

THE ECONOMICS INSTRUCTOR'S TOOLBOX

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JULIEN PICAULT, UBC OKANAGAN



INTRODUCTION – NEW GENERATIONS – SAME TEACHING?

- Beginning with “millennials”, authors see a change in student body (Carrasco-Gallego 2017, Leinberger 2015, Litzenberg 2010 and Morreale & Staley 2016).
 - Different skillset than older cohorts – weaker in learning-related skills.
 - Teaching millennials requires a different teaching style.
- Traditional “chalk and talk” lectures are still the predominant lecture method (Asarta et al. 2021, Watts & Schaur 2011).
 - Asarta et al. 2021, 76% to 83% of instructors rely on traditional lectures.
 - 83% in 2010 data, Similar since 1985.
 - Inertia in the profession (pre-COVID).
 - No incentive from departments to change practice.
 - Usually large time investment/costs when changing teaching practice.



INTRODUCTION – NEW TEACHERS – WHAT RESOURCES?

- Most Ph.D. programs do not include pedagogical courses and graduates usually have no or very little experience with teaching.
 - Teaching graduate students and Assistant Prof. have higher opportunity cost of time.
 - Most economics instructors are not familiar with the Econ Ed Literature.
- Resources exist in the economics education literature.
 - Papers such as Becker & Watts (1995) review teaching tools.
 - No thorough recent review – goal of this paper was to do it.



INTRODUCTION – THE WEBSITE – THE MISSION

- Beside the IREE (2019) paper, the Economics instructor's Toolbox is also available as a website (Picault, 2021): <https://www.theecontoolbox.com/>.
- Advantages of the website:
 - Allows for regular updates of content.
 - More accessible for instructors not familiar with the literature.
 - Easier to navigate.
- Paper and website are not exhaustive, but thorough review – more than 200+ papers reviewed. Goal is to:
 - Present options, not to choose for instructors – No ranking.
 - Expose the work of innovative instructors.



INTRODUCTION

Today's discussions

- What do we know about most common practices?
 - Slides
 - Flipped Classroom
 - Social Media
- What are the trends?
- What are some of the innovation shared by economics instructors?



MOST COMMON PRACTICES



POWERPOINT PRESENTATIONS



POWERPOINT PRESENTATIONS

- Pre-Covid, the norm in economics instructions was still “traditional lecture with a chalkboard and/or whiteboard” (Asarta et al. 2021).
- PPTs are increasingly used by instructors but may not be the norm, yet
 - In 2020, PPTs were used 50% of the time, while it was only 22% in 2010 (Asarta et al. 2021, Watts & Schaur, 2011).
 - In 2010, availability of projectors was suggested as a main explanation of the low-use, but it is not the case anymore as projectors are widely available.
 - With COVID-19, we could expect this number to keep increasing.
- Should instructors post slides?



SHOULD ECONOMICS INSTRUCTORS POST SLIDES?

- Lecturing with PowerPoint presentations is more effective (Clark 2008).
 - A more stimulating and accessible learning environment for students.
 - PowerPoint presentations are no substitutes for a lecture → Complementary tool.
 - PowerPoint slides most effective when students can download them before the lecture (Grabe 2005, Grabe et al. 2005 and Chen & Lin 2008).
- Most in the literature find no significant effect of slide availability on student performance (Garrett, 2015). However, some studies conclude otherwise:
 - Positive effects on students' performance that have less than a perfect attendance (Harmon et al. 2015).
 - Negative effects on student performance (Worthington & Levasseur, 2015 and León & García-Martínez, 2021).
 - Positive for students high on self-efficacy and males, and negative for students low on self-efficacy and female (Zdaniuk et al., 2019).



SHOULD ECONOMICS INSTRUCTORS POST SLIDES?

