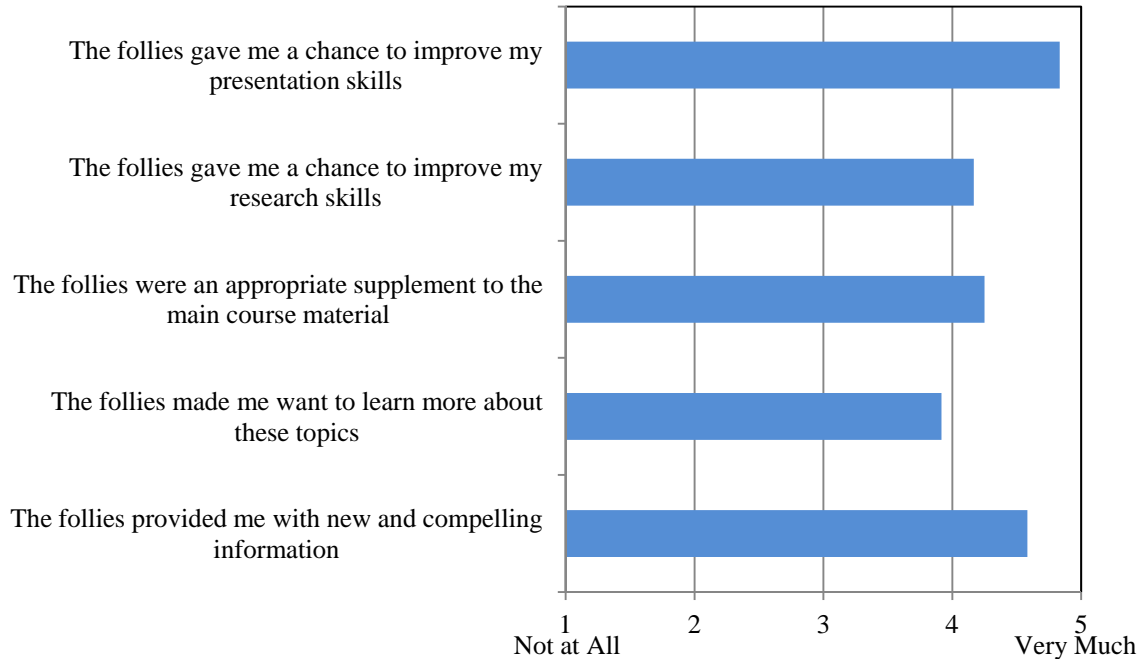


Figure 3: Course-End Feedback, Mississippi State University

### ***Satisfying ABET***

The Two-Minute Folly assignment can also be seen as satisfying certain ABET General Criterion 3 (ABET) student outcomes that are especially difficult to achieve, specifically communication (g), life-long learning (i) and knowledge of contemporary issues (j). Communication, (g), is addressed relatively directly through the presentation preparation and style, especially through the rigorous application of the time limit, which builds strong positive presentation habits in the student. By engaging the students directly in their own outcomes through progressively greater autonomy, criterion (i) is addressed. Knowledge of contemporary issues *can* be addressed through the Two-Minute Follies *if* the topics are targeted to accomplish that. Embedding Two-Minute Follies in targeted ways throughout a curriculum could thus be an effective part of meeting nationally-referenced standards, further evidence of the effectiveness of this method.

### **Observations and Recommendations**

Overall, students are highly in favor of the “Follies” assignments. For example, in an elective course, 100% of the students agreed that the assignment improved their verbal communication skills (two-thirds strongly agreed) while 97% found the assignment helped them learn about various topics related to the course. Experienced instructors also evaluated the assignment as highly effective in three separate courses on two quite different campuses.

From the vantage point of the instructors, it was clearly evident that a majority of students gained confidence in public speaking. Several students reported in their reflection essays that they were nervous, although in reality they did not display their nervousness. This gave the instructor an opportunity to give feedback to the student that, although he or she may have felt nervous, that did not come across and there is no need to dwell on it. This sort of focused developmental experience is highly valuable to the student and for meeting key program outcomes.

Students also seemed to appreciate the interwoven approach of the Follies assignments. Although they were still learning course material, they were free to select what it was they wanted to spend time learning more about (which fosters life-long learning) as well as focus on improving public speaking skills in the process (which fosters life-long self-improvement).

