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# A critical review of recent economics pedagogy literature, 2020–2021

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## ABSTRACT

This paper reviews journal articles in the area of economics teaching and learning published during the past two years, namely calendar years 2020 and 2021. Our intention is to provide scholars in economics departments with a critical and selective overview of some of the main trends and highlights of the scholarly literature as it pertains to economics pedagogy, curriculum and assessment.

## 1. Introduction

This paper reviews journal articles in the area of economics teaching and learning published very recently, namely calendar years 2020 and 2021. Our intention is to provide scholars in economics departments with a critical and selective overview of some of the main trends and highlights of the scholarly literature as it pertains to economics pedagogy, curriculum and assessment. We hope this will spur interest as well as orient and incentivise others who may wish to pursue scholarly work in this area.

The review is not intended to be comprehensive, and we have used our own judgement as academics involved in training and scholarship of economics teaching to identify and evaluate some of the contributions and themes that we believe will have lasting impact and value. We also provide our own sense of the direction that educational research may take in the near future in the light of discussions and experience from our own practice as lecturers within UK economics departments. As noted above, the survey is also limited to the previous two calendar years because we wish to capture the most recent trends in the published literature with the intention of updating the review in another two years time. However, earlier papers are discussed where particularly pertinent, and where they provide context and/or precedents for the papers highlighted from 2020 and 2021.

The selection time period of 2020–2021 largely overlaps with the onset and peak of the worldwide COVID-19 pandemic and we can already trace some impact on the topics in the literature despite the lag times involved in publishing. Nevertheless, we suspect that papers published during 2022 are likely to be more obviously motivated by the experience and pedagogic changes occasioned by the

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pandemic.

## 2. Selection

Our strategy for selection was to concentrate on the main economics-related journals in education, primarily the *International Review of Economics Education* and the *Journal of Economic Education*. Our focus is contributions relevant to economics, but we appreciate that there is a rich literature of pedagogical research in many academic disciplines. As such, we consulted the broader educational literature though restricting ourselves to certain well-cited journals listed below. We also review education-related papers published in academic economics journals more generally. The articles published were filtered by their titles and keywords and indexed into areas of primary and secondary interest. Literature from general education journals was selected if it had either some direct relevance to economics teaching and learning or resonated with one or more of the themes we found in the economics-specific journals.

Since we were interested in impact and relevance among economics lecturers, we took note of social media shares as well as traditional citation statistics. As [Fernandez et al. \(2020\)](#) note, certain papers may be quite influential in practice but essentially “consumptive” in nature. That is, they influence practice without necessarily making a mark on the scholarly literature through citations. We wanted to capture a broader sense of impact than citations alone would allow. Table 1.

The authorship team read, prioritised and summarised the papers for inclusion in the current survey. The authors are involved in training lecturers of economics across the UK and beyond, and routinely make use of the scholarly literature, such as is considered in this survey, to inform that training. Some authors were also selected because of their experience in economics management roles, whereby they need to think about the design of modules<sup>1</sup> and programmes, resources to devote to teaching, teaching-related innovations and technologies. What is contained in this selective survey is therefore our sense of trends, research methodologies and notable work that we feel may be useful to a more general audience.

Table 2 below highlights key (but nowhere near all) references included in the survey that follows.

Other recent papers have also surveyed the pedagogical literature in economics education. [Fernandez et al. \(2020\)](#), in a survey conducted using machine learning, looked at papers published in the area of economics education using the Econlit database, applying the JEL category A2 (“Economic Education and Teaching of Economics”) as a basis for selection. They argue that the JEL category hides the variety of work undertaken in this area and use algorithms to uncover “deep” categories or “latent” topics by interrogating the articles as collections of words. The five most frequent topics they find are: trends in the economics degree; games and experiments; course content; financial and maths literacy; and class project evaluation.

Prior to the study by [Fernandez et al. \(2020\)](#), in a symposium celebrating 50 years of the *Journal of Economic Education*; [Allgood and Schaur \(2019\)](#) find that many broad topics are still as popular as they were when the journal began publishing, namely, the benefits of technology and alternative approaches to teaching such as flipping. They also noted that topics such as gender differences, cheating and financial literacy had become newer directions in research.

In the paper that follows, we first consider how the research methodologies adopted in the literature are developing. We go on to discuss diversity (or the lack of it) in both student and academic bodies, recognising that while the literature to date highlights an ongoing underrepresentation of female students and academics in the economics discipline area, work needs to be done on other aspects of diversity. We then discuss how the economics pedagogy literature is developing from suggestions relating to useful teaching techniques and resources in individual teaching sessions, to effective module design. A key part of this survey, unsurprisingly, highlights pedagogy literature relevant to the move to much more online teaching and assessment, particularly since the start of the pandemic. Then, given the increasing awareness of student wellbeing, particularly since the start of the pandemic, the survey goes on to discuss recently published research that directly addresses issues relating to student wellbeing. A final section of the paper offers conclusions and suggestions for future research.

## 3. Educational research and economics: methodological considerations

The educational literature is wide-ranging and covers topics from teaching, learning and assessment through to course design, inclusivity and education policy. Much of this literature is applicable to a range of disciplines and not just economics and this transferability is a key feature of educational research. This is even the case in papers concerned with ostensibly economics-specific content because many of the lessons learned can often be transferred to similar settings in other disciplines. For example, and as discussed later, in an analysis of flipping within a microeconomics module, [Webb et al. \(2021\)](#) argue that the approach taken to flipping can influence its subsequent impact upon learning, an insight that is not specific to economics.

This multi-disciplinary nature of educational research has some implications for colleagues within economics who undertake, or may wish to undertake, work in this area. Many economists are trained in specific methodological approaches to the study of social settings, such as the use of econometric techniques for analysing treatment effects. However, a broader range of methodological approaches, both quantitative (such as principal components analysis) and qualitative (such as focus groups and structured interviews), are routinely used in educational settings, including within economics-specific work.

Indeed, there remains in the broader educational literature a continued debate on the feasibility and/or desirability of inquiry

<sup>1</sup> A module in the UK is comparable to a series of classes in US parlance.

**Table 1**  
Journals used in initial selection (bold = economics specific).

Assessment & Evaluation in Higher Education
British Educational Research Journal
Higher Education
Higher Education Quarterly
Journal of Higher Education
Research into Higher Education
Studies in Higher Education
<b>International Review of Economics Education</b>
<b>Journal of Economic Education</b>
<b>Journal of Economics Teaching</b>

**Table 2**  
Key papers referenced.

Authors	Year of Publication	Country Considered	Themes Addressed
Arnold	2020	Netherlands	Gender
Awdry & Ives	2020	various	Assessment design
Baker & Madden	2021	USA	Games
Cladera	2021	Spain	Module design
Craft & Linask	2020	USA	Classroom flipping
Diaz Vidal et al.	2020	USA	Media
Duzhak et al.	2021	USA	Module design
Engelhardt et al.	2021	USA	Online learning
Fernandez et al.	2020	various	Survey
Harper et al.	2020	Australia	Assessment design
Hoyt	2021	USA	Module design
Ibarra-Saiz et al.	2021	Spain	Assessment design
Johnson & Meder	2021	various	Technologies
McKee & Orlov	2021	USA	Module design
Montolio & Taberner	2021	Spain	Assessment design
			Gender
Paxton	2021	USA	Module design
Sumell et al.	2021	various	Wellbeing
Webb et al.	2021	various	Classroom flipping

methods based on quasi-experimental designs that may be of interest to economists investigating education and pedagogy. [Thomas \(2020\)](#) provides a recent critique of experimental methods in education concentrating on the difficulty of random allocation and the external validity of results drawn from typically small sample settings. The broader debate in which Thomas's critique is placed involves the balance between causal identification in a setting in which effect sizes can be very low, see [Lortie-Forgues and Inglis \(2019\)](#), against evidence-based reasoning that draws on a range of data where confounding variables have not been controlled for.<sup>2</sup>

Consideration of the relationship between methodologies used in empirical economics and pedagogical research (PedR), leads naturally to discussion of the status of PedR research within economics. This status is of increasing importance as the profession, especially within the UK, has embraced the development of education-focused career pathways. While such careers are still in a relative state of infancy in the sector, they are well-established in some universities, and colleagues on these career pathways may be expected to be familiar with, if not publish, PedR.

