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Pragmatic, cautious, reflective: An interpretive typology of students' uses of generative AI in Political Science higher education

Pragmático, cauteloso, reflexivo: Una tipología interpretativa del uso de la IA generativa por parte de los estudiantes en la educación superior de Ciencias Políticas

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Abstract

This chapter examines university students' attitudes toward the pedagogical use of generative artificial intelligence (GAI) in higher education. Drawing on an online survey of 64 Political Science undergraduates enrolled in a public Spanish university, it analyses patterns of use, perceived usefulness, and concerns about the impact of GAI on core academic skills. From these dimensions, the chapter develops an interpretive typology comprising three profiles: pragmatic enthusiasts, cautious sceptics, and intensive reflexives; each associated with distinct attitudes toward the curricular integration of GAI. Pragmatic enthusiasts tend to support selective or frequent use by lecturers; cautious sceptics remain reluctant and emphasise risks; and intensive reflexives combine regular use with conditional acceptance under explicit guidelines. The chapter argues that this internal heterogeneity constrains the definition of legitimate norms of use and shapes the design of teaching strategies aimed at fostering critical AI literacy.

Keywords: generative AI; higher education; Political Science; student perceptions; critical AI literacy, Political Science education.

Resumen

Este capítulo analiza cómo el estudiantado universitario se posiciona ante el uso pedagógico de la inteligencia artificial generativa (IAg) en la educación superior. A partir de una encuesta online a 64 estudiantes de Ciencia Política, se examinan patrones de uso, utilidad percibida y preocupaciones sobre su impacto en habilidades académicas. Con base en estas dimensiones se propone una tipología de tres perfiles: entusiastas pragmáticos, cautos escépticos e intensivos reflexivos, asociados a actitudes diferenciadas hacia su integración curricular. Los resultados muestran una heterogeneidad que condiciona la definición de normas legítimas de uso y orienta estrategias docentes orientadas a desarrollar una alfabetización crítica en IA.

Palabras clave: IA generativa; educación superior; percepciones estudiantiles; enseñanza de la Ciencia Política; alfabetización crítica en IA.

Introducción

The recent expansion of generative artificial intelligence (GAI) in higher education does not simply represent the adoption of yet another technology, but a significant alteration of the cognitive ecosystem in which university learning takes place. GAI tools such as ChatGPT, Copilot or Gemini make it possible to automate tasks that, until very recently, were an inherent part of the formative process (i.e. searching for information, synthesising complex texts, or drafting argumentative outlines). This reconfiguration affects the relationship between effort, process and outcome, and compels a reconsideration of how competencies traditionally associated with students' intellectual work are acquired or externalised.

The emerging literature has tended to frame this issue in binary terms: opportunity versus threat. Several studies highlight the capacity of GAI to support self-regulated learning, personalise explanations or facilitate writing in programmes with high reading loads and substantial written production (Akinwalere & Ivanov, 2022; Nguyen *et al*., 2024). At the same time, concerns have been raised that the excessive delegation of cognitive processes may erode core skills such as independent reasoning, the capacity to evaluate evidence, or the construction of original arguments (Memarian & Doleck, 2023; Mogavi *et al*., 2024; Hernández González *et al*., 2024). However, this dichotomous framework is insufficient because the impact of GAI does not depend solely on what it "enables" or "puts at risk", but on how, when and for what purposes students use it.

In Social Sciences degrees, and particularly in Political Science, this challenge becomes more discernible. Learning abstract concepts such as representation, democracy, accountability, justice, requires interpreting dense texts, comparing arguments and integrating diverse theoretical perspectives. If a substantial part of these operations is

automated, lecturers face a central question: what place does intellectual activity occupy when the intermediate tasks that sustain it can be replaced by a generative system? This dilemma cannot be resolved either through prohibitions or through technological enthusiasm; it requires first understanding what students actually do with these tools.

Available empirical studies reveal a landscape that is less uniform than it is often assumed. Frequency of use, purposes, expectations and concerns vary significantly according to age, study modality and prior experience with digital technologies (Kasneci *et al.*, 2023; Nguyen *et al.*, 2024). In online programmes, a more intensive use is observed, but not necessarily more reflective engagement (Memarian & Doleck, 2023); in face-to-face groups, adoption is more gradual but accompanied by greater reservations regarding academic integrity and intellectual autonomy. These differences suggest that students cannot be treated as a homogeneous collective with respect to GAI; rather, a structural heterogeneity shapes any attempt at regulation or pedagogical integration.