### *Summary of Observations and Recommendations*

- In-class student presentations of very short duration are a highly effective teaching tool.
- Allowing students considerable latitude in selecting presentation topics increases student motivation to perform.
- Rigid enforcement of time limits is essential to execution of in-class student presentations in order to preserve time for other forms of instruction.
- Detailed feedback to the student is essential. A simple grade on a rubric is not enough to satisfy students; they want to know in detail how they can get better. Otherwise, the assignment risks becoming another check-the-box requirement.
- Incorporating the assignment across several courses enhances student progress. Increasing the number of opportunities to present throughout a students' educational experience will increase the benefit of these assignments; strict, short time limits can allow for this without adversely impacting time available for other teaching methods.
- Video-recording the presentations and requiring the students to reflect on watching themselves speak is an effective teaching supplement to the proposed method. Many students likened this to fingernails on a chalkboard; they had no idea how they really sounded or how they came across. Requiring students to reflect upon the experience and identify things to work on encourages growth and fosters a life-long skill of self-improvement.
- Remove as many boundaries as possible to foster autonomy and creativity. Students display surprising capabilities when unconstrained. Strict time limits and having a topic that supports the course learning objectives seems to be sufficient.

### **Conclusions**

Mastery is becoming proficient at one's chosen craft. In the same way that a basketball player shoots the same shot thousands of times in practice for the opportunity to shoot once as the clock

ticks to zero, so do all professionals seek to become masters in their domain, ready to make the clutch shot when it counts. By providing opportunities for students and professionals to take that shot in a high-challenge low-threat setting, such as the Two-Minute Follies, we work them towards mastery and move beyond extrinsic motivation (Motivation 2.0). Paired with Mastery, Purpose allows a person to see the reason why their efforts are important. Everybody wants to feel like their efforts are part of something larger, something that means more than just their current paycheck or grade. As educators, we are responsible for making those opportunities available. That requires deep forethought that leads to deliberate curricular, course, lesson and assignment design. Two-Minute Follies can be a foundational piece of that design and, used properly, will engage students in surprising and positive ways.

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## **Appendix A – Assignments and Grading Rubrics**

# Two Minute Follies

Describing Infrastructure Quickly  
CE350 – Infrastructure Engineering  
45 Points



Being able to explain complex topics both quickly and simply is a key skill. In this exercise, the student will present one infrastructure component or system to the class using one image and less than two minutes.

## Requirements:

1. You must use one PowerPoint slide or visual aid depicting the infrastructure component or system. THIS SLIDE MUST BE SUBMITTED TO YOUR INSTRUCTOR VIA EMAIL PRIOR TO THE CLASS PRECEDING YOUR PRESENTATION.
2. The slide should be clear, compelling and instructive.
3. The slide may not contain any words (exceptions include signs in a photograph, annotations, or labels on diagrams).
4. Other media may be substituted for the slide as long as it meets the requirements spelled out above and does not exceed 30 seconds in duration; this substitution must be cleared with your instructor.
5. Your verbal presentation should be the centerpiece of your 2 minutes.
6. The verbal presentation must contain a description of the component or system INCLUDING NUMBERS. This is an engineering class, and numbers shouldn't be a surprise to anyone.

## Grading:

This presentation:

Provided me with new information relevant to the topics we are studying (0-10) \_\_\_\_\_

Was well-organized and well-rehearsed (0-10) \_\_\_\_\_

Was thoroughly researched (0-10) \_\_\_\_\_

Used a compelling image (0-10) \_\_\_\_\_

Made me want to learn more about this infrastructure topic (0-5) \_\_\_\_\_

BONUS! This Presentation Rocked!! (0-5) \_\_\_\_\_

## Three Minute Follies

Conveying Technical Information Quickly and Effectively



**Communication**...your ability to convey information, often technical and complex, will be of crucial importance throughout your career. Can you convey the most critical information effectively? Are you concise and precise with your language? Does your body language help or hinder your message?

Take advantage of every opportunity you have to improve your public speaking skills!