Economics disciplinary research is quite well defined: while there are variations, there is also broad understanding of how published work varies across outlets in terms of approach and subject area. In contrast, there is much less consensus about what constitutes high quality economics PedR. Indeed, some accounts are quite damning. The large-scale review of [Evans et al. \(2015\)](#), for example, found only 13 % of the articles surveyed satisfied quality standards in relation to their clarity, methodology and impact. On the other hand, some studies have reflected on limited inclusion of PedR in the Research Excellence Framework and the subsequent implications for its credibility, see [Cotton et al. \(2018\)](#), [Tierney, \(2020\)](#). Given these findings, it is perhaps unsurprising that [Macfarlane \(2011\)](#) comments upon a perception of PedR not being 'proper' research (p.127).

In the process of undertaking the current survey, we have noticed a trend towards more econometric-based investigations in many economics-related education papers (primarily those in the *International Review of Economics Education* rather than in the *Journal of Economic Education*). At the same time, the range of methodological approaches remains varied even within the economics educational literature. In this respect, we would suggest that economics education research reflects the methodological diversity found in the

<sup>2</sup> It remains common to speak of the "gold standard" of randomised controlled trials in the educational literature. See, for example, Sutton Trust (2021) who note that "[t]he gold standard for such quantitative research is the randomised control trial (RCT) and a report authored by Professor Carole Torgerson of Durham University published alongside this review, finds that there is very little research of this standard in the UK". While economists are well-trained in this kind of quantitative approach, we see few examples of it in the literature.

broader educational literature, as summarised in a recent editorial comment of [Goedegebuure and Meek \(2021\)](#) in the COVID-related special edition of *Studies in Higher Education*:

*'You will find in this issue an eclectic use of social science research approaches. We left it to our contributors to frame their contributions in whatever form or shape they thought appropriate. We believe the resultant is a confirmation that there are many ways for social science to answer pertinent questions. The richness of the contributions to this issue reaffirm the basic tenet of studies that there is no one way of doing tertiary education research. It also is evidence to the fact that different approaches do not mean loosening the rigor of analysis and reflection.'* [Goedegebuure and Meek \(2021, p.4\)](#).

Nevertheless, it is clear that as more data are becoming readily available on student engagement with a variety of learning resources, empirical economists are well-placed to undertake further PedR work.

#### 4. The focus on gender and inclusion

A clearly emerging trend within the literature is gender inclusivity.<sup>3</sup> This can be seen in the broader educational literature as well as in the economics-related literature. It also resonates with work being undertaken by the Royal Economic Society and others through, for example, the Discover Economics initiative and the Women's Committee.<sup>4</sup>

[Montolio and Taberner \(2021\)](#) adopt a quasi-experimental approach to explore potential gender differences underlying the relationship between student performance and 'assessment pressure'. The analysis employs seven years of data on student outcomes on an undergraduate module containing both a final examination and within-term assessment. As the final examination accounts for a greater proportion of the overall module mark than the within-term assessment, the former is considered to be high pressure or 'high stakes', while the latter is low pressure or 'low stakes'. The identification of high and low stakes assessments then allows examination of potential gender-based differences underlying any observed variation in student performance as the pressure of assessment varies.

Beyond this simple outline, there are two further important and interesting aspects to the nature of the analysis undertaken. First, both the within-term assessment and final examination contain multiple-choice elements. Given consistency in the instructors, format and level of difficulty associated with these multiple-choice components, a more direct form of comparison is permitted than would be available via consideration of alternative forms of assessment. In short, the same form of assessment can be examined under low and high stake environments. Second, for the first four years of the sample considered, the final examination contained an 'eliminator' aspect: if a threshold was not achieved in the multiple-choice element of the final examination, the latter section would not be marked and the student would not pass the module. Hence, the data examined contained a 'temporal aspect' to high and low stakes as the assessment pressure is greater for the earlier years in which the eliminator rule was present.

Using a mixture of methods including quantile regression to analyse the panel data available, [Montolio and Taberner \(2021\)](#) detected gender differences in the 'performance-pressure' relationship. While male students were found to outperform female students in higher stakes assessment, this gap closed as the pressure, or stakes, of assessment reduced until it was found that female students outperformed male students on low stakes assessment. Interestingly, it was found that the movement in relative male:female performance was driven by the worsening of female performance as the stakes of assessment increased as male performance was observed to hold constant as assessment pressure varied. The findings therefore provide a cautionary note in relation to the use of high stakes assessment in terms of negatively affecting the performance of female students.

These findings can be compared to related research of [Schlosser et al. \(2019\)](#). In this study, assessment pressure was considered in perhaps a more extreme manner by considering Graduate Record Examination (GRE) test outcomes. The appearance of 'more extreme' picks up upon the marked difference in stakes considered in this research with a 'real' GRE test corresponding to high stakes, while a 'voluntary experimental section of the GRE test' (p.2916) corresponds to perhaps zero, rather than just 'low', stakes. In keeping with [Montolio and Taberner \(2021\)](#), the findings presented in this earlier work again show a marked decline in female students' performance as stakes are increased, and the outperformance of female students by male students for high stakes assessment. However, in this research, with its clear difference in stakes and focus on an admissions test rather than an actual module forming part of degree study, male performance was found to vary inversely with assessment pressure, distinguishing it from the analysis of [Montolio and Taberner \(2021\)](#).

A recent analysis by [Orlov et al. \(2021\)](#) considers performance of students in intermediate economics modules before and during the pandemic, controlling for student characteristics including gender, but crucially also other student characteristics, such as race, first generation to attend university, and English not being a first language. Interestingly, the authors are unable to conclude that student characteristics significantly affect student performance. However, we anticipate that future research will similarly consider whether multiple student characteristics impact on student performance as the availability of individual student data increases.

Meanwhile, [Arnold \(2020\)](#) looks in detail at the gendered student choice of major within economics courses in Europe. Using an analysis that identifies "gender gaps" according to choices made in a degree programme, Arnold finds substantial differences. In line with previous studies from the US, females are significantly underrepresented in finance majors but over-represented in accounting, after accounting for maths aptitude and other controls. Arnold also finds that female students are more affected by poor results in finance than their male counterparts, whose confidence does not seem to be dented by lack of aptitude in finance in the early years of a programme. The picture in economics is less clear cut, though there is some evidence of over-representation in some areas (applied

<sup>3</sup> As noted previously, the review by [Allgood and Schaur \(2019\)](#) notes gender as an emerging topic just before the dates of our sample period.

<sup>4</sup> Similar groups exist at the European level, for example, the European Economic Association has a Women in Economics group (WINE).

micro) and under-representation in others (macro).

Allgood and McGoldrick (2021), in a symposium in the *Journal of Economic Education* on the insights of cognitive science (which we consider more fully below in the context of COVID, argue that there may be a problem of “misperception” of economics that forms a barrier to studying the subject for some students. They suggest that a revision to introductory courses may prove beneficial to offer a better reflection of what economics does and why it is relevant. This may also better support outreach and address matters such as a recent finding that women are twice as likely as men to report that they do not find economics interesting.

Bayer et al. (2020) extend the analysis of the popularity of economics with different groups of students. They consider not only the underrepresentation of female students, but also that of ethnic/racial minorities at undergraduate level within economics. In particular, Bayer et al. (2020) explore the impact of ‘relevance’ (whether students view the material they learn as relevant to their own lives), ‘belonging’ (whether students feel part of their department) and ‘growth mindset’ (whether students feel their knowledge of economics can be improved) on the decision of students to pursue their study of the discipline. The contribution of this paper can be split into three parts. First, it is noted that increased levels of these three factors (collectively referred to as ‘RBG’) are associated with better performance in introductory economics and the continued study of economics. Second, the empirical analysis of Bayer et al. (2020) finds that significantly lower measures of RBG are present among female and underrepresented minority (URM) students relative to non-URM male students in introductory economics modules. Clearly, consideration of these two findings illustrates a clear problem and this leads to the third important contribution of Bayer et al. (2020), namely their use of a ‘visible hand in economics’ strategy. This involves the use of diverse groups of teaching assistants to provide support to students and promote inclusion, and hence an attempt to address the issue of lower RBG among female and URM students. Noting the positive impact of the visible hand program, Bayer et al. (2020) champion its use.

