



Speaking to a General Audience: Activities for an Economics Capstone Course

Students in the economics capstone course usually complete regression-based projects and learn to write for and speak to their peers. However, students must be able to speak to a general audience, for example, in interviews or the workplace. This paper details a pilot activity implemented in a small class setting. The goal was to help students understand the importance of and improve effectiveness when speaking to a general audience about technical topics. Our takeaway, while not formally tested as an experiment, is that students struggled with this task and need training and practice starting earlier in the curriculum.

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1. Introduction

The ability to communicate effectively is a skill demanded in the workplace and valued by employers (Owen, 2010; Stowe et al., 2012; Orrell, 2021; Kleckner & Butz, 2022; Mainga et al., 2022). In economics, students focus on both written and oral communication, but it is usually with the professor as the intended audience. Students may be less successful when required to deliver content in an accessible way to those who do not share their training. Our students have shared their stories highlighting this ability gap. A recent graduate reported being asked questions on the economics of public utilities in a panel interview that included only one economist. He admitted his discussions of barriers to entry and economies of scale were insufficient given the diverse audience. A second student was asked to explain a highly technical paper she authored to a panel of interviewers who did not share her math background. She described her struggle to make the content accessible. While anecdotal, these stories suggest that our students must be prepared to speak to a diverse audience and be able to discuss technical information with general clarity.

This paper discusses the results of a pilot program implemented in our capstone course to informally assess and improve oral communication strategies for addressing a general audience. Given the small sample (due to class size), data presented in this paper are used only to highlight general observations and trends and not to generate formal statistical tests. This is not an experiment with a control group and baseline, and much of our observation is anecdotal. Instead, we develop meaningful activities that do not divert much time from other objectives to see if they have a role in the capstone experience. Both students and professors realized that the ability to present discipline-specific information to a general audience is not innate; it is a learned skill requiring training and practice. We hope that the pilot is a starting point for continued conversation about strategies for closing this gap.

The paper proceeds as follows. First, we offer professors a way to motivate their students as to why they should improve their ability to communicate with a general audience. We felt that students took the challenge more seriously after reflecting on why the skill is essential. Next, we summarize the literature related to communicating with a general audience across other technical disciplines, since many ideas could transfer to our discipline, and discuss previous efforts in economics. Then, we detail the steps of the pilot project, how it was implemented, and provide an overview of overall performance outcomes. Finally, we offer our reflections on the success of the pilot, tips to help students better address a general audience, and ideas for adapting activities to courses with larger enrollments.

2. Motivating the Need to Students

Research suggests that students might overestimate their communication skills. The NACE 2022 Student Survey report (summarized in Collins, 2022) indicates that both graduating seniors and employers list communication amongst the most important skills for transitioning into the workforce. Graduating seniors rated themselves as being highly proficient in communication. However, it did not make the list of student proficiencies observed by their employers. This suggests that new graduates' perceptions might not align with the perceptions of those who employ them.

Students' misperceptions might become evident during the interview processes, where the screening stages may involve an interview with a Human Resources officer, not a potential supervisor. Students must be able to communicate information about their internships and research experiences effectively, even when the interviewer does not share their background. During panel interviews, students might find multiple departments represented; they must be

nimble and able to adapt the conversation for their diverse audience. In the workplace, students may operate in a team setting, where some members are from outside their department. For example, a recent graduate explained that her internship at a big data software firm involved working in teams comprised of analysts, programmers, and marketers. When team members did not share a common vernacular, the ability to explain discipline-specific information to a general audience was vital.

Professional economists may need to discuss economic information with a general audience and, therefore, must hone these same skills (Curlin, Pejić Bach, & Miloloža, 2020). For example, economists offer expert testimony in legal settings and Congressional hearings (Weinstein, 1992; Posner, 1999), where they are not usually speaking to peers. Economists also can shed light on situations that impact everyday life, for example, helping the public understand public policy or current events. Their messages are only effective if they can speak in a manner that does not alienate the listener.

3. Literature Review

Identifying the Need

There is extensive literature, both in the scholarly and popular press, stressing that employers desire graduates with strong communication abilities and other soft skills (Owen, 2010; Stowe et al., 2012; Wilke, 2019; Orrell, 2021; Kleckner & Butz, 2022; Mainga et al., 2022). These work-readiness skills directly impact potential candidates' employability (David, David, & David, 2021; Zuma, 2021), which then shapes employer perceptions of the universities from which these students graduated (Wilton, 2014). These communication skills are key to persuading and communicating with general audiences (Hurt, 2007) and multidisciplinary teams (Kechagias, 2011). The ability to communicate effectively to the larger public outside academia or specialized industries has gone from being a matter of importance to one of necessity (Turner, 2001; Sapienza & Zingales, 2013; Jacobs, 2020). However, the perception of a declining connection between scholars and the general population is discussed across fields, including management (David, David, & David, 2021; Zuma 2021), engineering (Bodnar & Clark, 2017; Clavijlo, Wade, & Pochiraju, 2020; Kumar & Hsiao, 2021), finance (Carrithers, Ling, & Bean, 2008; Desai, Berger, & Higgs, 2016) and accounting (Hurt, 2007; Riley & Simons, 2013; Bastos et al., 2020).

