The use of social media to enhance student engagement and promote a research-led curriculum.

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Abstract

Integrating research and teaching in higher education remains both a challenge and a priority. Although evidence in economics suggests a negative correlation between research quality and student satisfaction, embedding research-led activities within the curriculum may enhance student motivation and engagement. This study implements a dedicated Instagram account as a supplementary resource across four undergraduate courses at two universities. The initiative aimed to introduce research-led teaching practices, increase student engagement, and connect academic content to students' everyday experiences. The findings indicate a positive association between student interaction with the account and academic outcomes, including relative performance, final grades, and course completion. These effects were particularly pronounced among students with specific learning difficulties, suggesting that social media may support more inclusive teaching practices.

Keywords: social networks; education; engagement; research-led teaching

JEL classification: A11; A2

The COVID-19 pandemic forced universities to rapidly pivot from conventional in-person instruction to alternative delivery methods. The 2023 Student Academic Survey reveals that a large percentage of students now prefer blended learning based on a combination of face-to-face and digital teaching[1]. More importantly, the pandemic highlighted the urgent need for innovation within a traditional higher education system that often lags behind students' appetite for a more digital-led teaching approach.

This paper studies the use of social networks to: (1) introduce research-led teaching activities, (2) increase engagement, and (3) relate teaching to students' real lives. Specifically, this paper

studies how social media platforms, particularly Instagram, can enhance engagement and improve economics literacy beyond the course content by dynamically adapting to the learning styles and preferences of a new generation of students.

During the academic years 2022/2023 and 2023/2024, an Instagram page to complement the learning experience of students in various economics courses at two universities in England was introduced. The platform used features such as posts, reels (short videos), and stories to engage students prior to lectures, promote interest in course content, and foster deeper connections with the material. The content was tied to case studies and academic literature, reinforcing a research-led curriculum. The platform was also used for public outreach, connecting economics to broader audiences. Our findings indicate that student interaction with the Instagram account was positively associated with improved percentile ranks, higher final grades, and successful course completion, with particularly strong effects observed among students with specific learning difficulties.

The digital provision at the university level, combined with a more traditional teaching approach, has shown to be beneficial for both students and lecturers (Mishra et al., 2020). However, it has also highlighted longstanding issues in university teaching, including student disengagement (Chipchase et al., 2017; Pham et al., 2022). Dissatisfaction with economics instruction, in particular, has led to student-led movements across several universities demanding a rethinking of how the subject is taught.[2] This is particularly relevant in UK institutions where students finance over half of the University and departments' costs[3] (Lewis, and Bolton, 2024), so it seems natural that more weight and importance is put into the teaching focus aspect of UK universities.

Existing literature across academic disciplines suggests that integrating research into higher education teaching can improve both student motivation and academic performance (see, for

example, Boyer, 1990; Kinkead, 2003; Land and Gordon, 2013). Whilst this indicates that, from the student perspective, research-led teaching may be a worthy goal for UK universities, the practical implementation of such approaches varies significantly. Zamorski (2002) identifies two primary models for introducing research into teaching: (1) students as passive recipients of research, and (2) students actively engaged in conducting or critiquing research. Within these two categories, Healey and Jenkins (2009) further refine these into four models: (1) students passively learning about research, (2) students engaging in discussions, (3) students developing research skills, and (4) students conducting research.

Many of these models necessitate active learning strategies. Some studies also stress the value of reusing past data and making teaching relatable to everyday life (Griffiths, 2004; Haaker and Morgan-Brett, 2017; Pfeiffer and Rogalin, 2012). Yet, in practice, research-led economics instruction is often passive and poorly matched to students' level of understanding, contributing to a disconnect between educational theory and actual engagement, especially in large lecture settings. Multimedia tools can help mitigate this challenge (Roberts, 2017).

Building on this discussion, this paper examines how social networks, specifically Instagram, can be used as a vehicle for delivering research-led teaching in large economics courses. To help students engage with the curriculum and relate to economic concepts, examples and situations that we encounter in our daily lives were also incorporated. To avoid the drawbacks of passive learning, our intervention was designed to foster active engagement. For instance, in Case Study 1, students generated and analysed data themselves; in Case Study 3, the activity included a follow-up discussion. These activities aimed to move beyond traditional lectures toward more interactive learning, in line with Healey and Jenkin's (2009) approach to research-led teaching, which emphasises engaging students in interpreting and applying research rather than merely receiving it. This broader view is consistent with literature which highlights the

use of real-world data (Haaker and Morgan-Brett, 2017) and everyday relevance (Pfeiffer and Rogalin, 2012) as valid and effective forms of research integration, especially at the undergraduate level.

Motivation

The UK National Student Survey (NSS) gathers final-year students' opinions on the quality of their courses[4]. The NSS measures final year students' satisfaction related to student's academic experience, such as quality of teaching, learning opportunities, assessment and feedback, academic support, organisation and management, learning resources, learning community, and student's voice. It is conducted annually across 130 UK higher education institutions and is disaggregated by discipline. On the other hand, the Research Excellence Framework (REF) measures research intensity, defined as the proportion of staff involved in research. The REF is a national system used to evaluate the quality of research in UK higher education institutions and is conducted every six to seven years.

Figure 1 illustrates the linear relationship between student satisfaction (as measured by the NSS) and research intensity (as measured by the REF) for different subjects. Whilst the relationship is clearly subject dependent, Economics has a clear negative correlation between research intensity and student satisfaction.

Although Economics is traditionally situated within the social sciences, in the UK and much of Europe, it is increasingly located within business and management schools. As a result, this study selects subjects that reflect this institutional reality and educational proximity. These disciplines often share methodological approaches (e.g., quantitative analysis), pedagogical tools, and student cohorts. To test the robustness of our findings, this paper also replicates the analysis on a subset of disciplines more traditionally associated with the social sciences

(including Politics, Sociology, Philosophy, Anthropology, and Economics). These results are available upon request.

[Insert figure 1 around here]

The REF measures different aspects of research quality and impact. In the analysis above, this paper considers research intensity, which is the proportion of staff involved in research within a department. While research intensity is correlated with research quality, this paper also analyses the statistical significance of the relationship above and whether the same relationship can also be found when looking at research quality in the relevant subjects. Using an Ordinary Least Squares (OLS) methodology, this paper looks at the relationship between the variables using the following model:

$$S_{it} = \alpha_0 + \beta_1 R_{it} + \beta_2 \delta_{ij} + \epsilon_{it} \qquad (1)$$

where S_{it} represents the student satisfaction for subject *i* and year *t*. The dependent variable in Equation 1 is the average satisfaction score for each subject–institution–year cell, based on responses to the National Student Survey (NSS). This is a continuous variable ranging from 0 to 5, representing the mean of responses to Likert-scale items rather than raw categorical data. R_{it} measures research intensity or quality for subject *i* and year *t*. δ_{it} is a set of year and subject dummy variables to control for subject and year-fixed effects. ϵ_{ijt} is the error term. Table 1 presents the results: columns 1 and 2 consider all the subjects, while columns 3 and 4 show the results for the Economics discipline. In columns 1 and 3, the independent variable is research intensity, and in columns 2 and 4, research quality.

The results show that the correlation between student satisfaction and research intensity or research quality is statistically significant. When considering all subjects, research quality is positively associated with student satisfaction. However, in the case of Economics, the

relationship is negative for both research intensity and research quality. This suggests a persistent misalignment between research performance metrics and student satisfaction in Economics departments, highlighting a potential disconnect between research-led institutional priorities and students' educational experiences in this subject area.

[Insert table 1 around here]

Various factors may contribute to the observed results, particularly the lower satisfaction scores reported by students in Economics compared to other disciplines. One possible explanation is a mismatch between students' expectations upon entering the course and the actual content delivered, which may reflect a form of moral hazard (Akerlof, 1970). While a detailed analysis of these underlying causes is beyond the scope of this paper, the existence of such a discrepancy underscores the need to adapt our teaching strategies. Specifically, it motivates the development of a more engaging and active research-led curriculum that better aligns with student expectations and learning preferences.

The use of social networks to implement a research-led curriculum

The academic landscape has witnessed a transformative shift with the integration of social networks in the past years, which offer new avenues for scholarly communication. The relevance of technology in higher education has only grown during and after the COVID-19 pandemic, reinforcing the need for flexible and innovative pedagogical tools. A growing body of research has explored this shift, offering insight into the multifaceted impact of social media in academic contexts.