As well as analyses of gender differences in student performance, a number of papers have considered the ongoing underrepresentation of women in the field of economics academia. Within economics education, Grimes and Mixon (2021) examine the authorship of research in the *Journal of Economic Education* in the 50 years following its inaugural edition in 1969. Alongside the examination of leading authors, the national affiliation of authors and most impactful papers, the gender balance of authors is considered. The results show that over the five decades of its existence, the percentage of articles provided by female authors has increased from less than 10 % in the 1970s to almost 25 % in the 2010s. While a noticeable increase, it does nonetheless demonstrate that publishing in the *JEE (Journal of Economic Education)* is dominated by men. A further observation provided concerns regarding the distribution of female-authored papers across the five sections of the *JEE* (which have existed since 1983). These sections, a brief account of their scope and the percentage of papers from female authors reported by Grimes and Mixon (2021), are provided below:

- *Research in economic education*: Original analysis and evaluation. **26.11 %**.
- *Economic instruction*: Innovations, emphasis on methods of teaching. **22.03 %**.
- *Online*: Interactive material, use of innovative electronic technology. **21.79 %**.
- *Features and information*: Status and events influencing academic economists. **20.13 %**.
- *Economic content*: Substantive issues, new ideas, research findings in economics to influence, or employ in, teaching. **9.95 %**.

These findings on ‘economics education’ or PedR can be considered in relation to gender-related issues in economics publishing more generally. Recently, Lundberg and Stearns (2019) and Hengel and Moon (2020) examined female representation and authorship in economics. Here, the figures are both disappointing and difficult to understand. Disappointment arises from the reported percentage of female academic economists (circa 20 %–30 %) and its comparison to the percentage of female authors in Top 5 journals: 11 % since 1990, 12 % since 2000, 14 % percent since 2010, Lundberg and Stearns (2019). The difficulty in understanding these figures arises from an analysis of the quality of research. Using citations as a measure, the ‘11,336 full-length, English-language articles published between 1950 and 2015’ (p.3) in the Top 5 journals reviewed by Hengel and Moon (2020) demonstrate female-authored research to be of higher quality than male-authored articles. Not only this, but the inclusion of female authors is associated with increased citations of the research of male co-authors. How do we interpret these results? With female authorship producing ‘better’ work and improving the quality of the work of male authors, but clear under-representation apparent in leading journals, Hengel and Moon (2020) conclude that ‘women are held to higher standards in top-five peer review’ (p.5).

Returning to the consideration of the findings for the *JEE*, it is apparent that the percentage of female authorships and its increase through time are both greater for education than in the Top 5 outlets. Beyond this, can the ‘Top 5’ findings shed light on the percentages reported for the five sections of the *JEE*? A very simple approach might be to focus on the ‘research’ aspect of the ‘*Economic Content*’ where a markedly lower percentage of female authorship is reported compared with the other four sections. This can be viewed as signifying something similar to the findings for the Top 5 research outlets.

More broadly than gender, there is a concern in the literature with “inclusivity”. Stentiford and Koutsouris (2021), in a review of educational literature on inclusivity, find a considerable lack of nuance in the terminology used to understand this issue. They highlight that many tend to conflate quite separate issues, for example, inclusion related to disability and inclusion related to ethnicity and social identity. In some uses, inclusivity tends to equate to active, dialogic and collaborative pedagogies in which students are “included” in the design and implementation of the learning process. Stentiford and Koutsouris (2021) suggest that the concept of inclusion should involve consideration of “who is in need of inclusion”, and also “what ‘exclusionary’ practices need contesting and what values need promoting”.

Indeed, as the calls grow in universities for other aspects of inclusion, such as decolonisation of the curriculum, we anticipate that, over the next few years, research is likely to involve a much closer interrogation of how teaching methods (for example group work, co-design of the curriculum), taught content and assessment might serve to exclude or marginalise certain segments of the student

community. We expect that questions of how attainment or student experience might be affected by this are also likely to arise.

## 5. Modes of classroom teaching to module and programme design

The *Journal of Economics Teaching* was set up in 2015 to provide an outlet to “share ideas on ways to teach economics as a whole or specific economics concepts”. The UK-based Economics Network has an online case studies library that also provides an outlet for sharing specific ways of teaching topics within economics. Some of these case studies and papers can be very detailed, to the point where they discuss specific concepts that would form a small part of a module or teaching session. For example, recent papers in the *Journal of Economics Teaching* include using World War II to teach the production possibilities curve (Kyer and Maggs, 2021) or using the battle for space supremacy as a way of understanding pricing and market structure (Smith et al. 2021). These papers can be interesting but are not a focus of this literature survey. Papers in a similar vein, such as Wooten (2020) which looks at the use of digital media to increase students’ attentiveness in a classroom, are published in other journals. Such examples follow a long-standing tradition in economics pedagogy publishing on the modalities of teaching (see, for example, earlier work on the use of media in teaching including the seminal paper by Leet and Houser (2003), as well as follow-up papers by Sexton (2006), and Al-Bahrani et al. (2015)).

Papers exploring detailed practices in the classroom reflect some of the diverse and innovative practices in economics teaching. A dominant strand of this literature concentrates on the use of games and experiments in the classroom and this is still evident, for example, Duzhak et al. (2021). While many games and experiments that are suggested in the literature are illustrative of concepts used in more microeconomics contexts, this paper offers a notably valuable addition by suggesting games and experiments that can be used in macroeconomics economics teaching, particularly a ‘Chair the Fed’ game. This paper also offers a contribution to the growing literature on the use of online and digital games and experiments. Guest (2015) and Kaplan and Balkenborg (2010) weigh up the pros and cons of online games as opposed to the more traditional ‘paper’ games that rely on in-person classroom interactions. Meanwhile, Baker and Madden (2021) describe a classroom auction for seats using students’ own money, increasing the stakes of the classroom game and introducing new ethical considerations.

A more recent trend in economics teaching involves the flipped classroom and the use of blended methods of teaching involving a carefully designed mix of live classroom activities and online learning. Although there was an emerging interest in this area prior to 2019 (see for example the papers in the special issue of the *International Review of Economics Education* Volume 28, September 2018), such practices were significantly spurred on by the pandemic. We predict that what seemed like an innovation in teaching around a decade ago may become a mainstream mode of teaching post-COVID. In particular, the developments around flipping in recent years have tended to examine the different ways in which students might be engaged outside of the classroom. This trend was noted in Becker and Birdi (2018) and we consider ways in which instructors continue to examine out-of-class engagement, for example through “outside reading”, group activities and other methods below (Section 6.3).

In a review of the literature, Webb et al. (2021) report upon 1136 studies examining ‘flipping’, with the appearance of 1073 of these studies in the period from 2015, illustrating the topicality of this approach. Despite this wealth of research, Webb et al. (2021) note the existence of relatively few economics-based studies that evaluate the benefits of flipping relative to the ‘traditional’ lecture. Further, Webb et al. (2021) find that where such analysis is undertaken, the results obtained have been mixed.

The recent research of Craft and Linask (2020) adds to this limited evaluation of flipping within economics with an analysis of its impact in a principles of microeconomics module. Considering student performance (marks) over a four-year period, it is argued that after controlling for a variety of (typically student-related) factors, there is no evidence of flipping having an impact on learning beyond that provided by ‘a moderate amount of active learning’ (p.1). However, as with all empirical or experimental analyses, the ‘set-up’ needs to be considered.

The approach to flipping considered by Craft and Linask (2020) compares a standard approach to delivery with a flipped approach based upon consultation of recorded lectures out of class and active learning within class. In an examination of whether the approach taken to flipping underlies the mixed results on its benefits presented in the literature, Webb et al. (2021) identify ‘didactic’ and ‘non-didactic’ approaches, with the former considered restricted/constrained and the latter unrestricted/unconstrained.

The essence of the argument presented by Webb et al. (2021) is that benefits arise from the use of non-didactic methods where flexibility is present and standard presentation is avoided. This is not surprising: replacing ‘view lectures in a lecture theatre then attend exercise classes’ with ‘view lectures somewhere other than in a lecture theatre then attend exercise classes’ is not a huge change in inputs. So why expect a huge change in outputs?

A parallel can perhaps be drawn here between non-didactic flipping and the invention activities of McKee and Orlov (2021) in that both can stimulate questioning and reflection by dealing with something that is not so familiar. Webb et al. (2021) demonstrate the benefits of this approach in relation to microeconomics where flexibility, challenge and the avoidance of a linear, standard structure are promoted in out of class activities. Similarly, the benefits of adopting this stance are demonstrated in relation to the teaching of more quantitative modules in Cook et al. (2019) where, rather than provide standard resources, tools allowing consideration and experimentation are made available. In contrast, the approach by Craft and Linask (2020) could be labelled ‘didactic’.