Information from scholars and other experts has less impact when not clearly communicated. Burton et al. (2021) documented that top accounting journals receive less attention from policymakers and the general public than other disciplines because of inaccessibility. Jacobs (2020) recognized the phenomenon as related to the distrust in experts, including economists, during the recent pandemic. Compliance changed to skepticism and then to active distrust of experts as the lockdown and other COVID-19 containment measures continued for longer than originally predicted. Similarly, Sapienza and Zingales (2013) compared expert opinions from economists (on topics that receive wide agreement among them) with those of a subset of the general public. Ruling out the impact of knowledge of economics, the authors concluded that the general public distrusts key foundational economic concepts.

Efforts in Other STEM or Business Disciplines

Other quantitatively-oriented disciplines have started to address the need for general communication skills to communicate with non-technical audiences. A deficiency in such skills has been cited for declining new product development efforts (Bellinger, 2002) and engineers being overlooked for management positions (Summers, Davis, & Tomovic, 2004). Ideas for

closing the gap for engineering students include more communication activities in the capstone class, employing audiences with different levels of expertise (Duncan et al., 2011), use of blogging (Bishop et al., 2014), creation of an engineering-specific communications class (Linville, Tallapragada, & Kay, 2011), and more integration of layperson-focused communication across both the undergraduate and graduate engineering core curriculum (Brownell, Price, & Steinman, 2013). Anewalt and Polack (2017) discussed the deliberate integration of oral communication skills for a general audience throughout the computer science curriculum. Accounting has recognized that the ability to speak to a general audience is paramount when discussing tax returns and audit results (Thomas, 1951; Grace & Gilsdorf, 2004; Hurt, 2007). Service work, such as volunteer tax preparation clinics, has been a vehicle to help accounting students learn to communicate with clients (Anderson & Bauman, 2004; Sharifi et al., 2009). Real-world “messy problems” requiring well-crafted client memos of explanation and justification (Carrithers et al., 2008) and simulations have allowed finance students to practice their communication (Yest & Grant, 2013). David et al. (2021) suggested a pedagogical approach to communication for the strategic management capstone course to reduce the theoretical aspect. The approaches discussed above may be applicable in the economics classroom.

Efforts in Economics

Like accounting, finance, and fellow STEM fields, economics is a technical discipline, and it has also seen an increasing quantitative focus (Marshall & Underwood, 2020; Marshall & Underwood, 2022; Marshall, Underwood, & Hyde, 2023). It follows that the communication needs are similar—to refine communications so that messages are better received by the general public and to help graduates be more employable. Well-established resources emphasize written communication in economics. *Economical Writing* (McCloskey, 2019) reminds us that our field relies much more on writing and speaking than it does on the more technical aspects such as statistics and mathematics. *Elevate the Debate* is an edited collection from the Urban Institute related to communicating research—identifying the target audience, audience outreach, data visualization, presentations, blogging, media relations, social media, and developing an impact plan (Schwabish, 2020). The book’s content makes it clear that reaching an audience and having the intended message received requires careful thought and deliberate reflection. To develop skills like those discussed in these books, economics professors have experimented with writing and speaking in the curriculum to make topics more accessible. However, the bulk of the focus appears to be on written communication.

Cohen and Spencer (1993) trained their students for the demands of cross-disciplinary writing, yet the endeavor was not aimed at the general public. Hall and Podemska-Mikluch (2015) tried various written assignments before arriving at opinionated editorials or “op-eds” (something directed at a general audience). The goal, as expressed by the authors, was mentally training the students to think in terms of economic principles. Building on this work, Cohen and Williams (2019) utilized op-eds for large introductory economics courses as a part of a broader scaffold of assignments. Students benefitted as they repeatedly peer-reviewed and improved each other’s work.

Recent efforts have been more focused on explaining and responding to current events. Picault (2021) created a series of course modules for teaching students to write explanatory news articles about current events in economics for a media outlet. Moryl (2021) shared this emphasis on current events by utilizing *The Economist* magazine in courses. The stated goal was to make economic concepts more relevant to the students themselves, but one could argue that it also served the goal of training students to communicate with a general audience. Morreale and Shostya (2021) proposed a framework for a capstone class with specific public policy implications. A detailed framework is presented, but like Picault (2021), the issues of a

broader audience are only addressed in written form, in this case, public policy memos. Ayadi and Onodipe (2023) utilized Writing-To-Learn techniques in adapting to pandemic conditions. These written communication assignments were employed as a form of mental training to get the students to evaluate through the lens of economics. But in contrast to Hall and Podemska-Mikluch (2015), the authors coupled this mental training goal with an increased emphasis on active listening skills by utilizing pre-recorded 3-to-5-minute videos. The activities discussed above are beneficial for refining communication skills, but the focus is generally on writing. The pilot activities detailed below specifically address oral communication.

4. Methodology

Overview

This pilot was employed in a capstone course required for seniors studying economics at a mid-sized public institution. Because the major is small, the capstone experience generally ranges from 8 to 12 students. Passing a full semester of econometrics with a C- or better is a prerequisite, as students must complete a semester-long econometric investigation and apply newly acquired technical writing skills in the capstone course.¹ Because the work is statistical, students are usually asked to write for an informed audience, and their oral defenses are directed at a panel of economics faculty members. Thus, students have traditionally been trained to speak to peers, and they generally perform well in this context. Presenting to a general audience has never been a requirement of the course before the pilot.

Data reflects the implementation of the pilot in Spring 2022, with a course delivered face-to-face that began with ten students (one withdrew midway through the semester). The group was unusually high achieving, with an average cumulative GPA of 3.46/4.0 at the end of the semester. Six students had GPAs above 3.5, and three had GPAs above 3.8; only two students had GPAs below 3.0 but above 2.8.