The use of social networks in academia has shown benefits for both students and academics. Nandez and Borrego (2013), for instance, investigated the motivations and profiles of users of academic social networks. They found that social networks supported interactions among

academics and PhD students by facilitating peer connections, research sharing, and access to scholarly resources. Similarly, Meishar-Tal and Pietersen (2019) emphasise their popularity among academics as a platform for self-promotion, professional development and peer community belonging.

The use of social media in education has also extended beyond the physical classroom. By leveraging social media tools, educators have facilitated diverse forms of learning engagement, ranging from collaborative learning and reflective practices to inquiry-based learning, extending into the realm of distance education in different disciplines (Deng and Yuen, 2010; George and Dellasega, 2011; Junco et al., 2010). Social platforms have enabled the integration of tools such as blogs and wikis, helping build learning communities and supporting collaborative work (Guy, 2012).

Dabbagh and Kitsantas (2012) along with Middleditch et al. (2022), highlight the role of Personal Learning Environments (PLEs) enabled by the social media platform X (formerly Twitter), as a means to support formal learning while allowing and promoting self-learning. Their pedagogical models illustrate how these tools can create rich and flexible educational experiences. Several studies have also demonstrated the use of *X* in facilitating large-scale case-based discussions (Jones & Baltzersen, 2017; Al-Bahrani & Patel, 2015; Al-Bahrani et al., 2017).

Building on this research, this study explores the use of Instagram to bridge academic content and students' real lives. Specifically, we use Instagram to connect research-led teaching activities, enhance engagement, and increase the real-world relevance of course material through short videos, static posts, and curated case study repositories. This approach aligns with Generation Z's affinity for Instagram as a valuable educational tool[5] (Sheridan et al., 2025). In this context, it's noteworthy that despite the need for Instagram users to sign up, its

widespread usage among Generation Z[6] makes it a familiar and accessible tool for learning. Pre-intervention survey[7] responses confirmed this, with students identifying Instagram as their most frequently used social network (see Figure 2). Nevertheless, whilst Instagram's widespread adoption emphasises its potential as a prominent educational platform, the approach is easily transferable to other social networks, making it adaptable to future trends in the sector.

[Insert figure 2 around here]

Instagram was used not only due to its high usage among undergraduate students but also because of its versatile multimedia features. These include static image posts, short-form video content (Reels), and time-limited Stories, all of which lend themselves well to educational messaging that is visual, concise, and engaging. Compared with more text-based platforms like *X* or lower-engagement alternatives like Facebook, Instagram supports higher levels of interaction and offers real-time analytics, allowing instructors to monitor and evaluate engagement.

It was also important to assess whether students perceived value in using social networks alongside traditional classroom instruction. Figure 3 displays the results of a survey question addressing this issue. The response was broadly positive: 64.6% of students agreed with using social networks as a complementary educational tool, while only 12% expressed disagreement.

[Insert figure 3 around here]

The Instagram interface

During the 2022–2023 and 2023–2024 academic years, we introduced an Instagram page as a complementary learning tool for students enrolled in four economics courses at two universities in England[8]. Although these courses were part of undergraduate economics programs, students from other disciplines could enrol in some of them as optional modules. The courses were also delivered at different stages of the degree programs[9]:

- Module 1 is an interdisciplinary applied microeconomics module taught in year 2.
- Module 2 is an intermediate Microeconomics module taught in year 2.
- Module 3 is a Macroeconomics module taught in year 3.
- Module 4 is an introduction to Microeconomics Module taught in year 1

A total of 1,478 unique students were taught across the courses and both academic years[10].

Students were introduced to the Instagram account in the first lecture of the module, where it was presented as a complementary learning resource. The account was also listed in the complementary material section of the virtual learning environment (VLE), with weekly links to relevant posts and reels, ensuring that all students had access even if they did not follow the account. Students were not obliged to follow the page; this was complementary material which they could access on a voluntary basis. Additionally, only content that was relevant to the teaching material was embedded in the teaching interface system[11]. However, students who chose to follow the account were more likely to encounter regular updates, even when specific posts were not directly related to their enrolled course. In parallel, open access was provided to a resource website with additional material linked to the Instagram content where students and educators can access case studies and other material that explore the concepts in more depth.

Instagram supports various content formats through posts, reels and stories. Stories are short visual posts available for 24 hours which we used for quick questionnaires ahead of lectures as a means to introduce or get students thinking about the topic. For example, the day before a lecture on inflation in a macroeconomics module a Story asked students to reflect on rising prices in their own shopping baskets. This helped introduce the topic while connecting it to students' everyday experiences. In contrast we used Instagram posts (which remain on the platform and are up to 2000 characters long) and reels to increase engagement and to support a research-led curriculum. These formats allowed us to present simplified case studies, summarize key academic articles, and link theory to real-world examples. Case Studies 1, 2, and 3 explain in detail how this was done.

A creator's Instagram account allowed us to collect monthly data related to engagement and accounts our content reaches. We collected data on the weekly interactions per post and subject for both followers and non-followers[12], which could involve not only students but also other interested users. This paper uses the metric weekly interactions per post to capture the average number of user engagements—such as likes, comments, shares, and saves—that each Instagram post receives within a given week. This provides a comparable measure of user response across time, accounting for fluctuations in posting frequency and audience activity.

Figure 4 presents monthly reach data, showing how many follower and non-follower accounts viewed the content. Notably, engagement continued even after the academic term ended, particularly among followers. This suggests that when economic concepts are presented in ways relevant to students' daily lives, interest persists beyond formal coursework.

In a post-exposure questionnaire[13] distributed at the end of the term, students were asked whether they followed the Instagram account and whether they engaged with its content. Interestingly, 53.7% of respondents were not followers, but 38.8% of those non-followers

reported engaging with the account during the course, indicating a broader reach beyond active followers.

[Insert figure 4 around here]

[Insert figure 5 around here]

Content was linked to case studies and/or articles, which are accessible via the Instagram page, creating a resource not just for students but also for educators. This also served a public outreach function by introducing economics to a broader audience. Instagram's Highlights feature allowed us to categorise content, making it easy for visitors to identify posts tied to case studies or scholarly materials immediately.

Figures 4 and 5 report reach (views) data, which capture how many accounts saw the posted content[14]. These impressions reflect potential rather than confirmed engagement and may include both enrolled students and external users. In contrast, our analysis in Section 3.2 is based on identifiable follower status and recorded interactions (likes/comments), which we could match to student records. Most followers during the period of the study were enrolled students, but we acknowledge that passive reach should not be interpreted as equivalent to active engagement.

Case study 1: content in advance to encourage engagement and attendance.

Instagram features are used to engage the students ahead of the lecture, allowing them to interact with course content in advance and preview key concepts they would encounter during sessions. This feed-forward approach was particularly effective in Module 1, an interdisciplinary and methodologically demanding course with between 300 and 400 students from various degree programs. Students enrolled in this module displayed a wide range of

quantitative skills, particularly in statistics. A teaching method that works well, in this context, is to build the lectures from practice to theory to help students understand and engage better with the content (Hawtrey, 2007; Nepal and Rogerson, 2020).

One of the key lectures in Module 1 focuses on demand estimation using regression analysis. Twenty-four hours ahead of the lecture, we posted a short Instagram Story prompting students to reflect on which variables they believed were most likely to influence student performance. The prompt made explicit reference to the forthcoming lecture topic and invited students to select from a set of potential explanatory factors. This activity was designed to encourage students to begin thinking about the empirical structure of the lecture in advance and to connect abstract econometric concepts to their own intuitions.

At the start of the lecture, the aggregated responses from the Instagram Story were discussed with students, providing a natural entry point into the subsequent econometric analysis. Students were then invited to complete a brief online questionnaire expanding on these initial choices, which formed the basis for a live regression exercise conducted during the lecture. Specifically, students were asked to report:

- Their overall average mark from the previous academic year (numerical response);
- The average number of hours per week spent studying during term time (numerical response);
- Their usual bedtime during term time, recorded using an ordered categorical scale ranging from early evening to midnight or later;

Responses were collected in real time. The questionnaire was completed by students present at the lecture (190 respondents[15]) and was used primarily as a pedagogical tool to stimulate

discussion about data quality, outliers, and potential sources of bias in empirical analysis. The results were then used to explain the econometric theory and methodology. In this way, the social network not only attracted students' attention to the lecture content that week but also facilitated their active participation in co-creating aspects of the lecture content[16].

