JOURNAL OF ECONOMICS TEACHING

More Cowbell:

Using Inside Economics to Develop Data Literacy and Camaraderie

Data literacy is a critical component of doing economics well. This paper outlines using the podcast Inside Economics and a series of data literacy moments in a labor economics course to foster data literacy. An added benefit was the development of classroom camaraderie, which harnessed the power of emotions like happiness and humor to foster engagement and learning. Details of semester moments, specific assignment language, and assessment rubrics are outlined. Student reflection comments and professor observation are provided as evidence of efficacy. Adjustments for larger class sizes and a list of alternative podcasts that might be better suited for economics courses other than labor economics are also included.

Alice Kassens[†]

†Roanoke College

1. Introduction

Bartlett and King (1990) noted over thirty years ago that economics instructors expect students to learn to think like an economist without teaching them how to "do" economics (Bartlett & King, 1990). "Doing" economics was at the time defined as the ability of students to apply "their knowledge as citizens or employees" (Hansen, 1986, p. 149). Tremendous progress has been made in economic pedagogy in recent decades in teaching students to "do" economics as defined by Hansen (1986) and Bartlett and King (1990) and emphasized and detailed by Allgood and Bayer (2017). For example, considerable work has been done to move away from focusing on econometric theory and towards the "doing" of econometrics (Angrist & Pischke, 2014; Angrist & Pischke, 2017; Kassens, 2019a; Kassens, 2019b). The economics profession continues to evolve. It has been moving away from mathematical models and towards using economic data (Mendez-Carbajo, 2021). An example is the Fed Challenge (Board of Governors of the Federal Reserve Bank, 2022), in which students apply economic theory and data to monetary policymaking. Our definition of "doing" economics should be broadened to include data literacy.

Data literacy is often not a key component in the economics classroom, despite the economics profession's reliance on it. For example, in the labor economics classroom, students traditionally learn the definition of unemployment, its relation to GDP, types of unemployment, what it can tell us about the health of the labor market, etc. These lessons often complement (mathematical) theoretical models of unemployment, such as the steady-state level of unemployment (Borjas, 2020). Lessons may also include noting past and current values of the unemployment rate. However, data literacy goes beyond these lesson plans. It includes understanding the Bureau of Labor Statistics process of collecting data for the monthly Current Population Survey, reviewing the survey instrument, knowing what questions from that survey are used to generate the commonly reported unemployment rate (U3), how and why seasonal adjustments are used, fluctuations in response rates for the surveys and how they impact the metric and subsequent revisions, and how the metric relates to others in the same report, such as the employment-population ratio and labor force participation rate, and metrics in other labor reports, such as the job openings rate in the Job Openings and Labor Turnover Survey (JOLTS.)

As the above example makes clear, data literacy is essential for a deep understanding of the labor market and how it relates to the national and global economy, Federal Reserve policy, and fiscal policy, among other issues. Additionally, conversing about a metric and its linkages improves data literacy and student confidence in their data literacy skills, which will serve students beyond the classroom and help them "do" economics well. The same can be said about many topics in economics. The coverage of unemployment in the labor economics course is simply an example. Fitting data literacy into an already cramped curriculum is challenging, but small, dedicated assignments and focused moments, such as those outlined in this paper, are potential solutions. Furthermore, improving data literacy skills will help students prepare for future, real decisions that they might face, some with high stakes, including personal investments and healthcare decisions. Convincing students of the importance of data literacy (and that it is not just a hobby or fancy of the professor) is equally important.

In some cases, a positive consequence of interactive, applied course assignments is increased classroom camaraderie. A welcoming, positive classroom environment increases student engagement (Downs, 2022), which is associated with better academic outcomes (Reckmeyer, 2019); it helps build a "social classroom," offering a sense of belonging and fostering community building, significant features of student success (Eyler, 2018). Incorporating targeted assignments and moments that foster data literacy without losing important course

content, which also builds camaraderie, is optimal. Based on instructor observation and student feedback, the exercises outlined in this paper do just that.

This paper outlines using *Inside Economics* (*IE*) in a small labor economics course at a liberal arts college to increase data literacy and camaraderie. This is an upper-level course with a prerequisite of principles of microeconomics. The course typically has 10-20 students enrolled, is offered every other year, and is an elective for economics majors and minors. However, some students in Human Resource Management and other programs take the course.[1] Over the years, I have noticed undergraduate students struggle with data literacy, which manifests itself in misstatements in essays and oral presentations, compounds the difficulty of upper-level courses, and, in general, does not set students up well for job interviews and life decisions after college. The activities detailed in this paper are aimed at improving data literacy.

IE is a podcast from Moody's Analytics that covers economic indicators and their meaning and relationship to the national and global economy. In addition to listening to and discussing podcast episodes after releases of major government labor market reports like the Employment Situation Report, the course incorporated several features of the podcast as data literacy and camaraderie moments, and grouped students for a mock podcast at the end of the semester, showcasing their labor economics and data literacy skills.