Twenty percent of your final project grade will be based upon your oral presentation. To help you prepare, you will have the opportunity to perform one of our “Three Minute Follies” during class. In an effort to give you the most autonomy possible in this assignment, here are your guidelines:

**Task:** You have the freedom to select any topic you want, so long as you make the connection to one or more of our course learning objectives during your presentation. Here are a few general ideas for topics, but don’t let this constrain you:

- 1.) New technological advancements in energy efficiency or building design
- 2.) Renewable energy approaches and their incorporation into existing infrastructure
- 3.) Ancient building design methods that addressed temperature comfort and air quality
- 4.) Human behavioral science and the acceptance of sustainability in our culture
- 5.) Leading organizational change and implementing energy efficiency measures

**Time:** You pick the day! We can only have one brief per class, however, so I’ll pass around a sign-up sheet. Today there’s a benefit to sitting in the front row – you get to choose first!

**Technique:** You decide what will be most effective. You must *speak*, but you can decide whether or not to use slides (and if so, how many). You can perform a skit or a monologue, you can dress up, you can do a demo...whatever you think will aid in getting your message across in 180 seconds. I only ask two things – 1.) if you use slides, please send them to me the night prior so I can incorporate them into our class presentation, and 2.) if you plan to use fire or other potentially dangerous demonstrations, let me know so we can make a plan for safety.

**Team:** This is an individual assignment, but I *highly encourage* you to rehearse with others before performing live.

You will be graded against the rubric on the reverse of this page. However, you will provide input that will impact your grade. I will record a video of your presentation, and you must watch it later that day. Did you come across as you had hoped? Why or why not?



**DEPARTMENT OF CIVIL AND MECHANICAL ENGINEERING  
CE490: SPECIAL TOPICS IN CIVIL ENGINEERING - ENERGY EFFICIENT BUILDINGS**

**Three Minute Follies Grading Rubric**

**New Information:** \_\_\_\_\_

- I learned something. (0 – 5)
- You related your topic to the overall Course Learning Objectives

**Well-Organized / Well-Rehearsed:** \_\_\_\_\_

- Did you finish on time with everything you wanted to say? (0 – 10)
- Was there a planned flow to the presentation (a designed “intellectual journey”)?

**Thoroughly Researched:** \_\_\_\_\_

- Did you present significant information in support of your thesis? (0 – 10)
- Was the information presented correct?

**Compelling Presentation** \_\_\_\_\_

- If you used graphics, were they appropriate and of excellent quality? (0 – 10)
- Was your audience interested in the presentation, or were they bored?

**Inspiration:** \_\_\_\_\_

- Did you engage me with your presentation? (0 – 10)
- Were you passionate about the topic?
- Do I want to go out and learn more about this topic because of your presentation?

**Stickiness:** \_\_\_\_\_

- Once your presentation is over, do I remember what you want me to? (0 – 5)

**Self-Reflection:** \_\_\_\_\_

- Watch your presentation video and write no more than one page on the following: (0 – 50)
  - What were your initial reactions to watching your own presentation?
  - Did you come across as you wanted?
  - How was your stance, gestures, voice (pitch, pause, power, and pace), and eye contact?
  - Were you captivating or boring?
  - What will you do different the next time you give a public presentation?
- In addition, please grade yourself by the rubric above (New Information through Stickiness) and turn this sheet in with your one-page reflection essay. Your essay and rubric will be due one class after your presentation (i.e. if you present on lesson 4, your essay is due by lesson 5.)

# CONCRETE STRUCTURES II

Mississippi State University  
Fall 2013

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## PROJECTS

### Undergraduate Students

Each student is to give two short presentations called follies. The first presentation is on a concrete product and the second is on a concrete structure.

Presentations should be professional, educational, and also enjoyable. Research the topics thoroughly.

Each presentation should be three to five minutes in length. Rehearse in advance.

Use at most three PowerPoint slides.

The follies will be graded on the basis of quality of content and style of presentation.

I must approve the topics before you commence.

The best follie wins an award.

### Graduate Students

Report on a topic of interest that is relevant to the course.

The total length of the report should be approximately 2,000 words.

Research the topic thoroughly and collect at least twenty authentic references.

I must approve the topic before you commence.