This approach exemplifies a research-led teaching practice by involving students in both the discussion and practical use of empirical methods. Rather than simply learning about regression theory, students engaged directly in data collection and analysis, helping to bridge theoretical content with applied, real-world investigation. This aligns closely with Healey and Jenkins' (2009) framework for engaging students in research-informed learning experiences.

Case study 2: content linked to case studies

The Edgeworth box is a concept studied in intermediate microeconomics to explain the trade of two finite resources between two distinct economies or individuals. While central to understanding exchange and Pareto efficiency, it is often difficult for students to relate this abstract model to real-world scenarios. This topic was covered in Module 2.

To enhance comprehension and engagement, we created a short Instagram Reel that presented a quasi-natural experiment to illustrate the Edgeworth Box in a relatable and simplified manner. The video, titled *Edgeworth Box: A Culinary Experience*, depicts two campers at a campsite, referred to as the Spanish Camper and the English Camper, preparing their respective lunches. The Spanish Camper is preparing patatas bravas, and the English camper is preparing Cumberland sausages. Although each camper begins with only one dish, the video illustrates how mutual benefit can be achieved through trade, as they negotiate and exchange portions of their meals. This exchange visually mirrors movement within the Edgeworth Box, helping students connect the theoretical model to an everyday situation.

The Instagram Reel is accompanied by a caption that provides context for the concept and encourages further engagement. The caption summarises the core intuition of the Edgeworth Box using an everyday scenario and includes a link to a full case study that develops the idea using formal economic reasoning and graphical analysis. In this way, the caption serves as a bridge between an accessible narrative and deeper, research-informed content

Caption to the *Edgeworth Box: A Culinary Experience* video in the Instagram interface: Did you know that the Edgeworth Box is a powerful tool used to showcase how the exchange between two individuals can boost one person's well-being without hurting the other? This leads to a win-win situation, enhancing overall social welfare from a given set of resources!

It's all about that Pareto improvement – making everyone better off without making anyone worse off!

During our summer break at a campsite in Spain, we can illustrate the basics of the Edgeworth Box, shedding light on the fascinating world of general equilibrium theory!

Let's dive into the world of economics while soaking up the sun and learning something new! Are you ready to unravel the mysteries of the Edgeworth Box with us?

For economists or those curious minds who would like to know more, you can access a complete case study in the case studies bank (link available in bio).

After engaging the students with the reel and relating the concept to a daily life situation, a case study can be accessed to give further details. In this sense, the reel is used as both as a means to relate to concepts to the real world, but also as a starting point to understand complex

concepts in more depth. Using the campers' example, more specific economic concepts were addressed and further details on how each moment of the reel relates to economics theory were elaborated on. A bank of case studies is available via the Instagram page bio, which include questions and suggested answers, making them helpful educational resources[17].

The associated open-access website provided longer-form resources, including detailed case studies, event information, and a glossary linking economic concepts to Instagram posts. The website therefore served as an extended reference resource, while Instagram offered short-form, real-time applications of the material to daily events.

Case study 3: content linked to academic papers or articles.

The concept of interest rates and their influence on economic decision-making is a central theme in macroeconomics, taught across multiple levels. This was taught in Module 3.

It can be difficult for students to engage with research if they don't see the application or they don't understand the relevant concept. To address this, we designed a Reel inspired by an article published in *The Conversation* by Tayler (2023), which examined how recent interest rate increases by the Bank of England impact individuals from different socioeconomic backgrounds. The video features three characters, a young renter, a mortgage holder, and a pensioner with investments, casually discussing, over drinks in a bar, how monetary policy decisions have affected them.

The caption accompanying the Reel provides context for the scenario and includes a direct link to the original article, offering students a gateway into further exploration of the topic and the methodologies used in the underlying research.

Caption to the *A Young Renter, a Mortgage Holder, and a Homeowner with Investments Enter into a Bar* video.in the Instagram interface: A young renter living paycheck to paycheck, a father with a new mortgage, and an outright homeowner with investments enter a bar. Do you want to know how the increase in interest rates is affecting them?

A reel based on the article *how the Bank of England's interest rate hikes are filtering through your finances* published at The Conversation

On September 22nd, the Bank of England will decide whether to increase interest rates again…but that's a conversation (or a reel) for another day.

Although the Reel draws on a piece from a public-facing magazine, its primary objective was to introduce students to research-led discussions and stimulate classroom dialogue. This structured engagement strategy helped students connect academic content with lived experiences before engaging with more formal economic literature. While *The Conversation* is not a peer-reviewed academic journal, the article in question includes direct references and links to primary academic research, offering a clear pathway for students to explore the underlying evidence and methodology in greater depth. In this way, the Reel served as a bridge between real-world application and formal research, supporting the principles of research-led teaching by encouraging critical thinking, applied understanding, and contextual analysis of macroeconomic policy[18].

Students' performance: methodology, results, and feedback

As outlined in Section 2, some students reported interacting with the account at different stages during the courses, even though they were not followers. Importantly, non-followers, just like followers of the account, were able to actively interact with the content in the form of likes

and/or comments. To evaluate the relationship between Instagram engagement and academic performance, this paper conducts an Ordinary Least Squares (OLS) regression analysis. Specifically, the following equation is estimated:

$$percentile\ rank_{ijt} = \alpha_0 + \beta_1 F_i + \beta_2 I_{ij} + \beta_3 \delta_j + +\beta_4 \mu_t + \varepsilon_{ijt} \quad (2)$$

where the suffix *i* represents the student and *j* represents the Module.

$percentile\ rank_{ijt}$ is the dependent variable and represents the percentile rank of student *i* in course *j*, in academic year *t*. The percentile rank was calculated based on each student's final mark relative to the performance of all students enrolled in the same course. It ranges from 0 to 1, where a lower percentile rank indicates that the student performed better than a larger proportion of their peers. For example, a percentile rank of 0.10 implies that the student ranked among the top 10% of the class.

F_i is a dummy variable which equals 1 if student *i* is a follower of the account and 0 otherwise.

I_{ij} accounts for the number of interactions which includes active engagement with the account of student *i* student for subject *j*. This includes comments or likes.

δ_j is a set of dummy variables at subject level and μ_t is a set of dummy variables at academic year level.

Because detailed student demographic characteristics are not available in the administrative data used for this analysis, Equation (2) does not include explicit demographic controls. As a result, the estimated associations should be interpreted with caution, as unobserved characteristics correlated with both social media use and academic performance may partly drive the observed relationships.

This paper further investigates whether being a follower of the Instagram account or actively engaging with its content affects the likelihood of failing a course or achieving a mark above the class average[19]. To do so, this paper estimates two probit models using the following equations:

$$Grade\ fail_{ijt} = \alpha_0 + \beta_1 F_i + \beta_2 I_{ij} + \beta_3 \delta_j + + \beta_4 \mu_t + \varepsilon_{ijt} \quad (3)$$

$$Grade\ above\ average_{ijt} = \alpha_0 + \beta_1 F_i + \beta_2 I_{ij} + \beta_3 \delta_j + \beta_4 \mu_t + \varepsilon_{ijt} \quad (4)$$

Where $Grade\ fail_{ijt}$ and $Grade\ above\ average_{ijt}$ are categorical variables which take values of 0 or 1. $Grade\ fail_{ijt}$ equals 1 if student *i* had a final mark below 40 in subject *j* and academic year *t*, 0 otherwise. $Grade\ above\ average_{ijt}$ equals 1 if student *i* had a final mark above average in subject *j* and academic year *t*, 0 otherwise.

Controlling for prior performance

To address potential selection bias, this paper incorporates a robustness check by controlling for students' prior academic performance. Specifically, each student's percentile rank in prerequisite or related courses is calculated. For Module 2 and 4 (Microeconomics), this paper uses the average of past Microeconomics courses, which were pre-requisite. For Module 3 (Macroeconomics), this paper uses marks from the previous macroeconomics course, which was a pre-requisite. Finally, Module 1 is more of an interdisciplinary course, so this paper uses the average mark in the full previous year. These percentile ranks allow us to compare students with similar academic backgrounds, reducing bias in the estimated effect of Instagram engagement.