As part of the pilot, students crafted a series of small presentations directed at a general audience, even though the topics might be technical. These general presentations would be offered alongside more technical presentations or question-and-answer sessions (not in place of them), allowing the professor to still assess student understanding in the same manner as in past semesters. The general presentations would be received by individuals outside of the discipline with little or no training in econometrics or economics—an assistant professor of marketing (active in research but not as well versed in econometrics or economics) and the director of the professional development center for the College of Business and Economics (no background in economics, statistics, or research).² They were also evaluated by the professor of the capstone course.

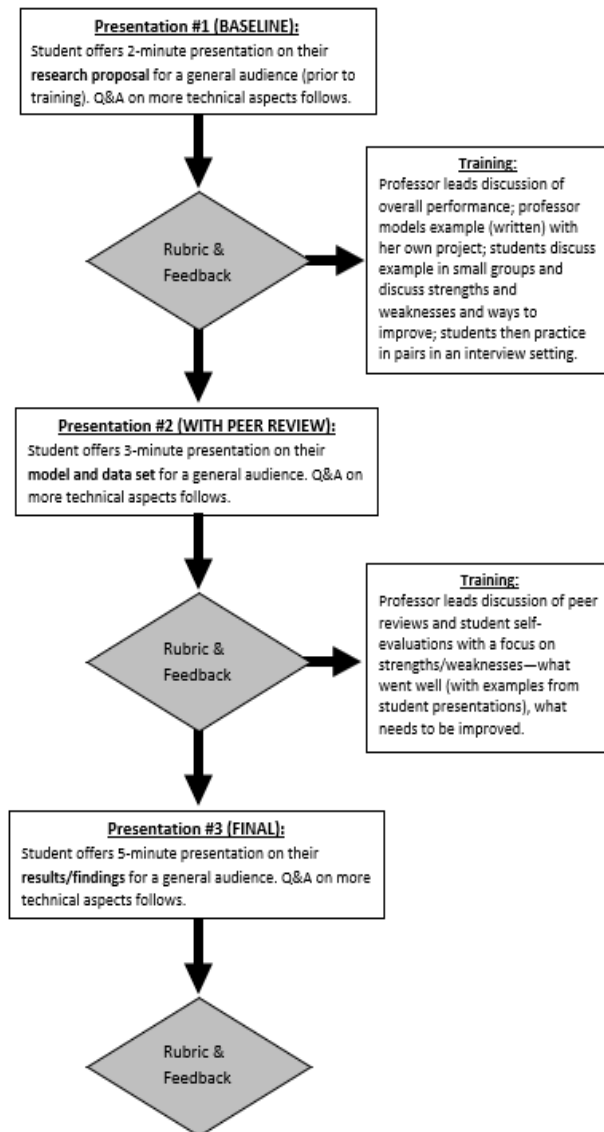
The first step in the pilot was to gain buy-in from the students about the need for this type of communication skill like that discussed above. We feel that this was an important step,

¹ Specifically, they develop an idea, perform background research, conduct a literature review, develop econometric models, construct a data set, and generate a multi-part analysis with model refinements and extensions. Conclusions from the work must include a discussion of potential policy prescriptions or implications for decision-making.

² One of the external reviewers of presentations with very limited business or research experience was a better representation of the “general public”. However, the inclusion of a marketing professor who does not do statistical research was interesting in that students had to speak to the lay individual without insulting the intelligence of the marketing professor. Students were informed of their audience and reminded of the challenges associated with effectively communicating with both. Other professors wishing to replicate this type of activity might be able to create a panel of raters that is more diverse.

as it helped students to reflect on why the skills are important. Then, the pilot proceeded with a baseline presentation that motivated student project ideas, a second presentation where students discussed their models, and a final presentation where students discussed findings and implications. In between presentations, instructional activities helped students learn how to better engage a general audience and offered practice opportunities. Figure 1 offers a flow chart that summarizes the pilot’s assessment and instructional activities. They are later expanded upon to provide more detail for readers.

Figure 1. Pilot Assessment and Training Activities



Presentation #1

Presentation 1 involved students pitching their econometric project ideas and motivating them for a general audience. Students received no training on how to craft an appropriate discussion and were provided with no examples at this point, allowing us to evaluate their natural ability to adapt technical information for a general audience. Students were, however, offered some brief guidelines to think about, which served to clarify the

assignment. For example, students were reminded to avoid econometrics vernacular and that being intuitive would be key to effectively delivering their messages. Students were made aware of who would comprise their audience to reinforce the point of the assignment, and they were reminded that presentations would be graded using a rubric provided. Class discussion suggested that presentations delivered to a live audience (classmates, professor, guest raters) provided additional motivation, as students did not want to fail in front of peers and faculty/staff. Figure 2 details the formal assignment exactly as provided to students via Canvas.

Figure 2. Presentation #1 Instructions

Each of you must present a project idea to the class. However, for this assignment, you are first speaking to the *general audience*—they do not have the econometric or economics background that you do. This might be the type of discussion you would have if discussing your research with someone in an interview setting.

Guidelines:

- You have 2 minutes to discuss your idea and motivate why it is interesting.
- Your presentation should reach a general audience, not just economists.
 - A general audience may not have a background in econometrics or economics.
 - To reach a general audience, your discussion has to be at the appropriate level.
 - This might be similar to a discussion you might have during an interview.
- You will not use notecards, PowerPoint, notes, etc.
- Be thoughtful about your content:
 - Identify a central question that you want to ask.
 - Motivate your topic of interest. Why might we care? Sell the idea.
 - Explain how this translates into a regression project, but avoid jargon and technical language.
 - Highlight dependent and explanatory variables *in a general sense*, without getting technical.
- The presentation will be following by Q&A, where you will be asked more technical questions. At this point, you will be speaking to your professor and peers. Be able to:
 - Explain your dependent variable.
 - Identify what constitutes an observation for clarity (country, state, person, firm).
 - Explain if your project is pooled or panel and how you know.
 - Convince the audience that the project is tractable.