Beyond this, the evaluation of the impact of flipping entails recognition of the nature of the students involved in the analysis undertaken. Following the National Union of Students (2008), what is the distribution of ‘Next Steppers’, ‘Toe Dippers’, ‘Option Openers’ and ‘Academics’ in the various cohorts considered? Given the cited objectives of these groupings, a variation in the impact of flipping might be expected. Following Allgood (2001), to what extent do we observe grade targeting behaviour with flipping being beneficial but this taking the form of easing achievement of a desired outcome rather an improved outcome for a given level of effort or contribution? Again, the presence of grade targeting can influence the observed effect on flipping upon marks, with the limiting case of

a hugely beneficial impact being zero change (i.e. the desired mark is obtained with a huge reduction in effort).

Beyond a persistent literature on modes of teaching and the design of teaching sessions, we can perceive a move towards consideration of the design of modules more generally. Some contributions in this space seem to be direct extensions of work on the use of media and film within economics considered above. [Diaz Vidal et al. \(2020\)](#), for example, look at the development of an entire module based on teaching economics through consideration of how economic content animates the meaning of sequences and choices made by film directors. The example is likely too experimental for consideration by most economics instructors but does serve to illustrate the use of narrative and art in motivating economic topics as a prevalent theme in the pedagogic literature. At most, this literature seems to provide various ways to introduce economic content – it is rare that media such as films would contain a rich enough source of intellectual content beyond this motivating function.

Other interesting examples of the shift towards thinking about module design include [Paxton \(2021\)](#) and [Hoyt \(2021\)](#) who consider the design of practically oriented modules in the *Economics of Altruism* at introductory and more advanced levels. These explore examples of “learning by giving”, that is teaching microeconomics and behavioural approaches through effective philanthropic giving. The modules provide interesting examples of the intersection between pedagogy, motivation, authentic learning and civic engagement.

Thinking at the module level has also led some researchers to think about the preparedness of social science graduates particularly in terms of their quantitative skills. Concerns about the lack of such readiness for study and the world of work are widely reported (see, inter alia, [British Academy, 2012](#); [Mansell, 2015](#); [Mason et al., 2015](#)). There are some interesting recent studies that explore how such concerns can be addressed.

Some studies have championed the use of active learning techniques and ‘replication’ as a means of generating such skills while avoiding the negative impact of anxiety towards mathematics and statistics that can result from increased exposure to quantitative methods (see [Cook et al. 2019](#)). In more recent research, an alternative perspective on the development of quantitative skills has been provided by [Cladera \(2021\)](#). The focus of this paper concerns the attitudes of students towards econometrics, which it has often been argued are negative as a result of its perceived difficulty and means of provision or presentation. [Cladera \(2021\)](#) recognises the detrimental effect that negative attitudes are likely to have on subsequent learning. The consideration of a variety of alternative ‘attitudinal dimensions’ and their relationship with student performance produced some interesting results, which can be crudely summarised as two main findings. First, a negative view of econometrics was not apparent and consequently concerns regarding its subsequent impact upon learning could be discounted. Second, the examination of attitudes in relation to performance highlighted the importance of students seeing the ‘value’, ‘worth’ and ‘relevance’ of econometrics and the avoidance of stress when studying it. These findings reinforce the calls for the use of real-world examples, the inclusion of active learning, the development of self-efficacy and the avoidance of anxiety in a range of studies in both econometrics and statistics (see, inter alia, [Snee \(1993\)](#), [Zahaciva et al. \(2005\)](#), [Allen and Baughman \(2016\)](#), [Cook et al. \(2019\)](#)).

The analysis of the learning and teaching of econometrics is considered from a further perspective by [McKee and Orlov \(2021\)](#). The focus of this research concerns the use of ‘invention’ activities, whereby students are presented with exercises regarding methods or topics ahead of the coverage of the material to which this relates. This contrasts with the standard approach of attempting exercises either after or while presenting, demonstrating and discussing material. As a result, it could be argued that invention activities require students to consider issues in more detail and undertake reflection to greater extent than would be the case for typical ‘post-coverage exercises’ where an element of direct transfer might occur. With regard to the cited benefits of such an approach, it has been argued that although improved performance is not always present when considering tasks involving the application of knowledge in a familiar environment, learning gains from the use of invention activities are apparent when considering the retention of knowledge and the development of higher-order skills where knowledge is applied in new contexts. [McKee and Orlov \(2021\)](#) provide examples of invention activities, presenting not only the activities themselves but goals, introductions and ‘wrapping up’ elements which draw upon actual classroom experiences.

## 6. The Impact of COVID

### 6.1. Assessment

Not surprisingly, assessment has remained a focus of scholarly research in pedagogy both inside economics and particularly in the more general literature. In the latter, there is a focus on integrity in assessment, a topic that has come to the fore because of the rapid shift towards online methods of assessment during the COVID pandemic. The focus on cheating in the economics educational literature was already noted in the survey by [Allgood and Schaur \(2019\)](#) but is less evident in published work over the period 2020–2021.

[Awdry and Ives \(2020\)](#), in a large mixed methods study of over 10,000 students, consider the culture of cheating and the influence of peers and close contacts, rather than more formal channels such as essay mills. The field work was undertaken in 2017–2018 so pre-dates the onset of COVID by some margin. Nonetheless, the publication is interesting for the size of its international evidence base and its focus on the cultural and social settings that motivate cheating behaviour. The study necessarily suffers from the biases involved in asking students directly about their cheating behaviour but does provide support for a previous literature that had identified peer contagion effects in cheating, see for example [Gino et al. \(2009\)](#); [Beasley \(2014\)](#). The importance of this strand of work is in its implicit suggestion that attempts to influence positively the culture surrounding assessments and integrity may have positive effects in reducing cheating. Work directly exploring the success of such interventions would be a welcome addition to the literature.

Still within the general literature on education, [Chirumamilla et al. \(2020\)](#) look at the relationship between cheating and the type of assessment. They focus on electronic exams compared to paper exams in the context of the recent move towards more electronic

assessment during the pandemic. The study, again employing mixed methods research, is on student and staff perceptions of the ease of cheating in the two modes of examination. Their conclusions point towards a perception of increased ease of cheating in electronic exams, primarily due to the expansion in the opportunities for cheating afforded in assessments using “your own devices” and unrestricted internet access. On the other hand, there was a sense that countermeasures (for example biometry; mingling; shuffling; random drawing; sequencing) are also more effective in electronic assessments. Thus, the overall difference in observed cheating between the two assessment types may be insignificant.

Harper et al. (2020) also look at cheating behaviour in relation to types of assessment using a large (circa 14,000 students and 100 staff) dataset commissioned by the Australian Department for Education in 2018. The paper is part of a series of studies based on that extensive dataset including Bretag et al. (2019). The study mainly employs a descriptive analysis of the survey data. What is most interesting for us, and perhaps other economists, is the finding in Harper et al. (2020) that actual cheating and perceived cheating differ across exam types. In other words, there may be a false sense of security in the supposed integrity of the traditional examination, where, in fact, students report more cheating than in written assignments. This is contrary to the fairly widespread worry during COVID that the move away from examinations incentivised cheating. The paper also suggests that detection of cheating is apparently more successful in written assignments and relatively poor in examinations.

Within the economics literature there have been relatively fewer papers that discuss cheating in the 2020–2021 period than were published prior to 2020, see for example the survey by Allgood and Schaur (2019). This may be somewhat surprising given the interest in this area during COVID, though we suspect that we will see more such publications over the 2022 and 2023 period. The paper by Wuthisatian (2020) uses regression analysis to compare different proctoring settings (remote online and in-university online) and their impact on student attainment in an online MBA course. Students self-select into one or other type of proctoring so there are selection issues in the analysis. While the paper does discuss the earlier literature on proctoring and its effect on cheating behaviour, it does not specifically examine this relationship. It finds that attainment is significantly higher within in-university proctoring. It puts this down to potential unfamiliarity and increased stress with remote proctoring services rather than any cheating-related effects.

The economics-related literature over 2020–2021 has tended to focus more on the impact of the move to online teaching and the consequent effect on assessment results rather than the change to assessment design. Engelhardt et al. (2021), for example, look at the effect that the transition to online learning had on assessment scores as tested using a standardised test of achievement in an introductory economics course. They compare attainment in the “affected” semester with attainment in previous unaffected semesters. They find that there is no evidence of an adverse impact on these scores, but that women may have fared better as a result of the changes to teaching and learning. We are also aware that anecdotal evidence from some UK universities suggests that similar effects may be perceived for other groups for whom there have traditionally been attainment gaps, namely black students and some ethnic minority groups. Meanwhile, Cacault et al. (2021) conclude that when students are offered the opportunity to study in-person or online, attending online lectures is associated with better performance for high-attaining students, and similarly exaggerates the worse performance of low-attaining students.