Table 2 presents the results from equations 2, 3, and 4. Column 1 presents the results for equation 2, columns 3 and 4 for equation 3, and columns 5 and 6 for equation 4. Columns 2, 4, and 6 include the control for the percentile rank of student *i* in past related courses.

This study finds that being a follower is associated with a statistically significant decrease in percentile rank (Column 1), indicating better relative academic performance. When we control for prior performance (Column 2), the magnitude of this effect decreases but remains statistically significant, suggesting that while prior ability explains part of the effect, it does not account for all of it.

In the probit models, this paper finds that students who follow the account are less likely to fail (Column 4) and more likely to score above the average (Column 6). These effects also remain statistically significant after controlling for past performance. Moreover, student interaction with the account (likes/comments) is positively associated with course success (Column 3), even for those who are not formal followers.

These results are particularly relevant given the Instagram algorithm, which exposes content not only to followers but also to non-followers who regularly engage with similar content (e.g., by watching Reels or viewing posts). This explains why some non-following students also reported regular exposure to the material, as discussed in Section 2.

Additional analyses using final course marks as the dependent variable (available upon request) show consistent patterns when controlling for students' average performance in related subjects, further supporting the robustness of our findings.

[Insert table 2 around here]

Before interpreting these results, it is important to emphasise that the analysis does not establish

a causal relationship between engagement with the Instagram account and academic performance. The estimates reported above capture associations rather than causal effects and should be interpreted accordingly.

The results presented in columns 1, 3, and 5 show a positive relationship between engaging with the Instagram account and the percentile rank of students in the course. This is consistent with the research by Manan et al., (2012) and Veletsianos and Navarrete, (2012), who also find a positive correlation between social media engagement and academic performance. When we control for past performance in the courses (columns 2, 4, and 6), the estimated associations remain statistically significant, indicating that prior academic attainment explains part, but not all, of the observed relationship. Prior performance is likely to reflect some persistent differences across students such as motivation, study habits, or prior educational experiences, however it is an imperfect proxy for underlying demographic characteristics, access to resources, or other unobserved factors that may also influence academic outcomes (Junco et al., 2010). As a result, these findings should be interpreted with caution and viewed as suggestive associations rather than evidence that isolates the effect of social media engagement from all potential confounders.

In terms of magnitude, the effect is meaningful. A reduction of 0.09 (column 2) in the percentile-rank measure corresponds to moving from approximately the 50th percentile to around the 41st percentile in the class distribution. Likewise, the 13–16 percentage point increase in the probability of achieving a mark (column 6) above the class average is sizeable when compared with the baseline probability of 45%. These estimates indicate that the effects are not only statistically significant but also educationally meaningful.

To examine whether the association between following the account and academic performance varies with prior attainment, we estimate specifications that include interactions between

follower status and past percentile rank, as well as between the number of interactions and past percentile rank (results available upon request). The interaction between follower status and past percentile rank suggests that the association is stronger for students with lower prior performance. In particular, follower status is associated with a substantially lower probability of obtaining a failing grade for students at the lower end of the prior-performance distribution, and with a positive, though less precisely estimated, association with achieving above-average marks. By contrast, the interaction involving the number of interactions is not statistically significant, suggesting that exposure to the content, rather than the intensity of engagement, may be the more relevant margin. Overall, these results suggest that the complementary Instagram content may be particularly beneficial for students who begin the module with weaker academic backgrounds, potentially contributing to a reduction in performance disparities.

Focus on students with specific learning difficulties (SLDs)

The University categorises a subset of students as having specific learning difficulties and/or disabilities (SLDs). These students are given extra support for coursework and exams, commonly in the form of extra time for completion. Around 6% of the students in our dataset are categorised as SLDs students. Prior literature suggests that students with SLDs often prefer alternative or more flexible teaching formats (Brady, 2010; McCarthy, 2009).

Figure 6 illustrates that students who follow and/or interact have, on average, higher final marks than those students who don't follow or interact with the account. This effect is even more pronounced for SLDs students, suggesting a potentially greater benefit for this group.

[Insert figure 6 around here]

To investigate this further, this paper focuses on the SLDs subsample and estimate the following model (adapted from Equation 2) to examine the effects of following or interacting

with the account Since we can observe which SLDs students were following us or interacting with the account; we can consider them as a treatment group. Specifically, and following equation (2), the following model is estimated:

$$percentile\ rank_{ijt} = \alpha_0 + \beta_1 F_i + \beta_2 I_{ij} + \beta_3 SLD_{ij} + \beta_4 (SLD * F)_{ij} + \beta_5 (SLD * I)_{ij} + \beta_3 \delta_j + \beta_4 \mu_t + \varepsilon_{ijt} \quad (5)$$

SLD_{ij} is a dummy variable which equals 1 if student *i* in subject *j* has been categorised as a SLD student in academic year *t*, and 0 otherwise.

$(SLD * F)_{ij}$ represents the interaction between SLD_{ij} and F_i. This variable will be 1 if student *i* in subject *j* has been categorised as a SLD student and follows the account, and 0 otherwise.

$(SLD * I)_{ij}$ represents the interaction between SLD_{ij} and I_{ij}. This variable will equal the number of interactions of student *i* in subject *j* if the student has been categorised as a SLDs student, and 0 otherwise.

Table 3 shows the results. As expected, SLDs students tend to rank lower in the percentile distribution compared to their peers. However, the interaction term between SLDs and follower status is positive and statistically significant. This suggests that SLDs students who follow the account perform significantly better than those who do not. This effect holds even after controlling for prior academic performance.

Results also show that SLDs students are generally more likely to fail or receive a below-average grade. Yet, as shown in columns 3 and 4, the interaction between SLDs and being a follower reduces the probability of failure, and increases the probability of achieving above-

average grades (columns 5 and 6). These effects remain statistically significant when controlling for past academic performance—except in column 6, where the effect is absorbed by prior achievement. However, this does not undermine the overall significance of following the account for the full sample.

In contrast to Table 2, the number of interactions does not significantly affect the outcomes for SLDs students. This may indicate that SLDs students engage with the content more passively, by following and observing rather than actively liking or commenting, yet still benefit from the content and structure provided. For SLD students, the estimated effect is equivalent to closing roughly one quarter of the observed performance gap relative to their non-SLD peers, which is a substantial improvement in educational terms.

[Insert table 3 around here]

Student feedback

To complement the quantitative findings, qualitative feedback through post-exposure questionnaires was also collected. These surveys asked students to reflect on the perceived value of the Instagram account in supporting their learning[20]. Given the voluntary nature of the survey and the modest response rate, these responses are not intended to be representative of the full cohort but are used to provide illustrative and descriptive insight into how a subset of students perceived the initiative. Most of the students found the account helpful in explaining economic concepts related to their course (Figure 7), and it helped them to relate the theoretical economic concepts to real-world situations (Figure 8).

[Insert figure 7 around here]

[Insert figure 8 around here]

In addition, students had the opportunity to submit open-ended comments or provide feedback via email or informal channels. Table 4 summarises the most common themes emerging from these responses.

[Insert table 4 around here]

Students consistently described the Instagram content as creative, relatable, and accessible, with a majority noting it helped them grasp complex economic concepts. A smaller proportion also saw it as a valuable feed-forward tool to prepare for upcoming lectures.

While the survey responses in Figures 7 and 8 and Table 4 provide useful insights into student perceptions of the Instagram account, the absence of a detailed baseline makes it difficult to draw strong causal conclusions. Institutional feedback forms typically do not assess engagement with supplementary tools like this one, and response rates tend to be low. Future studies could strengthen causal inference by implementing pre/post designs that assess the specific contribution of digital learning tools.

Overall, students who followed the Instagram account and engaged with the content regularly tended to have higher percentile ranks and reported greater satisfaction with how course content was delivered and understood. These findings highlight the potential value of social networks as platforms for delivering research-led content in a way that is engaging, inclusive, and aligned with students' digital habits.