Other things:

- It is important that you have this thought through.
- Have a plan of what to discuss. Do not just shoot from the hip or else your presentation will not be organized.
- You need to work within the time limit. I want to see that you can articulate your ideas quickly and effectively. There is no topic that cannot be explained in 2 minutes if you know your topic well. So, you need to make sure you are prepared to do so.
- There may be a panel reviewing your presentation. Again, remember to speak to your audience, which may contain faculty and staff who are not economists.

Your topic will be approved, rejected, or you will be sent back for further exploration (and then you will make another presentation). The quality of your presentation (both content and ability to communicate) will be reflected in the grade book. So be prepared.

SEE THE RUBRIC THAT WILL BE USED (ON MODULE PAGE).

Figure 3 provides the rubric used by raters. To address some of the other course objectives, the rubric measures a wide range of presentation development and delivery skills, with ratings from “Not Satisfactory” to “Excellent” on a five-point scale. For this paper, the discussion focuses on two items that specifically evaluate the presentation in relation to its intended audience. Raters considered whether the content was adapted for a general audience—eliminating

technical jargon, offering intuitive explanations, providing examples to illustrate, etc. In an “Overall Impression” category, the rater was asked to evaluate if, generally, the presentation was appropriate for a general audience. While the adaptation of content would be relevant, this item also reflects whether the organization, tone, pace, choice of examples, etc., were appropriate for a general audience. A student might have adapted content by removing jargon and offering examples to illustrate. However, poor organization, the choice of ineffective or confusing examples, or an overly fast pace might have hindered understanding. We anticipated that the two evaluation items would be correlated.

Figure 3. Evaluation Rubric Used for Presentations 1, 2, and 3

	Excellent	Above Average	Average	Below Average	Not Satisfactory
CONTENT					
Content developed interest, was well motivated.					
Content reflected an understanding of topic.					
Key takeaways were clearly communicated.					
Content was adapted for a general audience.					
ORGANIZATION					
Presentation was easy to follow, flowed naturally.					
Presentation had a distinct intro, body, and conclusion.					
DELIVERY					
Delivery was confident and professional.					
Eye contact with audience was maintained.					
Volume, tone, pace, word choice were appropriate.					
Body language was appropriate and professional.					
Time constraint in instructions was adhered to.					
OVERALL IMPRESSION					
Presentation was well crafted and showed effort.					
Presentation was appropriate for a general audience.					
Presentation employed effective speaking skills.					
Preparation and rehearsal was evident.					
ASSIGNMENT RATING					
<input type="checkbox"/> Excellent <input type="checkbox"/> Above Average <input type="checkbox"/> Average <input type="checkbox"/> Below Average <input type="checkbox"/> Not Satisfactory					

Comments:

After the presentations, students were provided with the completed evaluation, and the class discussed how they felt about performances. Since the group was small and close-knit (students having taken multiple courses together), students were willing to share their critiques, even when not flattering. The consensus was that the task was quite challenging; students agreed that they did not successfully present their project ideas to a general audience.

When nervous, they reverted to a more technical discussion relying on jargon (dependent variable, explanatory variable, collinearity, etc.) and did not discuss intuitively despite having topics of public interest (crime rates, obesity rates, poverty rates, etc.). Students acknowledged having alienated their audience. The task was simply more challenging than they expected.

After seeing poor results in presentation 1, the professor passed out a written sample presentation (similar to what students were asked to do in presentation 1) based on her research (see Figure 4). The content was offered in written form but worded as if being delivered orally (imagine reading the script to a speech). This allowed students to read it multiple times, highlight key elements, and reflect on their topics. As an in-class assignment, students were specifically asked to evaluate this printed copy of a presentation on the following criteria with a general audience in mind:

- Did the speaker create interest and appropriately motivate the topic?
- Did the speaker appropriately explain her research topic and what will be involved in the exploration?
- What were the strengths of the speaker's approach?
- Are there ways the presenter could improve upon content?

Figure 4. Sample Discussion for a General Audience

Hi, I am Melanie and I am interested in researching performance on Standards of Learning test scores for Virginia's schools. Right now, all public school students are required to take standardized test on the Standards of Learning curriculum. This means that test scores can be compared across schools/counties and also over time. In Virginia, school that underperform have sanction imposed by the state. Therefore, you do not want to be a school that continuously has low pass rates on the exam because at some point you will be labelled as a "failing" school.

Specifically, I want to know *why* the test pass rates vary from school to school. For example, the highest pass rate for 9th grade math SOL tests was 94% and the lowest was 63%. Therefore, clearly there is a drastic range in pass rates. It would be helpful to know what variables affect the pass rates. Some of these might be variables about the school itself – it is a large school, what is the student to teacher ratio, is it location in a city/suburb/rural area? Other variables might be related to the students themselves – what is the racial composition, what portion of students are from economically disadvantaged households or from single-parent households? If there are variables within the control of the school districts, then there might be some policy implications. Of course, variables such as the students who attend, are not within a school district's control.

A central question I want to ask is whether or not spending on education matters. Spending per pupil varies from school system to school system. Is performance better in those schools that spend more money when we hold all else constant? If so, then increased spending might affect achievement, especially in poorer areas.