# CONCRETE STRUCTURES II

Mississippi State University  
Fall 2013

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## FOLLIES TOPICS

### PRODUCTS

UHPC

SCC

ICFs in home  
construction

Fibers

Accelguard HE by Euclid  
Chemical

Concrete maturity  
measurement  
Hycrete

Translucent concrete

Darex II AEA by Grace  
Construction Products  
Krystol Internal  
Membrane

Precast/Prestressed  
concrete

Bamboo reinforcement

### STRUCTURES

Millau Viaduct in France

Ritto Bridge in Japan

The Pantheon in Rome

Grande Dixence Dam in  
Switzerland

San Diego Central  
Library

Grand Coulee Dam in  
Washington

Lake Pontchartrain  
Causeway in Louisiana

Three Gorges Dam

Hoover Dam Bypass

Burj Khalifa

Kingdom Tower

Concrete structures  
made with bamboo

## **Appendix B – Student Feedback**

## Appendix B: Student Feedback

### CE350: Infrastructure Engineering Course-End Feedback Data:

#### Fall 2011

**Question:** Additional comments about the course or instructor.

**Response:**

- 1.) The Two-Minute Follies were very enjoyable and great start to every class; plus they provided additional opportunities to learn.

**Question:** If you could change one thing about the course, what would it be?

**Response:**

- 1.) I find it difficult to think of something to change for this course. However, perhaps adding an additional Two-Minute Folly per person would be good. Two-Minute Follies really helped me get a grasp of engineering in the "real world" and inspired me to think of the issues I will be able to use my education to work on in the future.

#### Fall 2012

**Question:** Additional comments about the course or instructor.

**Responses:**

- 1.) I especially liked the Two-Minute Follies; they were check-ups for us to make sure we could relate the material to real life scenarios.
- 2.) I never thought of infrastructure as a particularly exciting topic before taking this class, but I was never bored in class. The instructors did well engaging the students and keeping us involved and interested in the material. Two-Minute Follies helped with this because they allowed us to explore some of the more exciting and innovative aspects of infrastructure.

**Question:** Did the EXSUMS and Two-Minute Follies help you to improve your written and verbal communication skills? If so, was the number and length of these exercises appropriate? If not, why not?

*Note: Comments on the EXSUMS have been removed for brevity; only the comments on Two-Minute Follies remain. There were no negative comments about the Two-Minute Follies.*

**Responses:**

1. I think the Two-Minute Follies were a good way to start off class.
2. The Two-Minute Follies were helpful to improving my knowledge and helped me to look outside of the course content and to apply what I have learned to new information.
3. Yes, I honestly became a little better at giving presentations.
4. I think the Two-Minute Follies were a very nice activity. You have to research, bring something new, organize your thoughts and explain to the class. But I think the feedback could be a little more complete, saying more about the presentation style. What is not good enough that you have to improve for the next time, such as it was too fast, too slow, you were struggling to find the right words, you should speak more paused and louder.

Or just the opposite, you did a good presentation, it was easy to understand, this part was very good but you need to work more on this, etc. But other thing nice is that we could learn about new things, was very cool watch the presentations of other cadets.

5. Two-Minute Follies were great and interesting learning applications.
6. The Two-Minute follies were a good way to start class.
7. The Two-Minute Follies helped my presentation skills that I used in other classes as well during the semester.
8. The Two-Minute Follies were great to practice quick and effective communication skills.
9. Two-Minute-Follies were a good practice in presenting a pitch and speaking in front of others.
10. The Two-Minute Follies were great for my communication skills. I don't think we focus enough at the Academy on the importance of being brief.
11. Yes, the Two-Minute Follies were fun and not overly work or time intensive.
12. Two-Minute Follies were great.
13. I believe they did. Communicating is clearly an important skill in Engineering and Officership. I thought these were appropriate.
14. Overall, the Two-Minute Follies were beneficial to my knowledge of infrastructure.
15. The Two-Minute follies were nice to help do a quick talk but the same could be expected of us taking boards for a plebe class.
16. Two-Minute Follies were effective in quick public presentation skills improvement.
17. Yes, I really enjoyed the presentation practice with the Two-Minute Follies and I believe I improved my written communication skills as well.
18. The Two-Minute Follies helped in developing my briefing skills. They also let me research some pretty cool topics.
19. The Two-Minute Follies allowed me to work on brevity.
20. I'm not sure whether they helped me improve, but they were fun.
21. Yes, they helped me be concise, a skill I will use as a 2LT.
22. The Two-Minute Follies were good exercises for improving communication. They were also useful and perfect in length because they forced us to be succinct and we had to rehearse.
23. I liked the Two-Minute Follies; they were always interesting.
24. The Two-Minute Follies helped me mostly by allowing me to pick things I was interested in. As far as communication goes, they helped me learn to cut out excess material to fit a time limit.
25. Two-Minute Follies brought a level of relevance to the class by our research as students and gave us something unique to contribute.
26. Two-Minute Follies were helpful because they taught you to be concise and articulate.
27. I believe the Two-Minute Follies helped improve my verbal communication skills.
28. Yes, Two-Minute Follies were a good exercise for compressed communication.
29. Yes, I thought that the Two-Minute Follies made me better at taking information and compiling it into an organized verbal report.