Conclusions

The transformative impact of the COVID-19 pandemic on higher education prompted a widespread re-evaluation of traditional teaching methods, particularly within economics education. Survey data now indicate that a significant proportion of students favour a blended approach that combines face-to-face and digital learning. This shift has underscored the urgent

need for pedagogical innovation to better align with the digital preferences and learning behaviours of younger cohorts.

This paper explored the integration of social networks, specifically Instagram, as a tool to introduce research-led teaching activities, enhance student engagement, and connect academic concepts with real-world scenarios. While embedding research into teaching has long been an institutional goal, achieving a functional and inclusive integration remains a challenge. Our study addressed this by using Instagram as a dynamic and accessible platform to bridge the gap between academic research and student learning.

The findings reveal several noteworthy outcomes. Instagram's multimedia features (Posts, Reels, and Stories) proved effective in making economics concepts more relatable and engaging. Introducing theoretical content through real-life scenarios and pairing it with visual formats supported innovative, research-based pedagogical approaches. Moreover, linking content to academic articles and case studies enhanced both its academic value and usability for students.

Our analysis demonstrated that engagement with the Instagram account, both through following and interacting, had a positive and statistically significant effect on students' percentile ranks, even after controlling for prior academic performance. This suggests that the platform contributed independently to improved learning outcomes. The benefits were particularly pronounced for students with Specific Learning Difficulties (SLDs), who, on average, underperform relative to their peers. For these students, engaging with the Instagram content helped close the performance gap, indicating that the platform functioned as an effective inclusive learning tool.

Student feedback further reinforced these findings. Learners consistently described the Instagram content as effective in improving their understanding of complex concepts, making abstract theories applicable to daily life, and providing a more approachable and engaging educational experience.

While the initial development of the Instagram account and accompanying website required a substantial investment of time and effort, the ongoing maintenance costs have been minimal. Content has been reused and adapted across modules and academic years, making the approach scalable and sustainable. Over time, improved familiarity with platform functionality and integration into the teaching calendar further streamlined production. As a result the fixed setup costs could be viewed as a one-off investment that has yielded significant pedagogical and engagement returns. To support the broader academic community, the materials are freely available for reuse or collaboration on similar initiatives.

The implementation of social networks in academia, as demonstrated through this Instagram intervention, presents a promising avenue for enhancing teaching practices, promoting research-led learning, and fostering more meaningful connections between students and subject matter. As the educational landscape continues to evolve, adopting innovative tools such as social media can help address the shifting preferences and expectations of contemporary student cohorts.

Finally, experience with this initiative indicates that the content not only benefited enrolled students but also attracted interest from the wider public. This demonstrates the platform's potential to extend academic outreach and contribute to public understanding of economics, highlighting an often-overlooked dimension of social media's role in higher education.

Notes

[1] https://advance-he.ac.uk/knowledge-hub/student-academic-experience-survey-2023

[2] https://www.theguardian.com/education/2014/may/04/economics-students-overhaul-subject-teaching

[3] https://www.hesa.ac.uk/data-and-analysis/finances/income

[4] https://www.officeforstudents.org.uk/advice-and-guidance/student-information-and-data/national-student-survey-nss/

[5] See recent Rethinking Economics groups evaluation reports of universities across the UK and some globally such as the US: https://www.rethinkeconomics.org/edu-material/

[6] Generation Z current ages between 13 and 25 years old

[7] The pre-intervention survey was distributed online to all students enrolled across the four undergraduate modules described in Section 2 at the beginning of the academic term, prior to the introduction of the Instagram account. A total of 121 students responded. As participation was voluntary, the response rate was modest and the sample may not be fully representative of the full cohort. The survey is therefore used to provide contextual and descriptive information on students' social media usage rather than to support causal claims.

[8] Details of implementations and costs are available to request.

[9] During the academic year 2023/2024, the Instagram account in a postgraduate course at one of the universities was also introduced. However, as we don't have data for both academic years, this course was not included in the dataset.

[10] 258 students took Module 1 and 2, consequently. The timing of the interaction with the account for these students allowed us to relate to the relevant course.

[11] The Teaching Interface System refers to the online platform (Virtual Learning Environment) used for course management. This platform includes the content relevant to the course material. Although direct tracking of student click-throughs from Instagram posts is limited, particularly for module-linked content hosted on the VLE, signs of engagement are observed via classroom discussions and mentions of linked resources in exam responses. As noted in Footnote 16, spikes in platform engagement following related posts are also observed. Our recent transition to a WordPress site now allows us to track downloads: between 20–30 May 2025, our case studies were downloaded 49 times, and the site received 215 visits.

[12] The figure '19.4% of students followed the account' is computed using only followers positively matched to the enrolled-student roster (conservative lower bound). An additional 36 followers appeared to be students at one of the two universities based on profile information but could not be verified against the roster and are therefore excluded from the 19.4%. As the account is public, some followers are not our students.

[13] 81 students filled in the post exposure questionnaire.

[14] While most followers of the account were enrolled students, reach statistics may also include non-students. Therefore, Figures 4 and 5 are intended to illustrate the visibility of the material rather than to infer academic engagement.

[15] The questionnaire was administered during a live lecture and completed voluntarily by students in attendance. As lecture attendance varies across weeks, the resulting sample does not represent the full enrolled cohort and is not intended to provide representative estimates.

These limitations were explicitly discussed with students during the lecture as part of the learning exercise, including issues related to selection, outliers, and potential sources of bias.

[16] During the 2024/2025 academic year, lecture attendance data were available for this module. In the week in which the Instagram Story and in-lecture questionnaire were released ahead of the regression lecture, observed attendance was more than 10% higher than the average attendance in surrounding weeks. While this descriptive pattern cannot be attributed causally to the Instagram activity, the timing is consistent with increased student interest around the associated teaching intervention.

[17] This case study *Edgeworth Box: A Culinary Experience* and others linked to the Instagram Account can be accessed through the website of resources freely accessible and available to the students.

[18] Another example we used based on a peer review article was a post about selling a used car in the second-hand market to explain the concept of adverse selection. This post introduced the basic idea in a relatable way and then linked to George Akerlof's (1970) foundational paper, *The Market for 'Lemons': Quality Uncertainty and the Market Mechanism.* The post received 866 unique views and was later discussed in class in relation to information asymmetries in economics.

[19] The average final mark for each course was calculated. Marks are given over 100. The average mark for Module 1 academic year 22/23 was 65.96, and for the academic year 23/24 was 69.94. The average mark for Module 2 academic year 22/23 was 58.22, and for the academic year 23/24 was 60.68. The average mark for Module 3 academic year 22/23 was 58.55, and for the academic year 23/24 was 63.30. The average mark for Module 4 academic year 22/23 was 59.6, and for the academic year 23/24 was 65.64.

[20] A total of 1,478 unique students were enrolled across the modules where the Instagram account was used (see endnote 10). Of these, 121 students completed the pre-exposure questionnaire (see endnote 7), and 81 responded to the post-exposure questionnaire. While this represents a modest proportion of the total student body, these rates are typical for voluntary and anonymous educational surveys not linked to module assessment or incentives (Nulty, 2008; Porter and Whitcomb, 2005). Despite the lower response rates, the post-exposure responses offer useful qualitative and descriptive insights into students' perceptions of the initiative. More broadly, recent work has highlighted declining levels of student participation in optional course activities and lecture attendance in UK and international higher education contexts (e.g., Credé et al, 2010; Macfarlane, 2022), which aligns with the lower uptake observed here.

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Appendices: Supplementary appendices containing additional figures, tables, and robustness checks are available from the authors upon request.

Tables (with captions)

Table 1: OLS Student Satisfaction, Research Intensity, and Research Quality

VARIABLES	All Subjects Student Satisfaction	All Subjects Student Satisfaction	Economics Only Student Satisfaction	Economics Only Student Satisfaction
Research Intensity	-0.0677***		-0.276***	
	(0.00526)		(0.0139)	
Research Quality		0.0191***		-0.0102**
		(0.00173)		(0.00441)
Year Fixed Effects	YES	YES	YES	YES
Subject Fixed Effects	YES	YES		
Constant	4.079***	3.998***	4.147***	4.050***
	(0.0106)	(0.0111)	(0.0276)	(0.0277)
Observations	17,373	66,228	3,188	11,065
R-Squared	0.130	0.271	0.132	0.169

Notes: (1) Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. (2) The dependent variable is the student satisfaction for subject *j* and year *t*. (3) Column 1 and 2 considers all the subjects, and columns 3 and 4 are the results for the economics subject area.