The mock podcast assignment and scoring rubrics are included as appendices so others can apply or modify the exercise in their classroom. Several other activities used in the course are also thoroughly described so that others can utilize one, some, or all in their classrooms. Suggestions for modification are included in the discussion. A brief in-class survey covering various aspects of the assignment was conducted, and student responses were discussed.

2. Background

Podcasts in the Classroom

A podcast is a digital audio file accessed online using an electronic device and is typically available as a series. The new episodes can be received by subscribers automatically, usually at no explicit cost. Podcasts are not new to the classroom. Research shows incorporating them (or other auditory mediums like radio or audiobooks) into the classroom can improve literacy skills, including critical thinking, listening comprehension, and storytelling (Godsey, 2018). Listening to a story stimulates attention and presses the listener to use mental imagery, creating mental representations of things, people, and places that are not in an individual's visual field; this practice cultivates listening habits and enhances literacy skill acquisition (Rodero, 2012). For those concerned with losing an actual reading component, listening and traditional reading skills can be honed by coupling podcast transcripts with audio. This coupling has the benefit of keeping easily distracted students on task and assisting students for whom English is a second language to gain confidence and literacy (Godsey 2018).

Podcasts have several attractive properties. First, they are updated regularly (new episodes.) A podcast can complement a traditional textbook, reviewing and applying a lesson learned, often with a current event. Second, podcasts come in various lengths, increasing their

[1] The class size makes it challenging to undertake any statistical analysis of pedagogy, including conducting pre/post tests and studying the differences to assess student learning. Specifically, the spring 2023 class discussed in this paper had 11 students, providing an insufficient sample size for any statistical analysis. Nonetheless, the methods used in the course might be of interest to an instructor, and this manuscript serves to outline an issue (the importance of data literacy) and offer a way to address it that happened to come with other benefits (camaraderie.) Some instructors might find it helpful. A brief, in-class survey was given to provide some feedback other than my observations; the student responses are discussed in this paper.

flexibility. A short episode (5-10 minutes) can be used as a warmup for a lecture or a prompt for discussion. Longer episodes (45-60 minutes), while not optimal for classroom use, can reinforce lecture material, apply lessons learned, and offer a more profound understanding than lecture alone. Third, podcasts are often free of charge and available through a wide range of apps and devices connected to the Internet, making them readily accessible.

Podcasts are not new to the economics classroom. Hall (2012) incorporated *EconTalk*, hosted by Russ Roberts and a part of the online Library of Economics and Liberty at the Liberty Fund, in a principles course to complement textbook readings and lectures and encourage class discussion about the political economy (Roberts, n.d.). Students were assigned specific episodes related to course material and expected to summarize the contents on one side of a 4x6 note card, limiting their summary to 80-100 words. On the other side of the card, students were asked to note something they did not understand, disagreed with, or wanted to discuss further. The cards were collected at the start of class and used to assess if students completed the assignment, understood the material, and drove the class discussion. The exercise was considered an effective diagnostic tool and a class discussion stimulus (Hall, 2012).

Other studies support Hall's findings. For example, statistical evidence from responses to a self-assessment survey reveals that most students find using podcasts as a supplement to classroom lectures leads to a better understanding of economic concepts and the relevancy of economics to the world (Moryl, 2013; Moryl, 2016), particularly students with auditory/verbal "learning styles" (Moryl & Jiang, 2013, p. 201). Specifically, Moryl (2016) discusses a class project in which student groups produce a podcast to highlight their economic learning over the semester and hone their oral presentation and group work skills, which are valued skills in the labor market. Student surveys indicated broad support for the assignment and affirmed its success in developing economic knowledge, oral communication, and group work skills. Additionally, several researchers found evidence that using podcasts to complement class discussions and lectures increased student engagement and enjoyment (Peden & Domask, 2011; Moryl & Jiang, 2013; Choi et al., 2015) and offered detailed instructions on how to incorporate podcasts into the classroom (e.g., Coon & Vidal, 2021).

This paper adds to the literature on using podcasts in the economics classroom by explaining how the podcast *Inside Economics* is used in a small labor economics class through group work, as a guide to class discussion to complement the lecture, and as a genesis for data literacy moments. Listening to a podcast focused on the discussion of economic data gets students to buy into the process and importance of data literacy as they repeatedly listen to experts understand and use data to tell a story about the current economy and then do the same on their own. Results of a student survey affirm that listening to the podcast helped them to understand and apply course material, including economic data, in keeping with results from the literature.