## **Spring 2013**

**Question:** Additional comments about the course or instructor.

**Responses:**

- 1.) The Two-Minute Follies allowed us to learn about fun things.

- 2.) The Two-Minute Follies were a fantastic opportunity for cadets to practice their public speaking. I really found them enjoyable and beneficial.
- 3.) Two-Minute Follies encouraged outside research and allowed us to practice presentational skills.

**Question:** Did the EXSUMS and Two-Minute Follies help you to improve your written and verbal communication skills? If so, was the number and length of these exercises appropriate? If not, why not?

*Note: Comments on the EXSUMS have been removed for brevity; only the comments on Two-Minute Follies remain. There were five negative comments (highlighted in red) about the Two-Minute Follies out of the 79 responses.*

**Responses:**

- 1.) Yes. I think we could have done more Two-Minute Follies to enhance verbal communication skills.
- 2.) Yes, maybe four Two-Minute Follies to focus more on verbal communication.
- 3.) The Two-Minute Follies were excellent for improving my communication skills.
- 4.) The Two-Minute Follies really helped with my verbal communication skills. Putting together a presentation and being able to articulate the main points in two minutes is a great skill to have in my opinion.
- 5.) I believe they were effective at improving those aspects. I realized a big change in confidence from my first to second Two-Minute Folly.
- 6.) Yes, the Two-Minute Follies are a great opportunity to practice public speaking and stress the importance of doing rehearsals.
- 7.) Both of these were very effective. I certainly felt more confident during the second Two-Minute Folly I presented, which I contributed to learning from my first presentation, as well as learning from my classmates how to present effectively.
- 8.) I felt liked the Two-Minute Follies helped us get more experience in speaking to a group of people.
- 9.) The Two-Minute Follies were an unusual course requirement but they did help improve communication skills.
- 10.) I really enjoyed the Two-Minute Follies.
- 11.) The Two-Minute Follies did improve my communication skills.
- 12.) Two-Minute Follies were particularly helpful in building my speaking skills.
- 13.) Yes, I loved the Two-Minute Follies, and I would recommend doing more presentations for students next semester.
- 14.) The Two-Minute Follies helped my verbal and communication skills because I was forced to have to speak effectively and quickly. This helped me to learn to pinpoint the most important aspects and focus on those instead of adding a lot of filler.
- 15.) The Two-Minute Follies did help improve verbal and written communications.
- 16.) Two-Minute Follies were unique.
- 17.) The Two-Minute Follies were great; I liked presenting on something I was interested in.
- 18.) I thoroughly enjoyed the Two-Minute Follies. They were like nothing that I have done before, but definitely helped improve my verbal communication skills. I have never been a good public speaker, so being forced to stand in front of the class was good for me.