Table 2: OLS and Probit Regression Results

VARIABLES	(1) OLS Percentile Rank	(2) OLS Percentile Rank	(3) Probit Grade Below 40	(4) Probit Grade Below 40	(5) Probit Grade Above Average	(6) Probit Grade Above Average
Follower	-0.122***	-0.0934***	-0.0293***	-0.0139*	0.164***	0.131***
	(0.0179)	(0.0188)	(0.00676)	(0.00751)	(0.0288)	(0.0320)
Number of Interactions	-0.00202	-0.00450	-0.00405***	-0.00544***	0.00859	0.00554
	(0.00726)	(0.00940)	(0.00124)	(0.00184)	(0.0108)	(0.0144)
Past Percentile Rank		0.428***		0.131***		-0.586***
		(0.0243)		(0.0215)		(0.0420)
Constant	0.523***	0.294***	0.0488***	-0.0138	0.631***	0.952***
	(0.0183)	(0.0216)	(0.0144)	(0.0135)	(0.0301)	(0.0353)
Subject Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Robust S.E.	YES	YES	YES	YES	YES	YES
Observations	1,736	1,383	1,736	1,383	1,736	1,383
R-Squared	0.028	0.210	0.016	0.064	0.027	0.144

Notes: (1) Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. (2) The dependent variable in Columns 1 and 2 is the percentile rank of student *i* in course *j*. The dependent variable in columns 3 and 4 is a categorical variable, which takes value 1 if the final mark of a student is less than 40, and 0 otherwise. The dependent variable in columns 5 and 6 is a categorical variable, which takes value 1 if the final mark of a student is above the average mark in the subject and 0 otherwise. (2) Columns 2, 4, and 6 include the control of students' past performance in related courses. This augmentation results in a smaller sample size in columns 2, 4, and 6, as past-performance data were not available for students taking Module 1 via a particular degree programme, and these students are therefore excluded when the prior-performance control is included. (3) For columns 3 to 6 the table reports average marginal effects from probit regressions.

Table 3: OLS and Probit Regression Results. SLDs Students

VARIABLES	(1) OLS Percentile Rank	(2) OLS Percentile Rank	(3) Probit Grade Below 40	(4) Probit Grade Below 40	(5) Probit Grade Above Average	(6) Probit Grade Above Average
Follower	-0.116***	-0.0893***	-0.0273***	-0.0123*	0.153***	0.121***
	(0.0186)	(0.0191)	(0.00597)	(0.00647)	(0.0302)	(0.0332)
Number of Interactions	-0.00338	-0.00823	-0.00288***	-0.00384**	0.00995	0.00883
	(0.00736)	(0.00945)	(0.000939)	(0.00150)	(0.0108)	(0.0146)
SLDs	0.127***	0.0530	0.0977**	0.0943**	-0.204***	-0.0907
	(0.0365)	(0.0346)	(0.0402)	(0.0474)	(0.0573)	(0.0608)
SLD*Follower	-0.148*	-0.157*	-0.0888**	-0.106**	0.194*	0.223
	(0.0758)	(0.0946)	(0.0382)	(0.0442)	(0.116)	(0.144)
SLD*Interactions	-0.00124	0.0801	-0.00813	-0.00224	-0.00101	-0.103
	(0.0407)	(0.0561)	(0.00701)	(0.0114)	(0.0581)	(0.0864)
Past Percentile Rank		0.419***		0.125***		-0.567***
		(0.0252)		(0.0208)		(0.0437)
Constant	0.521***	0.303***	0.0557**	-0.0200	0.494***	0.794***
	(0.0317)	(0.0290)	(0.0256)	(0.0237)	(0.0554)	(0.0543)
Subject Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Robust S.E..	YES	YES	YES	YES	YES	YES
Observations	1,684	1,333	1,684	1,333	1,684	1,333
R-Squared	0.038	0.209	0.028	0.077	0.034	0.139

Notes: (1) Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is the final mark of student *i* in subject *j*. (2) The dependent variable in columns 3 and 4 is a categorical variable, which takes value 1 if the final mark of a student is less than 40, and 0 otherwise. The dependent variable in columns 5 and 6 is a categorical variable, which takes value 1 if the final mark of a student is above the average mark in the subject and 0 otherwise. (3) Columns 2, 4, and 6 include the control of students' past performance in related courses. (4) For columns 3 to 6 the table reports average marginal effects from probit regressions. (5) 6% of students are categorised as having an SLD refers to the full administrative dataset of enrolled students (6) The sample size in Table 3 is smaller than in Table 2 due to missing SLD data for a group of students enrolled in Module 1 from a specific degree programme. These students were excluded to ensure comparability and reliability when analysing outcomes by SLD status.

Table 4: Students' Feedback about How the Instagram Account Helped them or their General Opinion.

Opinion	Percentage of students
Creative or Refreshing	77%
Making Concepts Relevant to Real-Life	69%
Approachability or Engagement	69%
Understanding Complex Concepts	62%
I will Share the Content with Friends	54%
Good Opportunity for Feedback	46%