- Effects of posting slides on class attendance → No consensus in literature.
 - Some report positive effects (Chen & Lin 2008 and Harmon et al. 2015).
 - Worthington & Levasseur (2015) reports no effect.
 - Some report negative effects (Debevec et al. 2006, Frank et al. 2009 and Weatherly et al. 2003, León & García-Martínez, 2021).
 - “Many students claimed that access to online notes played a “Very Significant” role in their voluntary absences” (Grabe et al. 2005).
- Why is the effect on class attendance that important?
 - because class attendance is the ***strongest predictor*** of final grade (Chu & Kuo, 2012, Credé et al., 2010, and Debevec et al. 2006).
 - Not as true when attendance is forced.



WHAT MAKES A POWERPOINT EFFECTIVE?

- Design of PowerPoint presentations is crucial for effectiveness (Vazquez & Chiang, 2014).
 - Bad design may explain why some find negative effect.
 - Visual appearance of slides is *Key* to effectiveness.
- Vazquez & Chiang (2014) recommend to remove all the unnecessary information.
 - Choose carefully images.
 - Use full-pages images.
 - Text reduced to most important information.
- Garrett (2015) shows that students download more frequently slides with “a large number of concise bullet points”.



FLIPPED CLASSROOM



WHAT IS A FLIPPED CLASSROOM?

- Flipped Classroom:
 - Students study course material prior to coming to class.
 - Class time is devoted to activities.
 - exercises, discussions and experiments.
- Does class size matter?
 - No, evidence of successful flipping from small to very large class size.
 - Caviglia-Harris (2016) – 27 students.
 - Vazquez & Chiang (2015) – 900+.
- Student response? → typically react positively (Roach, 2014).
 - 76% reported that flipped classroom helped them learn.
 - 94% appreciated the increased interactivity.



MULTIPLE MODELS

- Not necessarily all or nothing. Class can be more or less flipped
 - Partially-flipped or Blended Classroom (20 to 80% flipped).
 - Caviglia-Harris (2016), Lombardini et al. (2018), Olitsky & Cosgrove (2014), Olitsky & Cosgrove (2016), Roach (2014), Wozny et al. (2018).
 - Flipped Classroom (80%+ flipped).
 - Asarta & Schmidt (2017), Balaban et al. (2016), Calimeris & Sauer (2015), Caviglia-Harris (2016), Cosgrove & Olitsky (2020), Craft and Linask (2020), Lombardini et al., (2018), Olitsky & Cosgrove (2016), Singh (2020), Swoboda & Feiler (2016), Vazquez & Chiang (2015), Yamarik (2019).
- Type of resources provided to students:
 - A variety of resources, including textbook, lecture slides and videos.
 - Vazquez & Chiang (2015) reports that students plebiscite (92%) the use of videos over any other resource.



CLASS TIME AND COST OF IMPLEMENTATION

- Does class time matters in the flipped classroom?
 - Joyce et al. (2015) and Rivkin & Schiman (2015) show that **reducing students-professors contact time has a negative effects on student performance** even when provided with appropriate resources including videos.
 - Lecture time is essential to student learning, time just used differently.
- Large implementation cost to the instructor (Vazquez & Chiang, 2015)
 - Substantial time investment required.
 - To create all the necessary material for one course → 6 to 12 months of full-time work.
 - Calimeris & Sauer (2015) confirms the high upfront cost.
- Norman & Wills (2021) suggest flipping one classroom meeting to evaluate whether it works for the instructor and the students.



EFFECTIVENESS

- Effectiveness is still debated
 - Some show increased student performance
 - (Balaban, et al., 2016, Calimeris & Sauer (2015), Caviglia-Harris, 2016, Cosgrove & Olitsky, 2020, Olitsky & Cosgrove, 2016, Swoboda & Feiler, 2016, Wozny et al. 2018)
 - Some show non-significant results
 - (Asarta & Schmidt, 2017, Craft & Linask, 2020, Olitsky & Cosgrove, 2014, Roach, 2014, Yamarik, 2019)
 - Lombardini et al. (2018) found significant improvement with the partial flip but not the full flip.
- Not all students affected the same way (Asarta & Schmidt, 2017)
 - Weaker students perform better with “chalk and talk”,
 - Average students perform similarly under both methods, and
 - Good students perform better in a flipped environment.