To perform this research, I will have to obtain SOL test pass rates at the school level. This is measured as the *percentage* of students passing the test. Therefore, an observation will be an individual school's pass rate on a specific SOL test. If I go across many school districts, I can get a large data set, especially since school districts often have multiple elementary schools. I will use 5 years' worth of data collected for at least 200 schools. This would give me at least 1000 observations to work with, which is a reasonably large data set. Fortunately, data on SOL pass rates is publicly available on the VA Department of Education website. I will have to choose which particular test to look at...probably either math or English, or maybe I will research both in two separate models. It might be interesting to see if the results I find for English are consistent with the results I find for math.

In discussions, students acknowledged that the example was free of economics and econometrics jargon—terms such as regression, dependent variable, and explanatory variable were never used. Yet, the ideas of explanatory and dependent variables were intuitively communicated. Interestingly, students offered ways that the presentation could be improved, and they proposed parallels to their topics. The learning had begun.

To create an opportunity for practice, students were put in pairs and asked to simulate an interview situation where one served as interviewer and the other as interviewee. The interviewer would ask, “Tell me a little bit about your senior research project.” The other would practice giving a one-minute answer for a general audience, such as a Human Resources officer. If the student started veering off course by getting too technical or jargonistic, the partner was instructed to stop them, offer suggestions on how to reframe content, and then start the process again. After several minutes, the students switched roles. The activity was highly successful and also efficient. In about 15 minutes, students learned what mistakes they were repeating and what content specifically gave them trouble. Then, they identified strategies that would help them better explain their work to a general audience.

Presentation #2

In early March, students were asked to craft a three-minute presentation where they would discuss their proposed econometric models for a general audience. This took place after students had completed background research and a literature review to become more familiar with the topic. Because our capstone projects require students to offer an initial model, refine it, and then expand on the analysis in some way, students were warned that they would not be able to discuss everything. They should determine where to place their focus. The initial reaction from the class was one of concern—how can regression models be discussed without using the jargon that defines the components of the model? We agreed that a student might choose to use the term “dependent variable,” but this should accompany an explanation of what a dependent variable is. Students agree that they could think in terms of “cause and effect” or “X affects Y.” Interestingly, this led to some highly effective analogies that were incorporated into presentations—ingredients in a recipe impacting flavor, chapters of a book contributing to the plot, etc.—to explain how an explanatory variable impacts a dependent variable. Figure 5 details this assignment as it was delivered to students on Canvas.

Figure 5. Presentation #2 Instructions

Each of you will present your model to the class. However, similar to the previous assignment, you are first speaking to the *general audience*—and they do not have the econometric or economics background that you do. As explained earlier, this might be the type of conversation you would have if discussing your research with someone in an interview setting.

Guidelines:

- You have 3 minutes to overview your topic, introduce your model, and discuss the intuition and motivation behind it.
- Your presentation should reach a general audience, not just economists.
 - A general audience may not have a background in econometrics or economics.
 - To reach a general audience, your discussion has to be at the appropriate level.
 - This might be similar to a discussion you might have during an interview.
- You will not use notecards, PowerPoint, notes, etc.
- Be thoughtful about your content:
 - Overview your topic for the audience—do not expect anyone to remember details of your previous presentation.
 - Explain how you will be modeling your topic. But your discussion should be descriptive and not technical.
 - While you are discussing dependent and independent/explanatory variables, you need to do so in a non-technical manner. Avoid use of jargon that will be unfamiliar to your audience.
 - Think about how to explain the idea behind regression without the technical language.
 - Provide intuition behind your model and choice of variables to include.
- The presentation will be followed by Q&A, where you will be asked more technical questions. At this point, you will be speaking to your professor and peers. Be able to:
 - Defend the inclusion of your variables.
 - Explain the hypothesis test that is relevant.
 - Discuss any specification issues that might be problematic.
 - Offer examples of things you might do in part 2 of the project, when you have to expand upon and elevate your analysis.

Other things:

- It is important that you have your presentation thought through.
- In preparation, think about how you might explain regression analysis in a simple manner, in a way that is not technical. Think about what, intuitively, regression analysis allows us to do.
- You should not be discussing the formalities of equations, etc. This is not appropriate for a general audience.
- Have a plan of what to discuss. Do not just shoot from the hip or else your presentation will not be organized.
- You need to work within the time limit. I want to see that you can articulate your ideas quickly and effectively. There is no model that cannot be explained in 3 minutes if you know your topic well. So, you need to make sure you are prepared to do so.
- There may be a panel reviewing your presentation. Again, remember to speak to your audience, which may contain faculty and staff who are not economists.

Again, the rubrics were handed back for review, and a discussion was facilitated by the professor. While not all students were able to deliver an effective presentation for a general audience, they understood the types of changes that needed to be made. After the discussion concluded, students were asked to reflect on their presentations for five minutes and make written notes on strategies to turn their more technical research into an intuitive discussion. These were discussed as well.