- 19.) **The Two-Minute Follies weren't as crucial in developing my verbal communication**, but they added a fun, interesting start to class every day that I think improved the attitude of the class daily.
- 20.) Two-Minute Follies give us a chance to work on our oratory skills, something that is not practiced often
- 21.) **The Two-Minute Follies were not all that effective.**
- 22.) The Two-Minute Follies were useful and gave good practice for verbal communication.
- 23.) **Both of these assignments were the downfall of the class; they provided little help in teaching and if addressed in class would have been more effective.**
- 24.) The Two-Minute Follies were a great tool and it was interesting to learn how little time it takes to become an "expert" on one small aspect of society.
- 25.) Yes, they forced us to be concise.
- 26.) I feel like the Two-Minute Follies allowed me to improve my vocational skills.
- 27.) **No because if individuals haven't developed those skills by now then it's on them.**
- 28.) Yes, Two-Minute Follies helped communication skills.
- 29.) I thought the Two-Minute Follies were good communication exercises thrown into the course.
- 30.) They did most certainly help me to improve my verbal communication skills and I would say that the number and length of exercises was appropriate.
- 31.) I found it extremely helpful to practice my verbal communications skills.
- 32.) The Two-Minute Follies broadened my knowledge of critical infrastructure greatly. I would say that they improved my verbal communication skills somewhat. The number and length of these exercises was appropriate.
- 33.) The Two-Minute Follies were excellent training in boiling down important concepts into concise presentations.
- 34.) Two-Minute Follies were awesome. They helped me understand how diverse the subject of infrastructure really is.
- 35.) The Two-Minute Follies helped improve my verbal communication skills. The Two-Minutes Follies demanded relevant information that could grasp the listener's attention.
- 36.) The Two-Minute Follies were useful exercises in presentational skills.
- 37.) The Two-Minute Follies were important and interesting.
- 38.) The Two-Minute Follies were extremely interesting and I learned a lot from them.
- 39.) **No.**
- 40.) I really liked the Two-Minute Follies as I liked presenting a short blurb to the class
- 41.) The Two-Minute Follies helped my verbal communication skills. I am not that comfortable with oral presentations, but after my second presentation I felt much more comfortable in speaking in front of a group. I also found it interesting and informative when others presented their pictures.
- 42.) Yes.
- 43.) The Two-Minute Follies were just very interesting learning about all the various things based in infrastructure around the world.
- 44.) I think that the Two-Minute Follies were valuable and should not be changed.
- 45.) Yes, I would have liked to do three Two-Minute Follies.
- 46.) I liked the Two-Minute Follies.
- 47.) The Two-Minute Follies definitely were useful in improving my verbal communication skills.



## FALL 2014

**Question:** Did the EXSUMS and Two-Minute Follies help you to improve your written and verbal communication skills? If so, was the number and length of these exercises appropriate? If not, why not?

*Note: Comments on the EXSUMS have been removed for brevity; only the comments on Two-Minute Follies remain. There were six negative comments (highlighted in red) about the Two-Minute Follies out of the 40 responses.*

1. The two-minute follies didn't help my verbal skills much, but they were very interesting and gave the cadet responsibility to find a practical connection.
2. The two minute follies were good.
3. If I didn't have a severe case of stage fright that required a ton of practice to overcome, the Follies would have gone much better, but they did help me to practice my
4. The 2 minute follies however were not of much use other than "fun facts"
5. Yes - they were appropriate - although I think two minutes forced many of us to rush and perhaps skip over some details of the subjects of our briefs.
6. I did appreciate the two-minute follies because we learned something new in just 2 minutes that related to infrastructure.
7. Two-Minute follies were good practice in being confident and condensing info.
8. Yes, as a Chemistry major, this class has really made me practice my writing and presentation-giving skills.
9. I thought the Follies were a good technique to improve though
10. The 2 minute follies could be lengthened to 3 min to require more organization of the material being presented.
11. I believe that they greatly helped. Over the course of the semester, I have made progress in both communicating verbally and through writing. I believe that I did a good job in terms of presenting my second two-minute folly about the KTX rail because I developed the confidence I needed from the first two-minute folly. As for writing, I received a compliment about my OP-ED, telling me that it was better than what was expected.
12. I believe so because they forced me to be concise and get to the point.
13. The length of EXSUMS was appropriate because it limited my writing and forced me to be efficient in describing the infrastructure. Two-minute follies had a similar focusing effect on my presentation.
14. These assignments did help improve my written and verbal skills. Because of these assignments i am more professional when i write an assignment. I believe these assignments were appropriate in length.
15. Yes. I enjoyed both assignments and found them to be valuable tools to improve my writing and speaking abilities.
16. No, in my major I already write and speak enough. This was just an added annoyance.
17. I believe the EXSUMS and Two-Minute Follies were useful, but they did not improve my written or verbal communication skills. I believe at this point in my college career I am able to convey my thoughts effectively in both writing and speech. I do think the number of these exercises was just right.

18. The 2 min follies allowed me to verbally communicate and brief a topic in a BLUF format.
19. The 2 minute Follies were not helpful in improving verbal communication.
20. I definitely improved but as I explained earlier the amount of time necessary to complete the written requirements was extensive. The two minute follies are brilliant, it is a great teaching tool and it is also an excellent way to take cadets out of their comfort zone and get them to brief. It only maximizes the value of those briefs by making them research something they are interested in.
21. Two-Minute Follies, yes.