SOCIAL MEDIA



SOCIAL MEDIA

- Usually considered as a distraction, some use it as an instruction tool.
- Some advantages:
 - Free to use (Al-Bahrani, et al., 2015).
 - Easily accessible through cell phones, tablets, and computers.
 - Both students (Al-Bahrani, et al., 2015) and profs (Al-Bahrani, et al., 2017).
- Few experiences reported in the economics education literature.
 - Next slide



EFFECTIVENESS

| Social Media | Type of use | Results | Authors |
|----------------------------------|---|---|----------------------------|
| Twitter Instagram Facebook | Communication with students | N/A | (Al-Bahrani & Patel, 2015) |
| Twitter | Communication with students | No change in performance | (Al-Bahrani, et al., 2017) |
| Periscope | Assignment: creating a Real GDP index | N/A | (Dowell & Duncan, 2016) |
| Facebook | Discussion Platform | Significant improvement of students' final exam performance | (Harmon, et al., 2014) |
| Facebook | Discussion Platform | Negative impact on course average | Harmon & Tomolonis (2019) |
| Twitter | Discussion Platform | N/A | (Jones & Baltzersen, 2017) |
| Twitter | 10 assignments involving reading a resource and tweeting a reflective comment/question. | N/A | (Kassens, 2014) |
| Twitter | 1 policy related term-assignment. | N/A | (Treme, 2020) |



EFFECTIVENESS

- First results show:
 - Using social media as a communication tool instead of emails and learning management systems does not negatively affect student performance (Al-Bahrani et al., 2017).
 - Using social media as a discussion platform:
 - Promotes students' participation and engagement (Al-Bahrani, et al., 2015, and Jones & Baltzersen, 2017).
 - But effect on student performance is ambiguous (Harmon, et al., 2014 and Harmon & Tomolonis, 2019).
- Which social media should an instructor use?
 - Twitter is a better communication tool than Instagram or Facebook. (Al-Bahrani & Patel, 2015).



TRENDS



TRANSVERSALS: USING POPULAR CULTURE

- Recent teaching methods not only try to **effectively teach students**, but also rely more heavily on **students' interests**.
 - Goal – increase motivation, participation and attendance.
 - Examples:
 - Videos from movies, popular series and sports shows;
 - Use of social media;
 - Use of games such as video games and Poker.
- Important drawbacks: Student interests are changing, so
 - Require more regular research for teaching methods.
 - Require more adaptation from economics instructors.



INSTRUCTOR-CRAFTED VS. STUDENT-CRAFTED METHODS

- **Instructor-Crafted methods** refer to methods and add-ons used to directly or indirectly teach students economics concepts.
- **Student-Crafted methods** refer to assignments requiring students to produce an output, that can be shared or used in some other context, from which they will learn economics concepts in more depth.



INCREASING DIVERSITY

- Al-Bahrani (2020) suggests that the diversity of our students should be reflected in the content presented.
 - Need increased representation in teaching material.
- What about actual representation in teaching material?
 - Economics instructors do not use references, activities, or lessons that address diversity, inclusion, and gender issues (Asarta et al. 2021).
 - Lack of teaching methods that address diversity, inclusion, and gender issues (Asarta et al. 2021).



INSTRUCTOR-CRAFTED METHODS



INSTRUCTOR-CRAFTED METHODS

- Illustration Tools
 - Press Articles
 - Podcasts
 - Music & Videos
- Classroom Experiments



ILLUSTRATION TOOLS



PRESS ARTICLES

- Economics instructors commonly use press articles to illustrate concepts.
 - Most common non-textbook-related, non-instructor-developed assigned reading.
 - 22% of the time (Asarta et al. 2021)
 - Low tech and accessible.
 - Easier to comprehend for ESL students than other media (music/videos)
 - They can take the time they need to read.
 - They can translate the text using online translation tools.
- However, Kelley (1983) reports that just requiring students to read the article is not effective.
 - Articles need to be discussed in class
 - Instructors may create their own weekly newspaper by selecting 4 to 5 articles
 - Key economics concepts should be underlined
 - The newspaper should include questions with the articles.