Presentation #3

At the end of the semester, students were required to deliver a five-minute presentation to a general audience that provided an overview of their findings. This would not replace the final 17-minute technical defense that would be conducted by the five economics professors during the final exam period. Instead, this would take place on the last day of class, with the same raters who evaluated the first and second presentations. The assignment would be particularly challenging; students had worked on their projects for an entire semester, had multiple econometric models with refinements, and possessed a great deal of knowledge of their area of investigation. Since projects were regression-based, students had to think about ways to interpret statistical results in a manner appropriate for their general audience. They were encouraged to think about motivating their ideas (perhaps explaining why the topic is of interest to them and why they think it is important), reducing the overwhelmingly large amount of statistics into a handful of key points (what are the most interesting findings in the data), explaining what the findings suggest (perhaps tell stories about what results tell us and who would care), and ensuring that the content targeted people who had little to no knowledge of the topic or field. They were reminded that PowerPoint slides should not contain regression equations, large tables with regression results, and results of diagnostic tests, items that they typically include in their formal project defenses. It was also suggested that students look back at earlier presentation tips for presentations 1 and 2. Figure 6 details the assignment as it was provided to students in Canvas.

Figure 6. Presentation #3 Instructions

You will deliver a medium-length presentation for the general audience on our last day of class.

- You will have 5 minutes to present.
- You must have a well crafted PPT presentation (see tips for effective PPT presentations) to accompany your presentation.
- You will not have time to cover everything in your set of specifications, so decide what model(s) you will focus on.
- You will need to present results and provide an intuitive explanation. Again, remember that your audience is not well versed in regression analysis. So pay particular attention to how you discuss statistical findings.
- Be sure to highlight key takeaways that are suggested by results, such as policy prescriptions.
- Refer back to earlier assignments and activities to review tips for presenting to a general audience.

Keep in mind that some members of your audience will not remember your project topic, as it has been over a month since your last presentation for them. Be sure to give an overview and quick motivation for the project.

Students performed better than in past assignments. However, they certainly struggled. We also noted that PowerPoint presentations were not equally successful. Once students stripped out the technical information, some of them had trouble crafting slides that complemented the presentation. The data visualization skills were solid, as this was something specifically addressed in class. However, slides related to econometrics results were not always as well developed as they needed to be. This suggested to us another dimension of communicating with a general audience that will need to be addressed—crafting appropriate visuals to complement oral presentations.

Student Outcomes

As noted earlier, this pilot was not constructed as an experiment. Instead, the goal was to implement activities, without sacrificing significant class time, to see if students have a natural

ability to tailor their messages to a general audience and to see if planned activities for refining this skill added value. With only nine observations by the end of the semester, statistical testing would be inappropriate. Also, without an appropriate control group or treatment, and since students participated in three distinct types of presentations for a general audience, it would be misleading to measure the impact of practice and training activities. Instead, data is used to offer suggestions and observations concerning the students' ability to speak to a general audience.

Table 1 reports mean responses and standard deviations for the three presentations, which would be more meaningful with a larger sample size. As seen, mean performance was slightly greater than "Average" for all presentations in each dimension. Standard deviations did decrease between the first and second presentations.

Table 1. Mean Outcomes and Standard Deviations

	Presentation 1 (N=10)	Presentation 2 (N=10)	Presentation 3 (N=9)
Content adapted for general audience	3.23 (0.79)	3.30 (0.42)	3.22 (0.69)
Presentation appropriate for general audience	3.40 (0.68)	3.15 (0.60)	3.22 (0.69)
Overall assignment rating	3.33 (0.94)	3.30 (0.70)	3.41 (0.62)

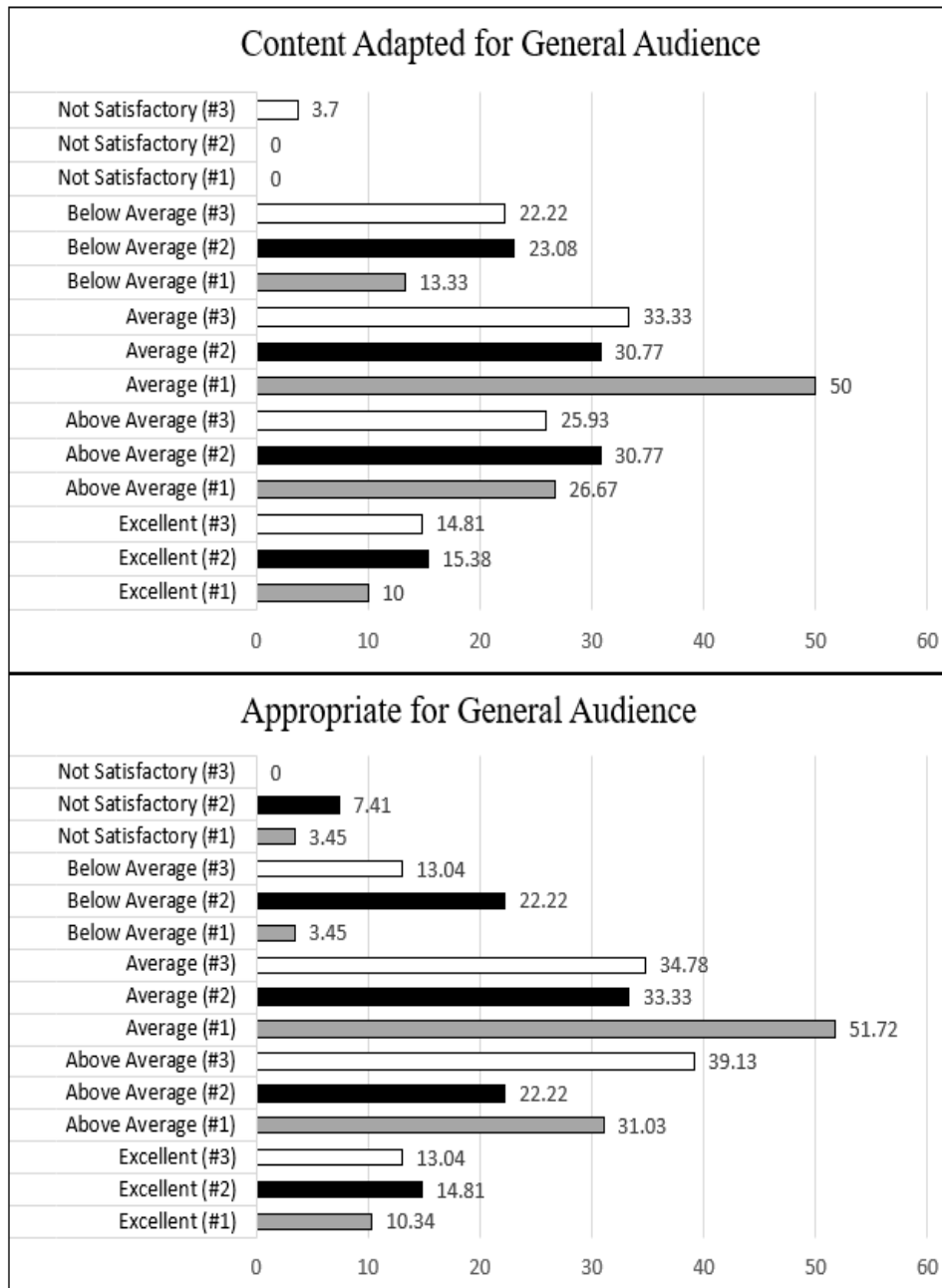
Scores based on a Likert scale of 1-5.