Another economics-related paper that looks at relative performance in exams is by Sumell et al. (2021). Their focus is on student “mindfulness” during assessments and follows a series of papers by the same authors exploring this theme more generally. Deploying a “Mindful Attention Awareness Scale” (MAAS) created by Brown and Ryan (2003), they examine mindfulness across the various countries in their dataset, particularly in relation to performance in assignments and examinations. The analysis uses correlation and regression analysis, and they find evidence of positive correlations between mindfulness (and the related reductions in anxiety) and performance across all the countries they study. Though this research does not use causal identification methods, the authors point to earlier work in which they have tried to establish causality, i.e. Chiang and Sumell (2019).

An interesting feature of the work by Sumell et al. (2021) is that mobile device usage by students may be seen as evidence of distraction through anxiety and therefore negatively related to mindfulness. However, there is also long-standing literature on the intentional use of mobile devices in-class, using student response systems such as polls (Socrative, Mentimeter and others). The study by Barreiro-Gen (2020) creates an experimental design to assess whether the use of so-called “m-learning” of this type has an effect on attainment. The design involves two groups, one of which is treated with the mobile learning setting. Barreiro-Gen (2020) finds that there is no discernible effect on attainment in assessments for the treated group, though there is evidence of increased engagement. The identification of an attainment effect here distinguishes this kind of study from those that do not use an experimental design.

Since COVID seems to have occasioned a move towards more assignment and research-based assessments, we envisage new work will examine the effects of this shift on patterns of cheating, attainment and engagement. From the basis of the work summarised here, it will be interesting to see some evaluations of the emerging evidence on the impact of more research-based and online assignments on cheating, attainment gaps, anxiety and mindfulness, as well as engagement. The volume by Dawson (2021) may be seen as an important early contribution to the phenomenon of “e-cheating”, particularly given the recent interest in the use of OpenAI such as ChatGPT. Dawson’s book discusses the contexts in which e-cheating is likely to occur, as well as assessment designs aimed at preserving integrity in online settings.

This question of assessment design is considered in a paper by Ibarra-Saiz et al. (2021) which uses a mixed methods approach including factor analysis to show that assessment design can aid learning. The study, which is based on 769 business students in Spain, finds that assessments that follow established good assessment design principles improve learning outcomes. They establish evidence for a causal relationship between learning outcomes and assessments that emphasise participation, self-regulation, learning transfer, strategic learning, feedback and student agency and control over learning. It might be concluded from their variables capturing “good” assessment that some of the positive effects of the shift to new assessment types, discussed in the previous paragraph, might be attributed to improved design, more research-orientation and increased student agency in assessment.



## 6.2. Technology and COVID

The experience of COVID has increased the focus on the use of technology and, in particular, online instructional and assessment methods. While our sample time period of 2020–2021 is perhaps too early to see extensive published outputs from the effects of the online pivot, there is already some evidence of this emerging trend, particularly in the more general educational literature. [Watermeyer et al. \(2021\)](#) looks at how prepared tutors felt with the sudden switch to online, how capable they felt, and the issues that arose from the shift. They surveyed 1148 academics in the UK with open-ended questions and analysed the responses using grounded theory as described in [Strauss and Corbin \(1994\)](#); [Bryant and Charmaz \(2010\)](#), a methodology of systematic sampling and codification of qualitative responses to elicit theoretical frameworks that the data might exhibit. They describe an environment where academics have been bruised and dislocated by the experience of the rapid online shift and that their misgivings and sense of burden are related to the speed and extent of the change. A key factor in this seems to be that the rapidity of the changes did not leave time for explanation or understanding of pedagogical rationales. Their account also highlights increased workloads and pressures on wellbeing. On the other hand, a portion of their sample spoke of the speed of the changes as welcome, in that they enabled improvements in pedagogy that some academics had been trying to introduce for some time (modernisation of delivery, improved professionalism and capacity, a spirit of innovation). It is perhaps too early to provide a sense of which of these positions will have the strongest persistence in the future. As the authors conclude, there is urgent need for work that maps the likely trends and impacts of online and digital education:

[...] these are questions to be followed through in research that longitudinally interrogates the change-basis of COVID-19 across international higher education systems, and which provides, beyond this initial snapshot, a fuller and deeper global analysis of comparative trends pertaining to digital transitions. [Watermeyer et al. \(2021, p.641\)](#).

The paper by [Roman and Petrus-Plopeanu \(2021\)](#) provides a similar perspective but from a student viewpoint. They studied 1415 economics students at six major Romanian universities using a logit model to investigate students' judgement of whether the online move had been successful for learning or not. They modelled these preferences using student characteristics, the quality of access to the internet and various other regressors related to psychological stress and concerns about COVID-19. They found that psychological distress, poor internet and/or workspace access reduced effectiveness of online learning, but also that experience with technology, found primarily in senior students, tended to reduce these effects. Female students were also less negatively affected by the changes, although the authors do not offer any reasons for this. However, the result does chime with that considered earlier in the paper by [Engelhardt et al. \(2021\)](#) which found that gender attainment gaps may have reduced as a result of the COVID-induced changes to teaching and learning. Understanding these effects must surely be an important part of the research agenda in coming years.

A meta-study on the impact of technology on learning by [Johnson and Meder \(2021\)](#) concludes that there is no learning technology that is consistently associated with positive learning gains. The paper is aimed at assessing the extent to which quantitative impact can be identified from technological interventions in teaching. The authors looked at 145 papers, of which around a third offered some quantitative analysis, that tried to elicit this learning effect. Their sobering conclusion is that the evidence they consulted is ambiguous, contradictory, and inconclusive and that there might be a publication bias towards studies that demonstrate positive evidence of impact. Their own proposal, given their focus on identifiable quantitative effects, is that there is "a real need for large scale, well-conceived experiments to examine the impact of technology interventions on learning outcomes in economics" (p.16). But it is also possible, as we quoted previously from [Goedegebuure and Meek \(2021\)](#), that the eclecticism of approaches in education studies might be seen as one of its strengths and that the reality of what works might, in fact, be less clear cut than we would hope.

[Orlov et al. \(2021\)](#) use regression analysis to consider the potentially negative effects on learning of the move to online education. As discussed above in [Section 4](#), they find no evidence that particular groups (based on gender or ethnicity) suffer, but do find that pedagogic methods, such as group working, were critical in ensuring good learning was sustained during online teaching.

## 6.3. Other recent considerations in pedagogy

We summarise in this section relevant developments in economics education literature which are not specifically related to changes in assessment or in the use of online methods, but which may have relevance to the "online pivot".

Some recent symposia published in the *Journal of Economic Education (JEE)* in 2021 are particularly relevant in this regard, though they are strongly focused on the case of US education.<sup>5</sup> These symposia considered the application of cognitive science, the use of team-based learning, and the incorporation of readings beyond the textbook in economics courses. We consider these subjects to be topical in the light of the rapid sector-wide movement to remote instruction and so include a brief discussion of them in this section. Insights from cognitive science can help understanding about how students learn and the anxieties they may encounter in new ways of teaching and learning in a post-lockdown environment. Team-based learning methods may be increasingly used as the pandemic eases as a means of addressing feelings of isolation and a loss of community when using online methods. Readings beyond the textbook are related to the shift towards more research-based and assignment-based assessment as we have discussed above.

### 6.3.1. Applying cognitive science to economic education

The first symposium we consider provides a useful discussion of possible directions for new pedagogic research which might draw on cognitive science. The symposium is framed largely as a response to the opening paper by [Chew and Cerbin \(2021\)](#) which contains

<sup>5</sup> Readers are also directed to the *American Economic Review Papers and Proceedings* which often include papers related to pedagogy, teaching, learning and assessment. These are not included here as, unlike the recent symposia discussed, they may cover a variety of topics.

an overview of cognitive issues in relation to learning. The “responses” are useful, not because they present new research, but in that they present a great deal of practical advice and suggestions of avenues for new scholarly work from experiences scholars of economics education in the US.