PRESS ARTICLES

- Wood (1985) argues that we have to be careful with newspaper articles.
 - Journalists make obvious mistakes.
 - Students need education about “shortcomings in news coverage of economics.”
 - I am currently working on a website dedicated at this. Beta version available.
 - <https://the-breakdown.ca/>.
 - Comments and suggestions more than welcomed!
- Besides, Andrews (2021), Ahlstrom (2021), Ruder (2021), Schneider (2021) gives examples of assignments that can be created based on press articles.
- Moryl (2021) presents a complete economics course based on articles from *The Economist*.



PODCASTS

- Moryl (2013) suggests the use of podcasts
 - Professionally-produced podcast.
 - Good illustration of economics concepts in the real world.
 - Easily accessible.
- Podcasts are popular among students
 - more than 90% of the students, she surveyed, declared:
 - Listening to the podcasts,
 - Podcasts contributed to their understanding.



PODCASTS

- Moryl created a website with a collection of podcasts: <http://www.audioecon.com>.
 - Mostly short podcasts (suitable for in-class use).
 - Longer podcasts available on the freakonomics website:
<http://freakonomics.com/archive>.
- Coon and Vidal (2021), Hall (2012), Vidal (2021) describe how podcasts can be integrated into various economics lesson plans.
- Vidal et al. (2021) show that podcasts can be used to develop specific skills (entrepreneurial).



MUSIC & VIDEOS

- Literature recommends using media such as music and videos to illustrate economics concepts.
- Multiple videos directly explaining economics concepts are readily available online (Murray & Nunley, 2018, and Expósito et al. 2020).
- Many authors in the literature recommends using music and videos from popular culture (TV, Movies, Series).
 - While most papers present videos from a specific artist/show or a small collection, a few papers/websites catalog such resources:
 - Mateer et al. (2011) - <http://tvforecon.blogspot.ca/>;
 - Wooten (2018) - <https://econ.video/>;
 - O’Roark, et al. (2018).



MUSIC & VIDEOS

- Various papers discuss how to implement media resources in economics instructions. Besides simple implementation,
 - Wooten (2020) provides technical solutions to better integrate longer videos.
 - Vidal et al. (2020) provides an example of course created around popular media videos.
- Some contributions tackling diversity issues recently appeared in the economics education literature.
 - Ben Abdesslem (2021) and Wooten et al. (2021) - Music from various countries (Korea, France, Italy, UK, etc.).
 - Geerling et al. (2021) - Videos from multiple countries (Denmark, China, Thailand, Argentina, etc.).



CLASSROOM EXPERIMENTS



CLASSROOM EXPERIMENTS

- Experiments help **building the bridge between theory and application.**
 - Holt (1999) states “one of the most exciting recent developments in the teaching of economics is the increased use of classroom exercises that insert students directly into the economic environments being studied”
- Becker & Watts (1995), Durham, et al. (2007) and Emerson & Hazlett (2012) show classroom experiments improve student engagement.
 - Students see the experiment more as a game than a lecture.
 - While “playing the game” they are exposed to an economic situation from which they can develop intuition and understanding of the models.



CLASSROOM EXPERIMENTS

- Experiments can also improve students performance.
 - Frank (1997) compared learning outcomes of participants and non-participants. Dickie (2006), Durham, et al. (2007) found similar results.
 - Results in the literature mostly go from non-significant to positive.
 - Durham, et al. (2007) show classroom experiments positively affect students' retention of economic knowledge .
- The use of classroom experiments is still very limited in economics instruction.
 - According to Watts & Schaur (2011), classroom experiments are rarely used in principles of economics classes (6%) and virtually never in other classes.
 - Asarta et al. (2021) – median back to 0% (the average slightly increased).



CLASSROOM EXPERIMENTS

- An additional way to learn for students.
 - Experiential learning → Learning by doing.
 - Interactive environment that creates a better engagement.
- Separation of the intuition from the graphical and mathematical resolutions (Picault, 2015).
 - Addressing the two learning objectives in sequence instead of together.
 - Allows developing the intuition before introducing the mathematics when used before lecturing the concept.
 - Allows confirming the intuition when used after lecturing the concept.