## **CE490: Energy Efficient Buildings Course-End Feedback Data:**

Fall 2013

*Note: For the first two questions, only those responses applying to the Follies are included.*

*Question:* What were your three favorite aspects of this course?

*Responses:*

The Three-Minute Follies exposed me to a lot of new and different things I had never heard of.

The Three-Minute Follies were critical in preparing me for my project presentation.

*Question:* What were your three least favorite aspects of this course?

*Responses:*

Watching myself doing the Three-Minute Folly. Although it was beneficial, I didn't enjoy watching myself brief.

*Example Student Reflections for CE490 Three-Minute Follies:*

Public speaking has never been a fear of mine; I'm generally comfortable in front of a group of any size. I have given plenty of speeches, impromptu and planned, but never gone back and watched myself speak. I get up, say what I have to say, and leave it at that. When I watched the video of my brief from last week, I was initially uncomfortable. I dreaded watching it the first time, because I didn't want to relive the awkwardness of the instances where I stuttered or said the wrong thing. While I knew it could be weird, I also understood that identifying my areas of improvement would help me get better.

I was overall satisfied with my presentation. I was trying to make a very specific point, which was that the Smart Strip is a simple energy-saving option that we could all employ and benefit from. I presented the power strip which most people currently use, and described a scenario which the audience could relate to. This made it easy for them to understand how the Smart Strip would make a difference, and why it would be a good option.

My body language and speech was almost exactly what I expected: I used small hand gestures, my crutch words were "uh" and "um", and I spoke relatively quickly. None of these came as a surprise to me, and I was pleased with my eye contact and tone.

Having seen 13 presentations before mine, I knew what I had to do to avoid boring the audience. I tried to incorporate enough humor to keep people interested, but stayed focused on the topic. I think this approach was a success.

I still haven't found the right amount of rehearsal to put into a presentation. Too much makes it feel scripted, and not enough can cause pauses or omissions. With this presentation I only rehearsed three times, and it felt much more natural than the Two Minute Follies from CE350, for which I rehearsed more than ten times each. I think a number somewhere in between would be ideal, and I'm getting closer to finding that medium. This will eliminate some of the pauses or crutch words in my presentation, and make it easier to follow without distractions.

I learned a lot from watching my presentation. After I gave my presentation I knew I could have done better and that there were areas that I needed to improve. Watching the video of my presentation confirmed this and brought to light some things that I didn't even realize I needed to improve. Some of these things include eye contact with the audience, voice inflection, articulation, preparedness and time management.

Throughout the presentation I would either be looking at my slides or down at my notes and only momentarily looking up to make eye contact with the crowd. Additionally, I noticed that my voice inflection and articulation were not great. I often got a little lost in what I was trying to say causing my voice to drop off and become monotone. A lack of time management did not help my confidence when speaking. However, I do not attribute these errors to be a lack of public speaking ability but rather a lack of preparation. Had I spent more time reviewing what I wanted say and how I wanted to present it I think I would have been much more successful. I would have been able to look up more because I would have known the material better. I wouldn't have gotten lost or spoken in circles giving me the ability to speak more fluidly and get to all my points in three minutes.

With that being said I definitely did not get everything across in my presentation that I wanted to and I thought my presentation was a little boring. However, I was happy with the content of the information I was able to share. I thought it was an interesting topic and that my presentation at least opened some people's eyes to a new topic that they didn't know anything about before my presentation. Overall, I do not think my presentation was horrible but I recognize many things that I could have done better and all of them can be contributed to a lack of preparation. In the future I will spend more time preparing for the actual presentation because in the end it doesn't matter how informative or interesting the topic is if you can't present it in a way that will get people's attention and have it stick after you are done speaking.

## **Student Feedback, XXXXX Design of Concrete Structures II**

### **Student Comments on Follies**

1. Gave insight into a wide variety of topics
2. Chance to learn from my colleagues and enjoy their approaches, views, and personalities
3. Learned how to make a presentation more concise
4. Rehearse the presentation to provide info and meet time constraints
5. Opportunity to practice speaking before a live audience
6. Communication skills are so important in the work place
7. Research a topic of interest
8. Could inspire some students to pursue master's degree
9. Introduced students to new topics, both concrete products and structures
10. Topics beyond the scope of the course but still relevant
11. Random facts about random topics