The central focus of [Chew and Cerbin \(2021\)](#) involves the identification and consideration of nine cognitive ‘challenges’ that are encountered by students, their implications and how lecturers can shape their teaching in response to them. The nine challenges identified are: student mindset; metacognition and self-regulation; student fear and mistrust; prior knowledge; misconceptions; learning strategies; transfer of learning; selective attention; mental effort and working memory. Each ‘challenge’ is presented via the use of a student example, discussion of its nature, recommendations on how it can be addressed and associated useful reading. It is argued that effective teaching requires recognition of not only the nine challenges, but also their interactions. For example, an ineffective learning strategy has implications for recognising the extent to which learning has occurred (metacognition) and the ability to transfer learning.

We give here just a brief flavour of the symposium by concentrating on the contributions by [Allgood and McGoldrick \(2021\)](#) and [Bosshardt \(2021\)](#). The first of these papers picks up on the issue of misconception identified by [Chew and Cerbin \(2021\)](#) to discuss how changes to introductory courses may help inclusion by presenting a better reflection of what economics does and why it is relevant. This resonates with the aims and methods of both the UK initiative *Discover Economics* and the international CORE project ([www.core.org](http://www.core.org)) that have, respectively, tried to improve the understanding of what economists do through outreach and reform of the introductory course in economics (see also [Owen and Hagstrom \(2021\)](#)).

The contribution by [Bosshardt \(2021\)](#) notes there may be interest in considering how the cognitive challenge of “mindset” affects learning through its effect on student anxiety. In particular, he focusses on whether students come into certain economics modules with the mindset that this is a module they are compelled to pass, rather than one that interests them intrinsically. He suggests that survey techniques might help to infer some of these mindsets to understand their impacts on learning.

### 6.3.2. Team-based learning (TBL)

The TBL symposium begins with [Allgood and McGoldrick \(2021a\)](#) who provide an overview of TBL, documenting its long history of use in teaching but relatively limited appearance in economics. This discussion is supplemented by recognition of evidence of the benefits of TBL presented within the interdisciplinary concept of ‘learning sciences’ (for example [Clerici-Arias \(2021\)](#) and [Ruder et al. \(2021\)](#)).

Further papers such as [Carson et al. \(2021\)](#), [Green \(2021\)](#) and [Simkins et al. \(2021\)](#) outline practical advice around the design of successful TBL involving, for example, initial study that is followed by individual quizzes, group-based activity, presentation, discussion and reflection. The underlying idea is that the sequencing-involving preliminary assessments provide a deeper level of understanding in the later application exercises and in debates and presentations. Although these studies do not provide a detailed evaluation of the benefits of TBL, student satisfaction is reported in [Green \(2021\)](#).

### 6.3.3. Reading beyond the textbook (RBT)

The idea of reading outside the textbook is not a new topic for pedagogical research in economics as, for example, [Kelley \(1983\)](#) has considered the use of newspaper articles as a teaching tool in a paper also published in the *JEE*. More recently, [Taylor \(2019\)](#) looks at the use of articles from the *Journal of Economic Perspectives* in the teaching of economics. However, the 2021 collection of papers on RBT provided in the *JEE* symposium provides a broader coverage of this issue than that afforded by consideration of the use of a single outlet, and does so at a time when this notion may be of greater interest to academics.

It may be noted that this topic and symposium may be more relevant to the US context where there is much stronger reliance on the use of textbooks than elsewhere. In the UK, for example, the use of readings from journals and the media has been a standard part of many courses for some years. However, the issue of student engagement with these outside readings, and an assessment of their pedagogic value, remain pertinent concerns everywhere.

For example, [Orlov \(2021\)](#) reports upon the use of journal articles alongside repeated exercises (short article reports) and group-based activities in an undergraduate economics module. This is to promote engagement with the papers considered, along with the use of ‘scaffolding’ to assist the reading of journals articles in the form of ‘hows’, ‘whys’ and ‘whats’ in relation to published research. To encourage such engagement [Beam \(2021\)](#) and [Schneider \(2021\)](#) report on the use of frequent low-stakes assessments such as short reports on readings. Similarly, [Ruder \(2021\)](#) talks about short essays as a means of promoting the reading of newspaper articles, [Andrews \(2021\)](#) comments on the use of continuous assessment to increase engagement with use of media (typically newspaper reports) and [Basu \(2021\)](#) discusses the completion of alternative activities in relation to RBT to obtain ‘participation tickets’. A related theme is the use of group-based activities focused around outside readings as mentioned in [Ahlstrom \(2021\)](#), [Andrews \(2021\)](#), [Basu \(2021\)](#), [Orlov \(2021\)](#) and [Moryl \(2021\)](#).

Further papers such as [Miller \(2021\)](#) and [Button et al. \(2021\)](#) provide other perspectives on the use of RBT. [Miller \(2021\)](#) considers the use of RBT in supporting the development of research skills, while [Button et al. \(2021\)](#) report on the use of “jigsaw” literature reviews as a means of incorporating outside readings in a group-based active learning environment.

Beyond these symposia, another group of papers is of a very different nature and considers how the pandemic may be used as a source of material that can be used to teach economic concepts primarily in first-level courses. [Zhang and Ramse \(2021\)](#) and [Wooten and Al-Bahrani \(2020\)](#) give a series of examples of teaching basic micro and macro theory using examples from the pandemic. Beyond the pedagogical journals, other examples of similar suggestions for teaching may be found in the collection of resources produced by the CORE team (<https://www.core-econ.org/selection/covid-19-collection/>).

## 7. Mental health and wellbeing

Many papers discussed above touch on wellbeing issues. As we noted, the significant shift in teaching modalities during the pandemic may have led to significant levels of anxiety and workload pressures, some of which are discussed in [Watermeyer et al. \(2021\)](#) and [Roman and Petrus-Plopeanu \(2021\)](#). In addition, [Bosshardt \(2021\)](#) notes that the topic of “student mindset” and its relation to learning may well have a strong element determined by the degree of anxiety that students feel in certain context.

While these topics have been explored in the past, see for example [Cook et al. \(2019\)](#) and [Dowker et al. \(2016\)](#), there seems to be an increased focus on these issues and we suspect that this emphasis is likely to grow in the future. There are various avenues that might be addressed, such as, the effect of new types of assessment on student anxiety; the cognitive load of inadequate prior attainment, whether because of omissions due to the pandemic or for other reasons; anxieties associated with collaborative work; and the loss of community during the pandemic. Some of these aspects related to assessment design are picked up in a paper by [Jones et al. \(2021\)](#) which reports on qualitative evidence from one UK university on its work towards the Student Minds’ University Mental Health Charter. They identify five areas in which tensions present themselves for students and staff. These are: challenge versus threat in assessment; traditional versus novel assessment; collaborative versus individual assessment; ideal versus practical assessment; giving feedback versus receiving criticism. Meanwhile, as discussed above, note that [Sumell et al. \(2021\)](#) examine the impact of self-reported measures of mindfulness; test anxiety and mobile phone usage on module performance of introductory economics students in China, Finland, Germany, South Africa and the US. Unsurprisingly, reported levels of mindfulness, test anxiety etc. vary across respondents, but crucially while the effect differs across countries, mindfulness is found to have a significant impact on module performance.

## 8. Conclusions

This paper highlights key themes in pedagogical research in 2020 and 2021, focusing on papers in the economics subject context, as well as more general analyses from which there may be key lessons for economics academics. A number of new themes are emerging, such as lessons from the move to greater online teaching, learning and assessment, and concern for student wellbeing. These themes are likely to continue as pedagogical research pertaining to the COVID pandemic continues to be published (often with some publishing lag) in the next couple of years. However, some enduring topics continue to be popular, such as the effective use of technologies, media and games in teaching.

Our research indicates that as greater amounts of data are becoming readily available on student engagement with various learning resources, the growing number of pedagogy papers that use quantitative methods to explore impacts of interventions is likely to increase further. We finish with a couple of suggestions for future research. First, while literature has emerged that considers the extent to which economics student and academic cohorts are representative in terms of gender, much more needs to be done to consider further aspects of diversity, such as ethnicity, internationalisation of student cohorts, and widening participation etc. There needs to be much more consideration of how to make economics higher education truly inclusive. This is particularly timely as greater attention is being paid to decolonising curricula in economics and other subjects across the UK and further afield.