CLASSROOM EXPERIMENTS

- To increase learning efficiency, an assignment should be given (Dickie 2006).
- Experiments can be based on activities students like to do/play.
 - Poker - Picault (2020);
 - Eating ice cream - Geerling & Mateer (2021).
- A good reference to start: Holt (2007) - *Markets, games, & strategic behavior*.



STUDENT-CRAFTED METHODS



STUDENT-CRAFTED METHODS

- Student-Crafted Experiments
- Writing Media Articles
- Media Creation



STUDENT-CRAFTED EXPERIMENTS



STUDENT-CRAFTED EXPERIMENTS

- Bosley (2016) proposes an assignment where students design their own experiment.
 - More beneficial than simply playing the experiment.
 - Assignment for an already existing course.
- Since 2015, I am teaching an “Experimental Economics” course.
 - The course is built around a final assignment requiring students to create an experiment.
 - Students must go through multiple steps before handing the final written report.
 - Playing the experiments,
 - Conducting an already existing experiments in class,
 - Proposing and designing an experiment,
 - Conducting their own experiments in class,
 - Presenting conclusions, including a self-critique of their experiment.



STUDENT-CRAFTED EXPERIMENTS

- Bosley (2016) reports that students were demonstrating strong motivation, stronger work attitudes and clearly appreciated the applicability to “real world” of the course.
- I have similar observation in my teaching evaluations. Multiple students refer to:
 - Their increased engagement,
 - The interactive learning framework,
 - The applicability to real world.
- Beneficial to student
 - Develop skills potentially transferable to the future career,
 - Increased understanding of economics concepts,
 - Develop a better ability to criticize their own work.



WRITING MEDIA ARTICLES



WRITING MEDIA ARTICLES

- Writing media articles is a good way for students to:
 - Apply economics skills and knowledge;
 - Develop communication/writing skills;
 - Learn to target an audience.
- Hall & Podemska-Mikluch (2015) and Cohen and & Williams (2019) require students to write op/eds as a component of their principles of economics courses.
- Picault (2021) presents a collaborative course where students interact with a journalist from a local media company.
 - Students write media articles and have a chance to be published by the media partner.
 - Interestingly, some of my students have presented a portfolio of writing samples to potential employers, and were able to secure jobs because of it.



MEDIA CREATION



ECONSELFIES

- ECONSelfies (Al-Bahrani et al. 2016).
- Students take a picture of themselves that illustrate an economics concept.
 - Goal: portrait an economics concept directly in their reality.



A negative externality is an undesirable impact that an economic activity can have on others. This air pollution is a perfect example of a negative externality. #econselfie @scwolla



6:04 PM - 7 Feb 2018



@BlankenshipECON A record player & record are complementary goods. Together they establish joint demand #econselfie



5:48 PM - 7 Dec 2017



Sale price must have been below equilibrium. Result = shortage. I'll get there earlier next time. #econselfie @scwolla



7:12 PM - 2 Mar 2017



CREATING VIDEOS

- Video Scrapbooking (Al-Bahrani et al. 2016).
 - A Video using pictures students take to illustrate an economics concept.
 - Goal: portrait multiple economics concepts directly in their reality.
- Music Videos (Holder, et al. 2015, Al-Bahrani, et al. 2017, and Al-Bahrani and Thompson, 2019).
 - Choose a popular song;
 - Rewrite the lyrics so that they illustrate economics concepts;
 - Record own video clip.



PODLEARNING

- Moryl (2016) requires students to create their own podcasts.
<https://audioecon.com/podlearning/>
 - Group of 3 to 4 students.
 - 10-minute podcast.
 - Audience is pre-determined (general public, students, economists, etc.).
- Students are recommended to use a free software to produce the podcasts.
- Students typically report it takes between two and five hours to complete assignment.
- Moryl (2016) reports great students' response.
 - Improved their understanding of economics concepts.
 - Helped develop communications skills.





THE UNIVERSITY OF BRITISH COLUMBIA

julien.picault@ubc.ca