Notes: *N*=81. Post-intervention questionnaire

Figures

Figure 1

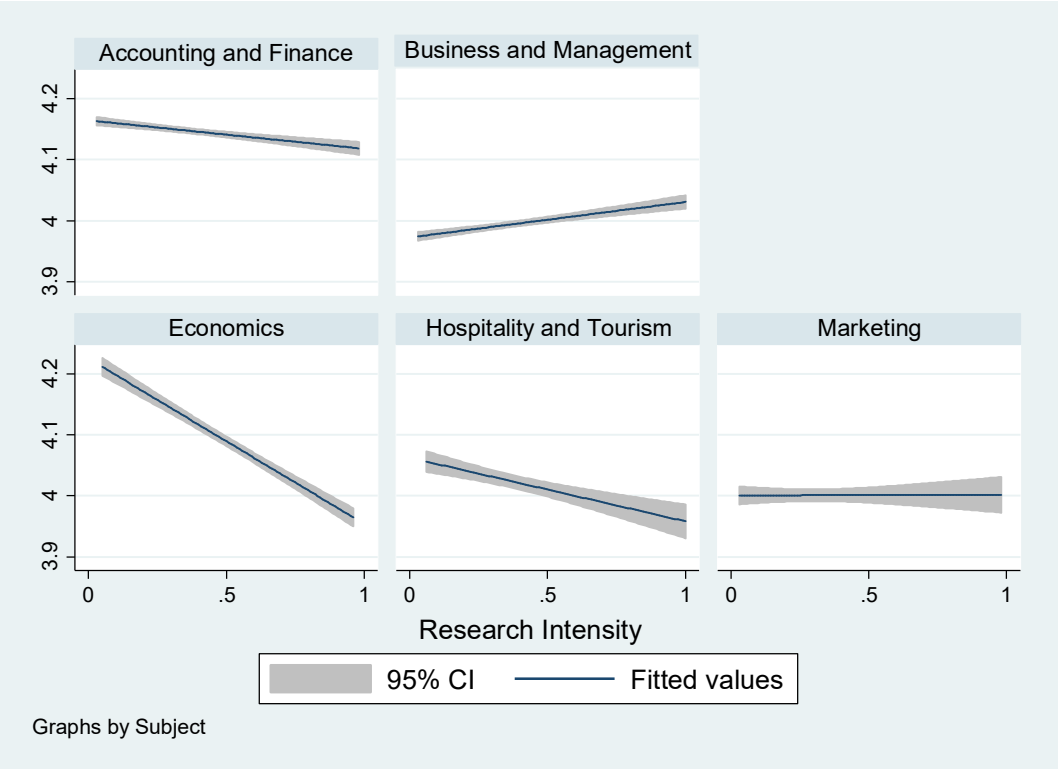


Figure 2

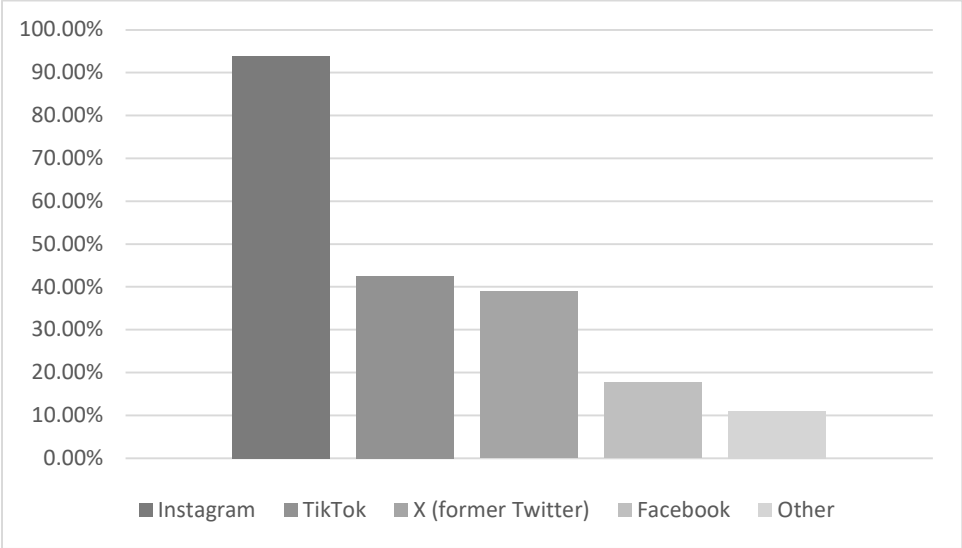


Figure 3

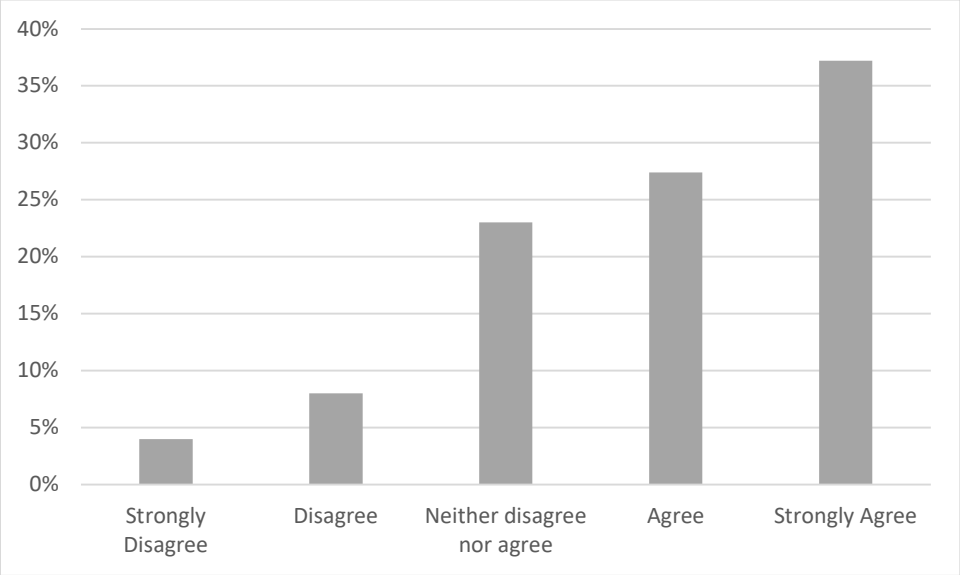


Figure 4

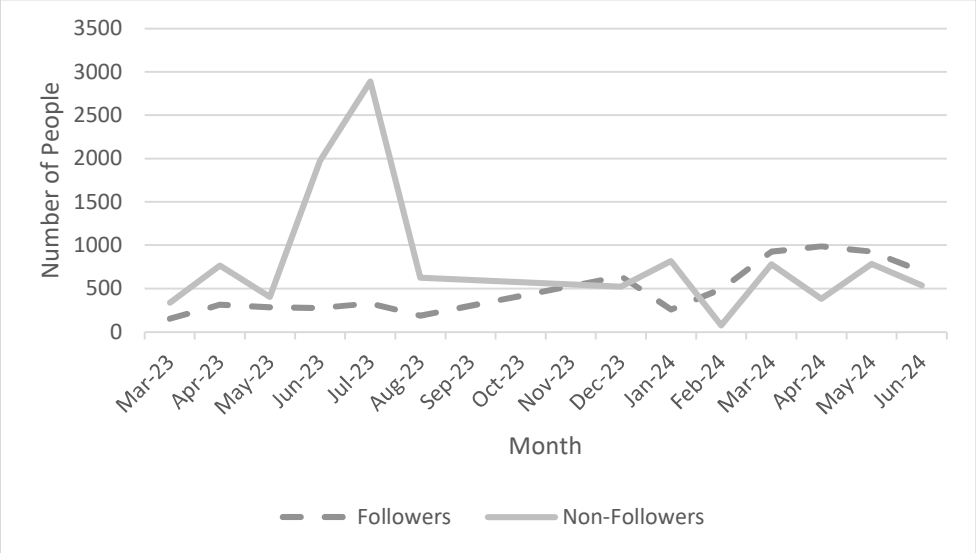


Figure 5

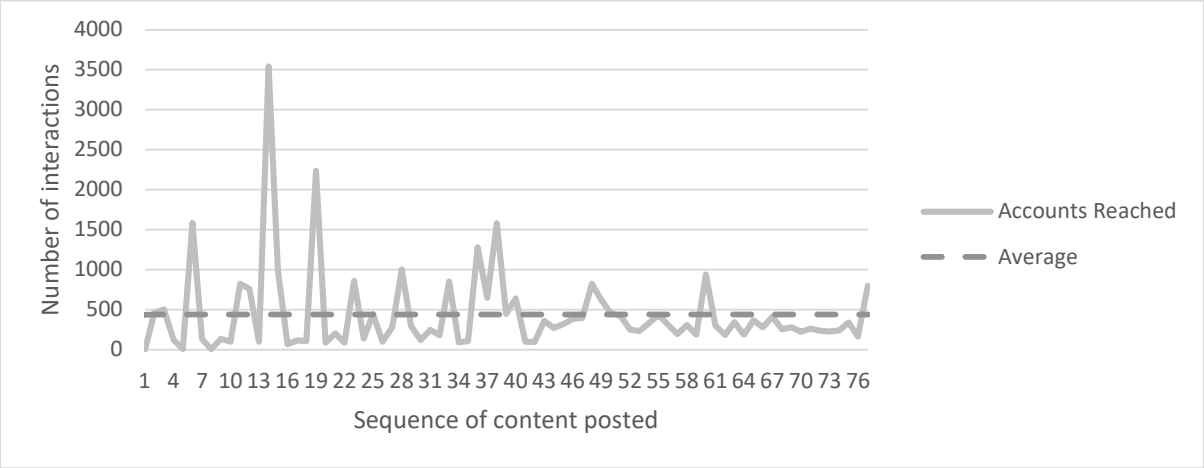


Figure 6

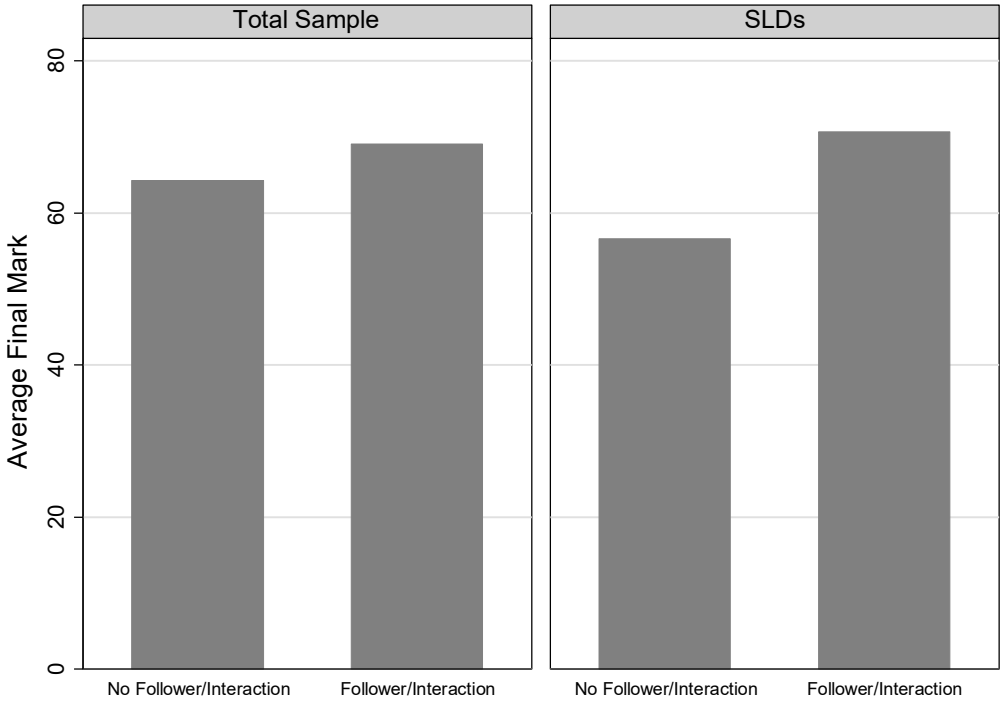


Figure 7

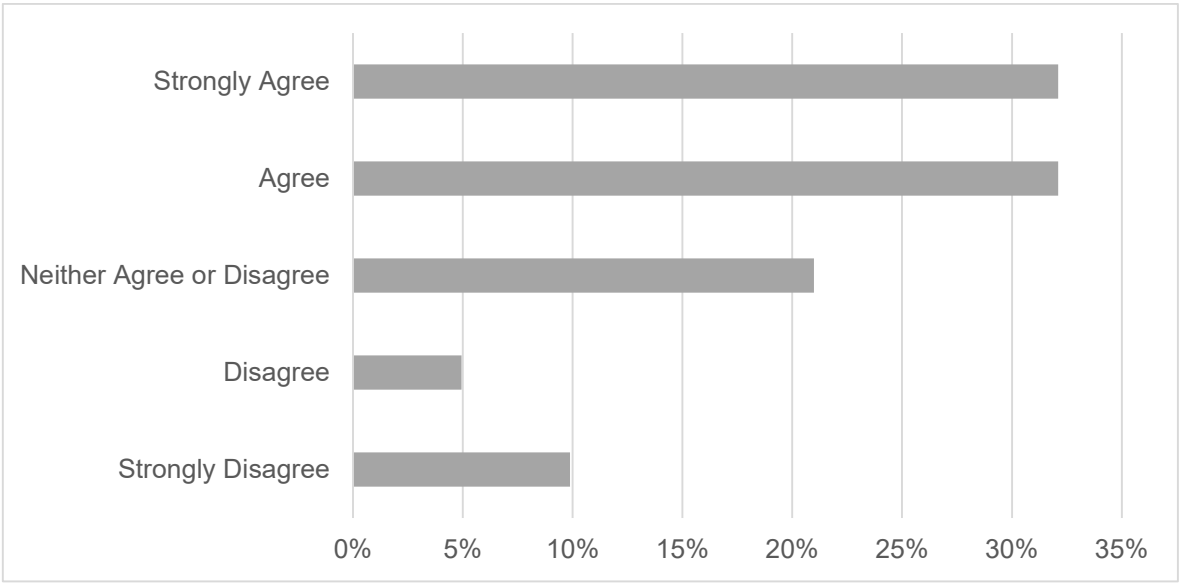
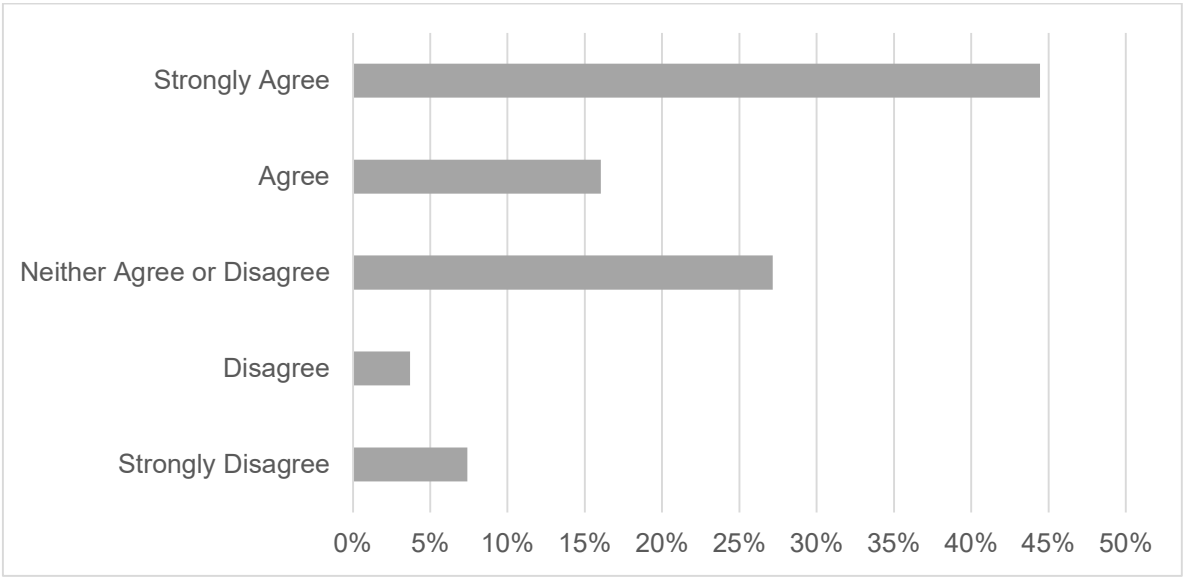


Figure 8



Figures captions

Figure 1: Relationship between student satisfaction and research intensity (2008 to 2021). Notes: (1) The vertical axis measures Student Satisfaction. The horizontal axis measures the Research Intensity as the proportion of staff involved in research within a department. (2) Source: NSS and REF datasets.

Figure 2: Which Social Networks do you regularly use?. Note: (1) $N = 121$. Responses are drawn from a pre-intervention survey administered to undergraduate students enrolled in the

modules in which the Instagram intervention was subsequently implemented. The survey is used to provide descriptive evidence on students' social media use prior to the intervention. (2) Surveys from different sources confirm these results. A Morning consulting survey data collected in 2024 shows that, after YouTube (whose purpose is different compared to the platforms in Figure 2) Instagram is the most widespread social network for all genders (https://later.com/blog/gen-z-social-media-usage/). Other surveys, such as Statista, provide very similar recent data, highlighting YouTube as the most used social platform by Generation Z and Instagram as the second most used.

Figure 3: I regularly use social networks, and I think it is a good idea to complement traditional teaching. Note: *N*=121. Responses are drawn from the pre-intervention survey administered to undergraduate students enrolled in the modules in which the Instagram intervention was subsequently implemented.