Data Literacy

Data literacy is the ability to read, write, and communicate data in context, including understanding data sources and constructs, analytical methods and techniques applied, and the ability to describe the use case, application, and resulting value (Panetta, 2021). Economic data literacy is defined as the combination of specific expected student competencies in Economics and the broad data literacy needs of the workforce (Mendez-Carbajo, 2020). Allgood and Bayer (2017) classify data collection and analysis as an essential competency in the undergraduate economics curriculum. The economics profession grows increasingly (economic) data-focused each decade (Mendez-Carbajo, 2021; Hamermesh ,2013). However, classroom pedagogy does not reflect this movement away from mathematical theory in favor of economic data (Mendez-Carbajo, 2021).

Economic data literacy includes three sets of skills: 1) information literacy, 2) numeracy, and 3) economics. An information-literate student knows when information is needed and can find, analyze, and effectively use that information. A numerate student understands and can work with numbers. The final set of data literacy skills requires students to use theoretical economic models and empirical data to study social questions. As such, an economic data literate student can combine quantitative information and economic theory and analysis to answer questions related to decision-making (Mendez-Carbajo 2021). Understanding the current economy and applying lessons from the economics classroom is deepened with economic data literacy and is necessary to "do" economics well.

Recently published work demonstrated the steps towards deliberately developing data literate economics students. The Federal Reserve Bank of St. Louis has several lesson plans integrating FRED data and blogs covering topics such as unemployment across racial and ethnic groups (Mendez-Carbajo 2021). Each lesson plan addresses information literacy, numeracy, and economic analysis skills and is appropriate for as early as a principles-level course.

Work is also being done in upper-level economics courses. For example, Halliday (2019) developed a series of assignments that pushed students to "do" economics by applying economic theory and measurement to real-world data in an economic development course. Students examined cross-sectional surveys using either Microsoft Excel or Google Spreadsheets and applied their learned data literacy skills to a team project. Specifically, he detailed a semester-long analysis of measurement issues related to income, poverty, and inequality to cultivate student data literacy.

This paper adds to the literature on economic data literacy by sharing a semester-long incorporation of data literacy moments, which include listening to podcasts, reviewing and discussing government reports and source data, playing a statistics game, and culminating in a group project highlighting and honing the skills acquired. Student survey results affirm that the experiences helped them become more comfortable with and talking about labor market statistics.

Classroom Camaraderie

Engaged students are more likely to be successful (Reckmeyer, 2019) and leave a course at the end of the semester with a new toolkit to view and navigate the world. Student engagement is defined as " the mental state students are in while learning, representing the intersection of feeling and thinking." (Barkley & Major, 2010, p. 6) and is the product of motivation and active learning (Barkley & Major, 2010; Foster, 2023). Creating and maintaining student engagement in the classroom is challenging. Some active solutions include games (e.g., Kassens & Enz, 2018), think-pair-share (e.g., Maier & Keenan, 1994), and clickers (Ghosh & Renna, 2009). However, simple actions, like sharing things about yourself and owning your mistakes, can create camaraderie or a feeling of closeness and friendship, which results in more engaged students (Downs, 2022).

Similarly, simply harnessing the power of emotions can generate camaraderie and lead to more effective and deeper learning (Persellin and Daniels 2014; Eyler 2018). Emotion plays a vital role in student learning through mechanisms such as improved memory. Take, for example, the emotion "happiness": happy students are more connected in the classroom. Humor and amusement have similar impacts on student engagement and learning. By reducing student anxiety, humor improves student performance (Eyler, 2018). Utilizing emotions like happiness, humor, and amusement in the classroom can be as simple as a comment on a syllabus, a quip at the start of class, or friendly banter as students enter or exit the classroom. Positive emotions and camaraderie are important aspects of a "social classroom." While making a class "fun" does

not necessarily mean learning is happening, harnessing happiness, humor, and amusement can amplify student learning from well-designed lesson plans.

This paper adds to the literature on classroom camaraderie and engagement by highlighting the simple use of a cowbell to celebrate success as an instrument of camaraderie. Results from a student survey indicate that the classroom use of cowbells and activities surrounding their use was fun, community-building, engaging, and helped build their confidence.

Inside Economics in the Classroom

IE is a podcast from Moody's Analytics podcast family Moody's Talks (Zandi, n.d.). *IE* is currently hosted by Moody's Chief Economist Mark Zandi, Marisa DiNatale, and Cristian deRitis. The hosts discuss key economic indicators and their meaning and relationship to the national and global economy. Often, special guests join the podcast to share their expertise on a particular topic. *IE* began in March 2021; there are over 100 episodes available. Regular episodes are released every Friday, with bonus episodes coming occasionally on other weekdays. The episodes are typically recorded and released on the same day and are typically 60-75 minutes long.