This leads to a second suggested area for future research. The analysis above has indicated that while papers that offer suggestions for teaching session content and assessment design continue to be published, increasingly papers are also emerging that make recommendations for the design of full modules. Nevertheless, as yet, the broader issue of programme design remains under explored and worthy of further attention. This should consider not only the appropriate economics content but also the transferrable skills development that should be incorporated into a programme. Such analyses would be particularly helpful as we reflect on our improved skills in teaching and assessing online, and as we consider the challenges of making teaching and assessment more inclusive.

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## References

- [Ahlstrom, L., 2021. Promoting economic literacy: combining news articles and clicker questions in a large introductory microeconomics course. \*J. Econ. Educ.\* 52, 334–342.](#)
- [Al-Bahrani, L., Patel, D., Sheridan, B., 2015. Engaging students using social media: the students’ perspective. \*Int. Rev. Econ. Educ.\* 19 \(1\), 36–50.](#)
- [Allen, P., Baughman, F., 2016. Active learning in research methods classes is associated with higher knowledge and confidence, though not evaluations or satisfaction. \*Front. Psychol.\* 7, 279. <https://doi.org/10.3389/fpsyg.2016.00279>.](#)
- [Allgood, S., 2001. Grade targets and teaching innovations. \*Econ. Educ. Rev.\* 20, 485–493.](#)
- [Allgood, S., McGoldrick, M., 2021. How can economists use the cognitive challenges framework to enhance economic education? \*J. Econ. Educ.\* 52, 41–52.](#)
- [Allgood, S., McGoldrick, M., 2021a. Team-based learning in economics: a symposium. \*J. Econ. Educ.\* 52, 218–219.](#)
- [Allgood, S., Schaur, G., 2019. 50 years of research in the \*Journal of Economic Education\*. \*J. Econ. Educ.\* 50 \(3\), 1–11.](#)
- [Andrews, T., 2021. ‘Provide a complete, concise economic analysis of the following article...’: Using outside readings to train students to answer a single question. \*J. Econ. Educ.\* 52, 316–325.](#)
- [Arnold, J.M., 2020. Gender and major choice within economics: evidence from Europe. \*Int. Rev. Econ. Educ.\* 35, 100191.](#)
- [Awdry, R., Ives, B., 2020. Students cheat more often from those known to them: situation matters more than the individual. \*Assess. Eval. High. Educ.\* 46 \(8\), 1254–1268.](#)

- Baker, R., Madden, K., 2021. Buy the seat of your pants: increasing the stakes of a classroom experiment. *J. Econ. Teach.* 2021 (6), 24–39.
- Basu, S., 2021. Teaching economics of climate change and sustainability as an introductory interdisciplinary elective using critical reading of supplementary sources. *J. Econ. Educ.* 52, 353–362.
- Bayer, A., Bhanot, S., Bronchetti, E., O'Connell, S. (2020) Diagnosing the learning environment for diverse students in introductory economics: An analysis of relevance, belonging, and growth mindsets. *AEA Papers and Proceedings*, 110, 294–298.
- Beam, E., 2021. Leveraging outside readings and low-stakes writing assignments to promote student engagement in an economic development course. *J. Econ. Educ.* 52, 274–285.
- Beasley, E.M., 2014. Students reported for cheating explain what they think would have stopped them. *Ethics Behav.* 24 (3), 229–252. <https://doi.org/10.1080/10508422.2013.845533>.
- Barreiro-Gén, M., 2020. Evaluating the effects of mobile applications on course assessment: a quasi-experiment on a macroeconomics course. *Int. Rev. Econ. Educ.* 34, 100184.
- Becker, R., Birdi, A. (eds) (2018) Special Issue on Flipping, *International Review of Economics Education*, 29, September.
- Bosshardt, W., 2021. Designing and communicating new pedagogy ideas in economics. *J. Econ. Educ.* 52, 64–72.
- Bretag, T., Harper, R., Burton, M., Ellis, C., Newton, P., Rozenberg, P., 2019. Contract cheating: a survey of Australian university students. *Stud. High. Educ.* 44 (11), 1837–1856.
- British Academy, 2012. *Society counts: Quantitative skills in the Social Sciences and Humanities*. The British Academy, London.
- Brown, K.W., Ryan, R.M., 2003. The benefits of being present: mindfulness and its role in psychological well-being. *J. Personal. Soc. Psychol.* 84 (4), 822–848.
- Bryant, A., Charmaz, K., 2010. Grounded theory in historical perspective: an epistemological account. *Handbook of Grounded Theory*. SAGE, London, pp. 31–57.
- Button, P., Collins, L., Denteh, A., García-Pérez, M., Harrell, B., Isaac, E., Ziedan, E., 2021. Teaching controversial and contemporary topics in economics using a jigsaw literature review activity. *J. Econ. Educ.* 52, 286–295.
- Cacault, M.P., Hildebrand, C., Laurent-Lucchetti, J., Pellizzari, M., 2021. Distance learning in higher education: evidence from a randomized experiment. *J. Eur. Econ. Assoc.* 19 (4), 2322–2372.
- Carson, K., Adams, H., Gonzalez-Ramirez, J., Heinicke, C., Latham, J., Maier, M., Malakar, C., Ruder, P., Simkins, S., 2021. Challenges and lessons: design and implementation of a multi-site evaluation of team-based learning. *J. Econ. Educ.* 52, 241–248.
- Chew, S., Cerbin, W., 2021. The cognitive challenges of effective teaching. *J. Econ. Educ.* 52, 17–40.
- Chiang, E.P., Sumell, A.J., 2019. Are your students absent, not absent, present? Mindfulness and student performance. *J. Econ. Educ.* 50 (1), 1–16.
- Chirumamilla, A., Sindre, G., Nguyen-Duc, A., 2020. Cheating in e-exams and paper exams: the perceptions of engineering students and teachers in Norway. *Assess. Eval. High. Educ.* 45 (7), 940–957.
- Cladera, M., 2021. Assessing the attitudes of economics students towards econometrics. *Int. Rev. Econ. Educ.* 37. <https://doi.org/10.1016/j.iree.2021.100216>.
- Clerici-Arias, M., 2021. Transitioning to a team-based learning principles course. *J. Econ. Educ.* 52, 249–256.
- Cook, S., Watson, D., Vougas, D., 2019. Solving the quantitative skills gap: a flexible learning call to arms! *High. Educ. Pedagog.* 4, 17–31.
- Cotton, D., Miller, W., Kneale, P., 2018. The Cinderella of academia. *Stud. High. Educ.* 9, 1625–1636.
- Craft, E., Linask, M., 2020. Learning effects of the flipped classroom in a principles of microeconomics course. *J. Econ. Educ.* 51, 1–18.
- Dawson, P., 2021. *Defending Assessment Security in a Digital World*. Routledge, London.
- Diaz Vidal, D., Mungenast, K., Diaz Vidal, J., 2020. Economics through film: thinking like an economist. *Int. Rev. Econ. Educ.* 35, 100186.
- Dowker, A., Sarkar, A., Looi, C.Y., 2016. Mathematics anxiety: what have we learned in 60 years. *Front. Psychol.* 7, 508. <https://doi.org/10.3389/fpsyg.2016.00508>.
- Duzhak, E., Hoff, J., Lopus, J. S., 2021. The effects of the Chair the Fed simulation on high school students' knowledge. *Am. Econ.* 66 (1), 74–89.
- Engelhardt, B., Johnson, M., Meder, M.E., 2021. Learning in the time of Covid-19: some preliminary findings. *Int. Rev. Econ. Educ.* 37, 100215.
- Evans, C., Muijs, D., Tomlinson, M., 2015. *Engaged Student Learning: High Impact Strategies to Enhance Student Achievement*. Higher Education Academy, York.
- Fernandez, J.M., Erin, Yetter, E.A., Holder, K., 2020. What do economic education scholars study? Insights from machine learning. *J. Econ. Educ.* 2 (52), 156–172.
- Gino, F., Ayal, S., Ariely, D., 2009. Contagion and differentiation in unethical behavior: the effect of one bad apple on the barrel. *Psychol. Sci.* <https://doi.org/10.1111/j.1467-9280.2009.02306.x>.
- Goedegebuure, L., Meek, L., 2021. Crisis- what crisis? *Stud. High. Educ.* 46, 1–4.
- Green, A., 2021. TBL Fridays: using team-based learning to engage in policy debates in an introductory class. *J. Econ. Educ.* 52, 257–263.
- Grimes, P., Mixon, F., 2021. Who publishes in economic education? A bibliographic analysis of the first 50 Years of the *Journal of Economic Education*. *Am. Econ.* 66, 137–159.
- Guest, J., 2015. Reflecting on ten years of using economics games and experiments in teaching. *Cogent Econ. Financ.* 3, 1115619.
- Harper, R., Bretag, T., Rundle, K., 2020. Detecting contract cheating: examining the role of assessment type. *High. Educ. Res. Dev.* 40, 1–16. <https://doi.org/10.1080/07294360.2020.1724899>.
- Hengel, E., Moon, E. (2020) Gender and quality at top economics journals: Summary of results. Mimeo, and in Hengel, E., Moon, E. (2021) Gender and equality at top economics journals, *Royal Economic Society Blog*. <https://www.res.org.uk/resources-page/gender-and-quality-at-top-economics-journals.html>.
- Hoyt, G.M., 2021. Learning by giving applied to an upper-level course on the economics of altruism, philanthropy, and nonprofit organizations. *J. Econ. Educ.* 52 (2), 141–155.
- Ibarra-Saiz, M.S., Rodriguez-Gomez, G., Boud, G., 2021. The quality of assessment tasks as a determinant of learning. *Assess. Eval. High. Educ.* 46 (6), 943–955.
- Johnson, M., Meder, M.E., 2021. A meta-analysis of technology: interventions in collegiate economics classes. *J. Econ. Educ.* 52 (1), 1–16.
- Jones, E., Priestley, M., Brewster, L., Wilbraham, S.J., Hughes, G., Spanner, L., 2021. Student wellbeing and assessment in higher education: the balancing act. *Assess. Eval. High. Educ.* 46 (3), 438–450. <https://doi.org/10.1080/02602938.2020.1782344>.
- Kaplan, T.R., Balkenborg, D., 2010. Using economic classroom experiments. *Int. Rev. Econ. Educ.* 9 (2), 99–106.
- Kelley, A., 1983. The newspaper can be an effective teaching tool. *J. Econ. Educ.* 14, 56–58.
- Kyer, B.L., Maggs, G.E., 2021. Teaching the production possibilities curve with the American experience of World War II. *J. Econ. Teach.* 2021, 70–75.
- Leet, D., Houser, S., 2003. Economics goes to hollywood: using classic films and documentaries to create an undergraduate economics course. *J. Econ. Educ.* 34, 326–333.
- Lortie-Forgues, H., Inglis, M., 2019. Rigorous large-scale educational RCTs are often uninformative: should we be concerned. *Educ. Res.* <https://doi.org/10.3102/0013189X19832850>.
- Lundberg, S., Stearns, J., 2019. Women in economics: stalled progress. *J. Econ. Perspect.* 33, 3–22.
- Macfarlane, B., 2011. Prizes, pedagogic research and teaching professors. *Teach. High. Educ.* 16, 127–130.
- Mansell, W., 2015. Count us in: Quantitative skills for a new generation. In: *British Academy*, London.
- Mason, G., Nathan, M., Rosso, A., 2015. *State of the Nation: A review of evidence on the supply and demand of quantitative skills*. British Academy and NIESR, London.
- McKee, D., Orlov, G., 2021. Using invention activities to teach econometrics. *J. Econ. Teach.* 5, 64–82.
- Miller, L., 2021. Prepping for a proposal - using journal articles in a labor economics course. *J. Econ. Educ.* 52, 296–30.
- Montolio, D., Taberner, P., 2021. Gender differences under test pressure and their impact on academic performance: a quasi-experimental design. *J. Econ. Behav. Organ.* 191, 1065–1090.
- Moryl, R., 2021. Economics ripped from the headlines: *The Economist* as course text. *J. Econ. Educ.* 52, 343–352.
- National Union of Students 2008. *NUS Student Experience Report*. [http://www.nus.org.uk/PageFiles/4017/NUS\\_StudentExperienceReport.pdf](http://www.nus.org.uk/PageFiles/4017/NUS_StudentExperienceReport.pdf).
- Orlov, G., 2021. Teaching students to read journal articles critically. *J. Econ. Educ.* 52, 308–315.
- Orlov, G., McKee, D., Berry, J., Boyle, A., DiCiccio, T., Ransom, T., Rees-Jones, A., Stoye, J., 2021. Learning during the COVID-19 pandemic: it is not who you teach, but how you teach. *Econ. Lett.* 202, 109812.
- Owen, A.L., Hagstrom, P., 2021. Broadening perceptions of economics in a new introductory economics sequence. *J. Econ. Educ.* 52 (3), 175–191.