Data in Figure 7 are reported in percentages to control for losing a participant in the pilot and the fact that, occasionally, an item in the rubric was accidentally left blank. In general, performance was lackluster. For presentation 1, over 63% of students received a score of "Average" or lower for "content was adapted for the general audience." For "appropriate for a general audience," 58.62% scored "Average" to "Not Satisfactory." Overall ratings of "Average" or below were earned by over 56% of students. In summary, performance was not overly impressive, despite having a very high achieving group that usually performed at a much higher level. Furthermore, we believe that students took the assignment seriously because it was graded, and students did not want to risk embarrassment in front of business school employees and peers. However, we believe that students overestimated their ability to perform well on this task. In their minds, speaking to a general audience might have been perceived as being easier than presenting more technical information. We are certain that presentation #1 dispelled this myth for them. We concluded that even highly talented economics students with near-perfect grades were not equipped to speak to a general audience without training and practice. If our objective was to help students understand that speaking to a general audience can require more effort than presenting to peers, we accomplished our goal.

The second presentation was more technical than the first. Students had to discuss econometric models without too much reliance on statistical jargon that would alienate the audience. Thus, we felt this was a harder assignment than the first presentation, making it difficult to compare the two. We still saw students struggling with the item related to "appropriate for a general audience" since almost 63% of ratings were at "Average" or below. Unfortunately, more

students were rated as “Below Average” or “Not Satisfactory.” The third presentation did not show much progress on the evaluation items discussed here.

Figure 7. Evaluation Rubric Results (% of Observations by Category)



Even though the class as a whole performed poorly, we were curious to see if GPA correlated with performance in this pilot. Table 2 shows correlations between students’ cumulative GPAs at the end of the semester and performance on the evaluation items of interest. Interestingly, in presentation 1, we see little correlation between performance and GPA, which was transparent to us after seeing our best students struggle with this assignment. Correlations in the second and third items showed some increase when comparing the second

and third presentations with the first. Data matches our general impressions—that the best students started to make progress. While they did not perfect the presentations, their ability to tailor them did improve.

Table 2. Correlation Between GPA and Performance

	Presentation 1 (N=10)	Presentation 2 (N=10)	Presentation 3 (N=9)
Content adapted for general audience	0.36	0.39	0.28
Presentation appropriate for general audience	0.18	0.44	0.42
Overall assignment rating	0.15	0.85	0.49

Finally, we compared the presentations from the pilot to students’ final defenses, where they were speaking to their “peers” (a panel of economics professors). Eight of nine students received a mean overall rating from the professors that was greater than their overall rating for the final presentation to a general audience (the ninth was equal). While it could be argued that the peer audience rated students more leniently, we are certain this is not the case. In fact, we would argue just the opposite. We believe that students simply were more comfortable, and therefore more effective, when speaking to their peers who shared a vocabulary and background in econometrics. Furthermore, the correlation between GPA and overall rating for the final defense was .72, far higher than the correlation between GPA and the final presentation to a general audience (presentation 3).

Need for Training and Practice

The economics major does a nice job of training students to be critical thinkers. But while we are shaping future analysts and policymakers, we must teach them the skills they need to deliver their messages to those outside of their field. Not surprisingly, observations from this pilot suggest that students are not innately prepared to communicate their knowledge to a general audience, as even the best students struggled with the assignments. They are simply more comfortable communicating with the technical language they have acquired, as if speaking to peers. Furthermore, the results of this pilot suggest that building such activities into the capstone course alone is not sufficient to build proficiency. We did see some improvement, but at the end of the course, students were not proficient at tailoring their messages to a general audience. Our experiences suggest that, if we want to bridge this gap, we must embed activities into multiple courses and offer training on how to successfully address a general audience. While this pilot outlines how opportunities might be embedded in a capstone course, in non-capstone courses, written and oral assignments could be framed as letters to the editor, testimonies before Congress, political candidate position briefs, public interest blogs, podcasts, or presentations at town hall meetings. The key is repeated opportunities to practice a skill that does not come naturally, where these are embedded across the economics curriculum. Opportunities to practice this type of oral communication must be included.