Zandi and his hosts cover economic data releases in-depth but avoid jargon when possible and if not, explain it simply. The podcast is digestible for a broad audience, including students new to economics. Another attractive attribute of the podcast is that it is not overly produced and full of friendly banter and civil discourse between people who often disagree but do so civilly. The hosts take time to arrive at an answer to a question, allowing the audience to hear and learn from their considerations. The audience feels like welcomed guests to a relaxed conversation between experts.

The classroom for the pedagogy discussed in this paper was a small labor economics course at a liberal arts college in the spring of 2023. Labor economics is an upper-level elective for economics majors and minors. It also is an elective in several other majors and minors across campus. Principles of microeconomics is a prerequisite for the course. Students were primarily junior and senior economics majors in the spring of 2023.

Students in the course were encouraged to listen to *IE* each week and expected to listen to it in weeks that major labor market reports from the Bureau of Labor Statistics (BLS) were released: 1) Employment Situation Report (released three times during the semester), 2) Job Openings and Labor Turnover Survey (released three times during the semester) and 3) National Compensation Survey (reports covering the Employment Cost Index were released once during the semester). The release dates and a description of each report were included on the course syllabus and students were reminded of their upcoming release in class and via email. In addition to listening to that week's episode of *IE*, students were also expected to download and review the release from the BLS, including the notes and appendices.

The following sections outline the moments and assignments inspired by and include *IE* that fostered data literacy skills and camaraderie. Student feedback and reflections gathered at the end of the semester are also included for each component.

Statistics Game

During most episodes of *IE,* hosts and guests play the statistics game, in which each participant shares a statistic, and the others try to guess it. According to host Zandi, the best statistic is one that is germane to the episode topic and is not so complex that no one gets it

right but not so easy that everyone guesses it immediately. After the statistic is guessed correctly or revealed, host Zandi asks each player why they selected a particular statistic and how it ties into the current discussion and economy. Participants are allowed to ask for clues. For example, in the week that the May Employment Situation Report was released, the statistic might be 68.2. Common clues participants might ask are: What is the unit of measure (%)? Is it from the recent Employment Situation Report (yes), is it from the household survey or the establishment survey (household survey), and is it a subgroup (yes)? The statistic is the 20+ black male labor force participation rate in May 2023. A topic of discussion for labor economists in that period was the increasing black male labor force participation rate and what would happen to it if the economy slid into recession.

Students were exposed to the statistics game each time they listened to the podcast. We played the statistics game several times over the semester at the start of class. Students were alerted that we would play the game in the following class so that they had time to prepare. The in-class games corresponded to a major BLS labor market report when students were expected to review the report's details. Playing the game incentivized students to pore over the report, including the appendix tables. Additionally, the low-stakes competition motivated students, directing their learning and sustaining retention of the material (Ambrose et al., 2010). We limited the time for guessing each statistic (one from each student) to keep the game to 20-30 minutes of class time. The process of asking for clues and making educated guesses about the statistics sharpened and showcased growing student data literacy. As they got closer and closer to the statistic, their questions got increasingly nuanced. Finally, each student had to explain why they picked their statistic and its meaning for the current economy, which furthered our data literacy journey. Students received no credit for the game but were rewarded with cowbell (see below) for impressive performance. These data literacy moments were effective ways to develop the three data literacy skills: information literacy, numeracy, and economics.

Student feedback about the statistics game included the following:

> It helped me become more comfortable talking about labor market statistics.

> It helped me get a better grasp of the meaning of the statistics. I got better at the game each time we played it as I learned more about their meaning. I could also have in-depth discussions with my peers.

Cowbell

When *IE* statistics game participants guess a statistic correctly, especially a challenging one, in a short period, everyone rings a cowbell in celebration. Each labor economics student was given a small cowbell on the first day of class after the professor described its use on *IE*.[2] Not only did the class use the cowbell to celebrate impressive statistics game victories, but also correct answers to difficult class problems and questions and the personal accomplishments of classmates. We termed this "giving cowbell." Personal accomplishments earning cowbell included a class member and her softball team beating the #2 ranked team in the nation, another inducted into Phi Beta Kappa, another sporting a new and impressive mullet, and another remembering to bring his cowbell to class. Victories of ranging importance in life, but all celebrated, nonetheless. The professor noted that smiles and engagement always accompanied the giving cowbell moments. The cowbell became an instrument of camaraderie.

[2] The professor purchased cowbells online for about $1.30 per cowbell. The professor also wrote the student and course name on the cowbell so it could be a souvenir. Students were expected to bring their cowbells to class each day. Many found that it was best to put their cowbell in a sock in their backpack to avoid creating too much noise walking around campus, particularly in the library.

> Student feedback about the use of cowbell included the following:
>
> I felt the cowbells helped increase class engagement. A small dopamine rush in exchange for learning.
>
> Your classmates cared about your answers. This showed that they were engaged and willing to recognize thoughtful answers. Getting cowbell certainly raises your confidence.
>
> The cowbells were very fun. It helped build a sense of community and a positive, encouraging environment for the class where we debated each other. 10/10 would ring again.