Figure 4: Monthly accounts reached by followers and non-followers. Note: Accounts reached are for specific months and are non-cumulative. Data for specific posts is available in Figure 5. Figure 4 shows various levels of engagement even after the lectures and the course have finished. It highlights the popularity of the content among students, particularly from followers, where the engagement is relatively stable.

Figure 5: Specific accounts reached by post. Note: The horizontal axis shows the sequence of content posted which are the posts/reels in a sequential order. On average, each piece of content posted (including unique views if it is a post and unique plays if it is a reel - -video) reaches an average of 441.35 users. Accounts reached for a post or video are cumulative from the time of publication until the day the data was collected; the data was collected one week after posting the content. The peaks correspond to reels/videos, which have been proven to be much more popular. If impressions (not unique views) and replays are included, the average increases to over 800 users per post.

Figure 6: Average Final Mark No followers vs Followers for Total Sample and SLDs. Note: A two-sample t-test shows that among students with a declared Specific Learning Difficulty (SLD), those who follow the account score on average 12.6 points higher than those who do not (p = 0.0008). N = 1,684 students

Figure 7: I found the content in the Instagram account helpful in explaining economic concepts. Note: students were asked to indicate how much they agree with the following

statements regarding the impact of following our Instagram account and their understanding of economics. 64% found that the content in the Instagram account helped them to understand economic concepts. *N*=81

Figure 8: The account helped relate economic concepts to real-world situations. Note: students were asked to indicate how much they agree with the following statements regarding the impact of following our Instagram account and their understanding of economics. 60% found that account helped them to relate economic concepts to real-world situations. *N*=81