- Paxton, J., 2021. Learning by giving in an introductory economics of altruism course. *J. Econ. Educ.* 52 (2), 128–140.
- Roman, M., Petrus-Plopeanu, A., 2021. The effectiveness of the emergency eLearning during COVID-19 pandemic. The case of higher education in economics in Romania. *Int. Rev. Econ. Educ.* 37, 100218.
- Ruder, P., 2021. Laying the groundwork for in-class groupwork with readings beyond the textbook. *J. Econ. Educ.* 52, 326–333.
- Ruder, P., Maier, M., Simkins, S., 2021. Getting started with team-based learning (TBL): an introduction. *J. Econ. Educ.* 52, 220–230.
- Schlösser, A., Neeman, Z., Attali, Y., 2019. Differential performance in high versus low stakes tests: evidence from the GRE test. *Econ. J.* 129, 2916–2948.
- Schneider, P., 2021. Using outside readings to help students understand what economists do. *J. Econ. Educ.* 52, 363–371.
- Sexton, R.L., 2006. Using short movie and television clips in the economics principles class. *J. Econ. Educ.* 37 (4), 406–417.
- Simkins, S., Maier, M., Ruder, P., 2021. Team-based learning (TBL): Putting learning sciences research to work in the economics classroom. *J. Econ. Educ.* 52, 231–240.
- Smith, Z., Murphy, P.R., Baglione, S.L., Dean, P.C., 2021. The battle for space supremacy... an application of pricing and market structure. *J. Econ. Teach.* 2021, 1–39.
- Snee, R., 1993. What's missing in statistical education? *Am. Stat.* 47, 149–154.
- Stentiford, L., Koutsouris, G., 2021. What are inclusive pedagogies in higher education? A systematic scoping review. *Stud. High. Educ.* 46 (11), 2245–2261.
- Strauss, A., Corbin, J., 1994. Grounded theory methodology: an overview. In: Denzin, N.K., Lincoln, Y.S. (Eds.), *Handbook of Qualitative Research*. Sage Publications, Inc, pp. 273–285.
- Sumell, A., Chiang, E., Koch, S., Mangelaja, E., Sun, J., Wu, J., 2021. A cultural comparison of mindfulness and student performance: evidence from university students in five countries. *Int. Rev. Econ. Educ.* 37, 100213.
- Taylor, T., 2019. Some Journal of Economic Perspectives articles recommended for classroom use. *J. Econ. Perspect.* 33, 243–248.
- Thomas, G., 2020. Experiment's persistent failure in education inquiry, and why it keeps failing. *Br. Educ. Res. J.* 47 (3), 501–519.
- Tierney, A., 2020. The scholarship of teaching and learning and pedagogic research within the disciplines: should it be included in the research excellence framework? *Stud. High. Educ.* 45, 176–186.
- Watermeyer, R., Crick, T., Knight, C., Goodall, J., 2021. COVID-19 and digital disruption in UK universities: afflictions and affordances of emergency online migration. *High. Educ.* 81, 623–641.
- Webb, R., Watson, D., Shepherd, C., Cook, S., 2021. Flipping the classroom: is it the type of flipping that adds value? *Stud. High. Educ.* 46, 1649–1663.
- Wooten, J.J., 2020. Integrating discussion and digital media to increase classroom interaction. *Int. Rev. Econ. Educ.* 33, 100174.
- Wooten, J., Al-Bahrani, A.A. (2020) *Economics in a crisis: a cautious approach to being relevant*. (October 1, 2020). Available at SSRN: <https://ssrn.com/abstract=3703337> or <https://doi.org/10.2139/ssrn.3703337>.
- Wuthisatian, R., 2020. Student exam performance in different proctored environments: evidence from an online economics course. *Int. Rev. Econ. Educ.* 35, 100196.
- Zahaciva, A., Lynch, S., Espenshade, T., 2005. Self-efficacy, stress, and academic success in college. *Res. High. Educ.* 46, 677–706.
- Zhang, C., Ramse, J., 2021. Teaching economics behind the global COVID-19 pandemic. *Int. Rev. Econ. Educ.* 36, 100206.