The literature reviewed earlier demonstrates the positive relationship between camaraderie and student learning. Using the cowbell to celebrate student success had the additional benefit of building camaraderie and potentially improving student learning. Terms related to camaraderie used in the eleven student responses to the question "Did you enjoy using cowbells? If so, why? If so, why not?" included "fun," "community," "confidence," and "engagement."[3] All eleven students stated that they enjoyed using the cowbell. The reasons varied, but they found that it livened up the class, engaged them in the material, built their confidence (being praised for success), and made them feel like they were part of a supportive learning community.

Mock Podcast

The culminating course assignment using the podcast was a mock podcast held in class at the end of the semester.[4] It was a "mock" podcast because conversations were not recorded. As a class, we discussed beforehand if we wanted to include the statistics game, cowbells, and each participant giving their 12-month and 24-month recession odds (another aspect of the typical *IE* episode) with an explanation, and it was unanimous in including all aspects of the typical *IE* episode in the mock podcasts. Each group's mock podcast was independent of the other groups and limited to 20-25 minutes. The mock podcast accounted for 10% of the course grade.

Students were placed into groups of three to four about four weeks before the mock podcast. Each group was assigned a specific labor report to cover in their mock podcast. Group assignments and grading rubrics were posted before the government reports were released. However, students were encouraged to begin their preparation by reviewing previous reports, listening to past episodes of *IE* related to the topic, working with each other on a presentation plan, and talking over their thoughts on the economy and how learned labor economic theory helped tell their story. Each mock podcast was conducted in class on the final day, with groups clustered at the front of the classroom with the professor. The format followed the standard format of the *IE* podcast. Developing a story to explain the data in the assigned report pushed students to think about the meaning of the data and its context. Encouraging students to think about the meaning of a topic is an effective way to build their background knowledge base, which is the first step to becoming an expert and doing economics well (Willingham, 2009).

Assessment of the mock podcast came from a combination of two rubrics: 1) a group rubric scored by the professor based on the group performance in the mock podcast and 2) a peer evaluation scored by each member of each group based on contributions of groupmates to the final product. Both rubrics were reviewed with students several weeks before the mock

[3] "Fun" was mentioned by nine students, "Community" by three, "Confidence" by three, and "Engagement" by five.

[4] See the appendix for the detailed assignment and grading rubrics.

podcast, so students had them in mind as they prepared.

The mock podcasts showcased student grasp of the three aspects of economic data literacy and developed their background knowledge-base through storytelling. Compared to earlier in the semester, students spoke more easily about technical data, including noting potential measurement issues with the data covered. They successfully linked their assigned report to historical data and used labor economic theory to tell compelling stories. Additionally, students respectfully challenged each other, much like the hosts of *IE* do. This latter point suggests that listening to civil discourse can beget civil discourse.

Ten of eleven students answered in the affirmative to the question, "Did participation in the mock podcast assignment help you become more comfortable talking about labor market statistics?" When asked to explain how the mock podcast achieved this (if they answered "yes" to the first question), student answers included the following:

> Participating in the mock podcast helped me become more comfortable talking about labor market statistics. I think my preparation alone was the most helpful. This is because I was forced to do my own research and make my own conclusions. I found the mock podcast helpful because it helps me relate what I am learning to real examples. This project helped prepare me for things after this class because now I know what many different statistics mean.
>
> I think the podcasts helped improve my level of comfort greatly. It is one thing to know how to read the report, but to interpret what the data means and to connect these dots with things happening in the real world. We can see things that influence the data—being tasked to thoroughly discuss a report made me more confident in my ability to consume the reports correctly and will serve me well.
>
> One thing I appreciated was that I felt like I could discuss in detail what was going on in the economy at that point in time. In many of my other economics courses, we don't focus on what is happening right now. Instead, we go through a textbook and do not receive modern applicability, but this was not like that – I could not only understand what was happening, but I could talk about it.
>
> This assignment was much more beneficial than a presentation or another exam for many reasons. It brought all of our topics out at the end of the semester and made us apply the information we had learned. I enjoyed the casual conversation setup where we could discuss the statistics instead of presenting and telling people about them. The flow of conversation made the information interesting, and I enjoyed listening to the other groups as well.
>
> The benefit was applying the content in a prepared fashion. Everyone in the class who was there had put effort into knowing their respective reports. Instead of being forced to do math for a test that some people struggle with, the mock podcast allowed everyone to share their knowledge for everyone's benefit. It was also a great final presentation where PowerPoint could not be used as a crutch, helping improve our presentation skills.

These answers support the mock podcast's improvement of student data literacy.