Furthermore, students require training in how to speak to a general audience, and we will take this need more seriously going forward. The following offers a good summary of points our students need to consider when crafting their research presentations for a general audience.

1. Motivate the topic. Why is this a good topic and what stimulated your interest? For example, if you are researching poverty rates across the globe, paint a picture. What proportion of people live in poverty or extreme poverty? Is this increasing/decreasing? What can the research help us learn?
2. Data visualizations communicate information efficiently. In a presentation, graphs can help communicate information very quickly. Are child obesity rates increasing over time? And are they changing similarly across Census Bureau regions? Graphs should be explained and students should not require the audience to figure out key takeaways. In an interview setting, a graph can be described. For example, "When plotting data on X, there is a clear indication that Y is happening."
3. Avoid jargon that is familiar to peers but not to a general audience. While an audience might have a general sense of demand and supply, viewers/readers may not be familiar with a concept such as elasticity. Replace these with intuitive discussions. The audience does not need to know how to calculate it or even see numerical estimates.
4. Use examples to illustrate. Intuitive discussions should incorporate examples that connect with the audience. While the audience might not know the term inelasticity, they do understand that parents are less price-conscious when their children need medications to keep them healthy and safe. Use examples that resonate with the audience.
5. Interpret technical information descriptively. It may be hard to avoid the use of statistics altogether. However, concepts can be explained and put into context. Be clear about what it is that we learn from the statistics being presented. For example, "Standardized test scores in this elementary school have a mean of 84. However, the high standard deviation shows that observations have a large spread above and below this figure."
6. Explain the "takeaways." Be sure to summarize what the investigation reveals, what we can learn from it, and how conclusions might apply to decision-making (at the consumer, firm, or governmental levels). The reader or viewer should not be expected to pull this together. Reinforce the lesson you are communicating.
7. Do not insult the audience. Couch the language. When explaining something that might be obvious to listeners, students can acknowledge their understanding. For example, "We all understand that chicken and beef are substitutes in the marketplace. When the price of beef increases, many of us find ourselves consuming more chicken."

Adapting for the Larger Classroom

This pilot was implemented in a class that started with only ten students, making it relatively easy to build presentations into class periods. However, activities could be adapted for a larger classroom in the following manner:

- Presentations could be recorded and submitted online. If interested in seeing how students perform without the opportunity to redo the assignment (deleting and re-recording), then constraints can be employed. For example, recordings must take place during a specific window of time, meaning students will not have time to delete and re-record. Assignments with a time limit could be created in a manner where they can be accessed only once. Imagine building the prompt into an essay question in a learning platform where students have only ten minutes to record a short video and submit the URL in the answer box.
- Sample presentations could, with the permission of presenters, be shown to the class. Students could be asked to evaluate what was successful and offer suggestions for improvement.
- Evaluation could focus on self-evaluations. We found that students were able to accurately identify what went well and what needed improvement when asked to reflect.
- Students could be asked to evaluate online presentations of a subset of other students. When doing so, it will be important to use a peer-review rubric.

- The paired activity (interviewer and interviewee simulation) could be implemented on a larger scale. It does not require any additional time to deliver with a larger group. But it could also be completed via Zoom in an online course (using breakout rooms) or as paired homework.
- If formal presentations or defenses are required, students could be asked to deliver a two-minute overview for a general audience. Then, they could move on to a more technical presentation.

Expanding the Activity

The activities offered in our pilot can be expanded upon in meaningful ways. Maddox (2022) suggests that we intentionally assess the knowledge level of our audience, and this might be an interesting step to incorporate in a future iteration of these activities. Brenner (2018) offers key questions to consider when evaluating an audience, which could be incorporated into the assignment, especially if discussing presentations to highly diverse audiences (like one might make in a job setting). Furthermore, professors could experiment with more diverse audiences that expand beyond what we accomplished with our two raters. Additionally, students might have benefitted from being asked to first craft a written summary for a general audience before being asked to craft an oral presentation. The McCloskey book (2019), geared for written communication, would be helpful for more in-depth training on writing for a general audience. And the skills learned will extend to the presentations. Given the need for additional focus on communicating with a general audience, an economics program might consider adopting the book for use in lower-level courses, so students come to the capstone course with a better foundation. This will be part of an ongoing conversation among the economics professors at our institution as we reflect on how to best meet the needs of our students.

5. Conclusion

This paper reports the results of a pilot activity embedded in an econometrics-based economics capstone course. Traditionally, the economics capstone course focuses on research, technical writing, and oral defenses, and ours is no different. Students have many opportunities to write and speak for the technical audience who share their training. However, students must be proficient at addressing a general audience as well. For that reason, we implemented a pilot where students presented to a general audience at three separate times in the semester. The goal was to see if students were innately capable of adjusting their content for a general audience and then offer opportunities to practice and refine these skills. Because of the small sample of students, this pilot was not designed as a controlled experiment and meaningful statistics could not be generated. However, outcomes suggest that the ability to target a general audience is not innate, and even our best students with near-perfect grade point averages struggled. While the activities have merit, feedback suggests that one semester of assignments built into a capstone course is insufficient for developing this communication skill. Opportunities for training and practice should be infused across the economics curriculum. As economics majors become more proficient at speaking to a general audience, they will have better success in interviews, will be more effective in the workplace, and expert messages will be better received. We welcome colleagues with larger class sizes and the ability to generate more sophisticated statistics to continue with this line of research. All materials used in this pilot may be employed by others for use in their classrooms and may be revised in any manner that benefits the students.

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