3. Conclusions and Modifications

Economic data literacy is becoming a growing necessity for success in the economics profession, although it does not have a standard or prominent place in the current economics pedagogy. This paper outlined a semester-long series of economic data literacy moments culminating in a group project, a mock podcast, all centered around the podcast *IE*. An added benefit of the experience was the cultivation of camaraderie, which enhances student engagement and achievement.

The semester-long data literacy moments develop data literacy skills by following a deliberate process: First, students are exposed to contemporary data in a non-traditional way (ex., listening to the episodes of *Inside Economics* and reading the newly released government reports themselves.) Second, students interact with the data by picking a statistic and thinking through their justification for it/explanation of it in preparation for the statistics game. Third, retention and data literacy are reinforced by playing the game in class. Students must think critically when asking questions for hints and deeply understand economic data to acquire helpful hints, such as recent values/trends of various measurements, units of measure. Finally, students display mastery in producing their podcast and discussing data on their own.

Students were asked if they would change anything about incorporating the podcast in the classroom, the mock podcast, or other data literacy moments. The one modification suggested, which will be incorporated in the next iteration of the course, is to move the mock podcast day into a room with centralized, circular seating so that podcast participants can look at each other while conversing and the entire class feels as though they are watching a stream of a live show.

Although the class discussed in this paper is small (N=11), the assignment (and all other aspects of the semester-long focus) can be scaled to larger classrooms. First, not all parts have to be used; someone can select the statistics game or mock podcast (or cowbell) in isolation to address data literacy (and camaraderie.) The components can also be modified. With 4-6 students per "team" and limiting the presentation to eight to ten minutes, the group project can reasonably accommodate 60 students. An additional technique for larger classes is to have the groups record their podcast and submit it to the professor for assessment. These modifications would not detract from the intended learning objectives and would make the project possible for larger classes. Pressing students to present their findings in a shorter time has the additional benefit of pushing them to determine the most essential items to discuss and to do so efficiently, both valuable skills beyond the classroom.

Concerning the statistics game, for larger classes, selected students could prepare for the following class and rotate over the semester so that each student has a turn bringing a statistic. With five to ten students per "round" with two to three minutes per student, 30-50 students could utilize the statistics game without overwhelming other course material.

Regarding the cowbell, if the class size is considerable, making the purchase of cowbells for each student unacceptable (and the professor did not want to require the students to buy their own), there are alternatives. First, the professor (not the students) could ring the cowbell after the class voiced their support for "giving cowbell." Second, the cowbell could be dispensed with altogether and instead focus efforts on the data literacy moments.

Many other economics-themed podcasts exist that can be used instead of *Inside Economics*, which discuss data to some degree and thus would achieve similar learning objectives outlined in this paper. A list of such economics podcasts is included in the appendix. The duration of a typical episode is noted (short (20 minutes or less) or long (over 20 minutes))

as length might impact how a podcast is used in a course. Moryl (2014) overviews the webpage she created, audioecon.com, which provides instructions on various ways to incorporate podcasts in the classroom, including achieving learning objectives beyond those detailed in this paper. Although published several years ago, the webpage is updated regularly and is an asset to the economics instructor considering using podcasts in the classroom.

References

Allgood, S., & Bayer, A. 2017. Learning outcomes for economists. *American Economic Review*, *107*(5), 660-664. DOI: 10.1257/aer.p20171070

Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. 2010. *How learning works: 7 research-based principles for smart teaching.* San Francisco: Jossey-Bass. DOI: 10.14434/josotl.v14i1.4219

Angrist, J. D., & Pischke, J-S. 2014. *Mastering metrics: The path from cause to effect.* Princeton: Princeton University Press.

Angrist, J. D., & Pischke, J-S. 2017. Undergraduate econometrics instruction: Through our classes, darkly. *Journal of Economic Perspectives, 31*(2), 125-144. DOI: 10.1257/jep.31.2.125

Barkley, E. F., & Claire, H. M. 2010. *Student engagement techniques: A handbook for college faculty.* San Francisco, CA: Jossey-Bass.

Bartlett, R. L., & King, P. G.. 1990. Teaching economics as a laboratory science. *Journal of Economic Education, 21*(2), 181-193. DOI: 10.1080/00220485.1990.10844665

Board of Governors of the Federal Reserve Bank. 2022. *Federal Reserve Board.* November 22. Accessed July 13, 2023. https://www.federalreserve.gov/aboutthefed/educational-tools/fedchallenge.htm.

Borjas, G. 2020. *Labor economics.* 8th. New York: McGraw Hill.

Choi, S. K., Dowell, C. T., Duncan, D., & Hoyt, G. M. 2015. The efficacy of po dcast us e in th e economics classroom. Paper presented at the American Economic Association Annual Meeting. Boston, January 4."

Coon, M., & Vidal, D. D. 2021. Using podcasts to teach the new generations about supply and demand. *Journal of Higher Education Theory and Practice, 21*(2), 1-11.

Downs, D. 2022. Creating classroom camaraderie to promote learning: 3 strategies. *Scholarly Teacher.* December 1. Accessed June 23, 2023. DOI: 10.1187/cbe.13-06-0115

Eyler, J. R. 2018. *How humans learn: The science and stories behind effective college teaching.* Morgantown: West Virginia University Press.

Foster, S. 2023. *Facilitating and assessing student engagement in the classroom.* Boulder, CO, January 23.

Godsey, M. 2018. Boost confidence and focus with these free, accessible, and fresh texts. *Common Sense Education.* Accessed June 19, 2023. DOI: 10.1080/00220480903297651

Hall, J. C. 2012. Incorporating EconTalk podcasts into the principles classroom. *The Journal of Private Enterprise, 28*(1), 113-118.

Halliday, S.. 2019. Data literacy in economic development. *Economics: Faculty Publications, 50*(3), 284-298. DOI: 10.1080/00220485.2019.1618762

Hamermesh, D. S. 2013. Six decades of top economics publishing: Who and how? *Journal of Economic Literature, 51*(1), 162-172.

Hansen, W. L. 1986. What knowledge is most worth knowing for economics majors? *American Economic Review*, *76*(2), 149-152.

Kassens, A. L. 2019a. Taking a path less travelled: Mastering metrics without a textbook. In *Teaching economics: Perspectives on innovative economics education*, by Joshua Hall and Kerianne Lawson (eds.), 137-153. Springer.

Kassens, A. L. 2019b. Theory vs. practice: Teaching undergraduate econometrics. *Journal of Economic Education, 50*(4), 367-370. DOI: 10.1080/00220485.2019.1654958

Kassens, A. L., & Enz, M. J. 2018. Chasing economic knowledge: Using an economics themed scavenger hunt to learn and build comradery. *Journal of Economics and Economic Education Research, 19*(4), 1-6.

Maier, M. H., & Keenan, D. 1994. Teaching tools: Cooperative learning in economics. *Economic Inquiry, 32*(2), 358-361.

Mendez-Carbajo, D. 2020. Baseline competency and student self-efficacy in data literacy: Evidence from an online module. *Journal of Business & Finance Leadership, 25* (3-4: Special Issue on Business and Financial Data), 230-243. DOI: 10.1080/08963568.2020.1847551

Mendez-Carbajo, D. 2021. How to develop data literacy in economics with FRED: A guide for instructors. *The Cengage Blog*. Accessed June 22, 2023. https://blog.cengage.com/how-to-develop-data-literacy-in-economics-with-fred-a-guide-for-instructors/.

Moryl, R. L. 2016. Pod learning: Student groups create podcasts to achieve economics learning goals. *Journal of Economic Education, 47*(1), 64-70. DOI: 10.1080/00220485.2015.1106363

Moryl, R. L. 2014. Podcasts as a tool for teaching economics. *Journal of Economic Education, 45*(3), 284-285. DOI: 10.1080/00220485.2014.917915

Moryl, R. L. 2013. T-shirts, moonshine, and autopsies: Using podcasts to engage undergraduate microeconomics students. *International Review of Economics Education, 13*, 67-74. DOI: 10.1016/j.iree.2013.02.001

Moryl, R. L., & Jiang, S. 2013. Using economics podcasts to engage students of different learning styles. *International Advances in Economic Research, 19*, 201-202. DOI: 10.1007/s11294-013-9396-1

Panetta, K. 2021. A data and analytics leader's guide to data literacy. *Gartner*. August 26. Accessed June 21, 2023. https://www.gartner.com/smarterwithgartner/a-data-and-analytics-leaders-guide-to-data-literacy.

Peden, B. F., & Domask, B. Z. 2011. *Do podcasts engage and educate college students?* Vol. 1, in *Promoting student engagement (vol 1): Programs, techniques and opportunities*, by Miller, M. L., Amsel, E., Kowalewski, B. M., Beins, B. C., Keith, K. D., & Peden, B. F., 170-177. Society for the Teaching of Psychology. http://teachpsych.org/ebooks/pse2011/index.php.

Persellin, D. C., & Daniels, M. B. 2014. *A concise guide to improving student learning: Six evidence-based principles and how to apply them*. Sterling: Stylus Publishing, LLC.

Reckmeyer, M. 2019. Focus on student engagement for better academic outcomes. *Gallup*. October 30. Accessed June 23, 2023. https://www.gallup.com/education/267521/focus-student-engagement-better-academic-outcomes.aspx.

Roberts, R. n.d. *EconTalk* (The Liberty Fund, Inc.). https://www.econtalk.org/.

Rodero, E. 2012. Stimulating the imagination in a radio story: The role of presentation structure and the degree of involvement of the listener. *Journal of Radio & Audio Media, 19*(1), 45-60. DOI :10.1080/19376529.2012.667022

Willingham, D. T. 2009. *Why don't students like school?: A cognitive scientist answers questions about how the mind works and what it means for the classroom.* San Francisco: Jossey-Bass.

Zandi, M. n.d. *Inside economics* (Moody's Analytics). https://www.moodys.com/web/en/us/about/insights/podcasts/moodys-talks-inside-economics.html.

Appendix 1. Mock Podcast Instruction Handout

MOCK PODCAST DETAILS AND TIPS

Spring 2023

What: Each student is assigned to a team of 3-4 students and participates in a mock Inside Economics podcast. Each group will use 20-25 minutes to cover an assigned labor economic report, play the statistics game, and provide recession odds. Dr. Kassens will host each "episode" and take the lead, while each student is a co-host.

When: April 18, 2023, in our classroom

Evaluation: The group will be evaluated using the posted grading rubric. Each student will assess all group members (except themselves) using the peer evaluation at the end of class on April 18th. Your score put into the grade book is a percentage of the group score. Your average score from your group determines that percentage. You can earn a higher individual score, the same or less than the group score.

Format: Dr. Kassens will start the episode by introducing each co-host. Dr. Kassens will give you a moment to comment on your background and "credentials." We will then begin the conversation about the assigned report. Dr. XXX will decide when to start the statistics game and the recession odds portions.

Preparation tips: Thoroughly review your assigned report (feel free to have a copy with you during the episode to refer to…although do not use it during the statistics game) before meeting with your group. Listen to the *Inside Economics* podcast that covers the report. Please work with your group to develop a list of the main takeaways from the report and be able to articulate them. Develop questions for each other based on those takeaways as well.

Team and report assignments:

Group 1	Group 2	Group 3
March 2023 Employment Situation Report *(Release: April 7)* [List student names]	*February 2023 JOLTS (Release: April 4)* [List student names]	*February 2023 State and Metropolitan Employment and Unemployment Summaries* *(Release: March 24 (State) and April 5 (Metro)* [List student names]

Appendix 2. Mock Podcast Group Grading Rubric

	1	2	3	4	5
Delivery	Student grammar is largely inaccurate (lots of slang), speech is unclear, and words are not well enunciated				Student grammar is largely accurate, speech is clear, words are well enunciated
	Students are largely uncomfortable, unprepared, and there are significant pauses				Students are comfortable, prepared, and there are no long pauses
	Student answers and comments are often unclear and not succinct				Student answers and comments are clear and succinct
Interview	Student questions and comments largely fail to spark quality conversation				Student questions and comments spark quality conversation
	Student provided material and comments are largely not related to the discussion				Student provided material and comments are largely pertinent to the discussion
Knowledge	Student answers and comments are largely inaccurate				Student answers and comments are largely accurate
	Student comments and answers are largely from one person, there are inactive members of the group				Student comments and answers are dispersed across the group
Overall quality					

SCORE:

COMMENTS:

Appendix 3. Mock Podcast Peer Evaluation

Peer Evaluation

Group Presentation

Name _____ **Group #** _____

Please assign scores that reflect how you really feel about the extent to which the other members of your group contributed to your group's performance. This will be your only opportunity to reward the members of your group who worked hard on your behalf. If you give everyone the same score, you will hurt those who did the most and help those who did the least.

Instructions: In the space below, please rate each of the other members of your group. Assign an average of ten points to the other members of your group.

If your group has 3 people in it, assign **20 points**

If your group has 4 people in it, assign **30 points**

If your group has 5 people in it, assign **40 points**

Differentiate someone in your ratings if you feel it is justified. You may not give more than 15 points to one person. If you feel you cannot assign all the points, you do not have to (i.e., if five people did most of the work, do not give the fifth person the remaining points unless they deserve them.) Keep it justified.

Group member	**Score**
1.	
2.	
3.	
4.	
5.	

Additional Feedback:

1. Reason(s) for your highest rating(s):

2. Reason(s) for your lowest rating(s):

3. If you were to assign points to yourself on this scale, what score do you deserve? Why?

4. Did all of your group members behave professionally? If not, explain how he/she did not.

5. Rate your oral presentation skills (1=Poor, 5=Excellent).

1 2 3 4 5

6. Compare your oral presentation skills to your class peers. (1=much below peers, 3=equal to peers, 5=much above peers).

1 2 3 4 5

Appendix 4. Example Economics Podcasts by Typical Duration

Short	Long
Planet Money	EconTalk
Speaking of the Economy	Freakonomics
The Economic Lowdown	Freakonomics, MD
The Economics of Everyday Things	Inside Economics
The Indicator	Think Like an Economist
The Pie	Trade talks

Note: "Short" = typical episode is 20 minutes or less, "Long" = typical episode is more than 20 minutes