This study is situated within this framework and examines a specific case: a Political Science degree at a public Spanish university that combines face-to-face and online modalities, with markedly different age profiles. Drawing on a questionnaire administered during the 2024–2025 academic year, we examine patterns of use, perceived usefulness, concerns related to intellectual autonomy and attitudes toward the integration of GAI into coursework. On the basis of these dimensions, we develop an interpretive typology composed of three profiles: pragmatic enthusiasts, cautious sceptics and intensive reflexives, which allows for a more precise description of the internal variety of the student body.

The objective of the chapter is twofold. First, to offer an empirically informed account of how students' relationship with GAI unfolds in a degree programme characterised by high reading and writing demands. Second, to argue that this heterogeneity has direct implications for the design of learning activities, the definition of legitimate norms of use and the development of critical AI literacy practices. Although the study is limited to a single undergraduate degree, the typology and the reflections derived from it provide a useful basis for informing teaching decisions in other programmes facing similar tensions between cognitive offloading and the development of analytical competencies.

Generative AI in higher education: theoretical framework and research expectations

The incorporation of generative artificial intelligence (GAI) systems into higher education has transformed the way cognitive load is distributed in academic tasks. Unlike earlier technologies designed primarily to expand access to information or facilitate communication, generative models produce plausible texts, synthesise arguments and offer natural-language solutions to complex problems. This shift toward delegating mental operations to the tool—a phenomenon described as *cognitive offloading* or externalisation—reconfigures traditional processes of reading, analysis and written production in

university settings (Risko & Gilbert, 2016). In this sense, GAI functions not only as a technological resource but as a cognitive mediator capable of intervening in key phases of intellectual work, altering the relationships between effort, process, authorship and outcome (Kasneci *et al.*, 2023; Memarian & Doleck, 2023; Mogavi *et al.,* 2024).

This transformation unfolds within a university context characterised by increasing technological mediation, diversified teaching modalities and heterogeneous student profiles, particularly in degrees with face-to-face and online groups. The coexistence of cohorts with distinct professional trajectories and life paths illustrates how GAI is embedded in broader institutional changes related to how learning is organised, knowledge is validated and academic production is managed (Bleiklie & Byrkjeflot, 2002). In this scenario, GAI operates both as an accelerator of these dynamics and as a site of tension between automation and human intellectual labour.

From the perspective of student engagement, GAI has been shown to alter the cognitive, emotional and behavioural dimensions of student involvement. On the one hand, recent studies indicate that it can enhance perceived autonomy by providing immediate support for organising information, planning tasks or overcoming writing blocks (Lo *et al.*, 2024; Nguyen, Lai & Nguyen, 2024). On the other hand, the use of GAI as a substitute for processes of elaboration, analytical justification or critical evaluation is associated with losses in conceptual depth and the weakening of core competencies in higher education (Memarian & Doleck, 2023; Mogavi *et al.*, 2024). This dual nature (amplification and shortcut) requires shifting the discussion away from a dichotomous framework toward a situated analysis of student practices: what students do with these tools, for what purposes, under what conditions and with what formative implications.

In parallel, the debate on AI literacy has evolved toward a conception of *AI literacy* that integrates the procedural and critical knowledge required to interact with AI systems in an informed and responsible manner. Long and Magerko (2020) argue that these competencies include understanding the limits of the tool, evaluating the quality of responses, recognising biases and justifying decisions about its use. In higher education, this implies developing teaching practices that foster transparency, traceability and critical reflection, especially in disciplines where argumentation and independent analysis are central learning goals (Baidoo-Anu & Owusu-Ansah, 2023; Cotton *et al.*, 2023; UNESCO, 2023). More broadly, recent literature on AI applications in universities has shown that pedagogical effects depend not only on the technical capabilities of the tool but also on institutional integration, assessment criteria and the explicit expectations of instructors (Zawacki-Richter *et al.*, 2023). Consequently, GAI does not operate as a neutral device: its meaning and impact emerge from the interaction between norms, contexts and patterns of use. This underscores the relevance of incorporating the student perspective, as students experience simultaneously the instrumental potential of GAI and the ethical and methodological uncertainties it generates (Hernández González *et al.*, 2024).

Several studies highlight that the patterns described above are not uniform. Purposes of use, perceived usefulness and concerns about autonomy and academic integrity vary systematically among students, giving rise to differentiated orientations toward the technology (Memarian & Doleck, 2023; Mogavi *et al.*, 2024). However, this heterogeneity

has been examined only to a limited extent in specific disciplines such as Political Science and even less so when comparing online and face-to-face modalities. This gap justifies the development of typological approaches that make it possible to organise the internal diversity of students and understand how each profile combines its instrumental practices, expectations and reservations.

Within this framework, the chapter is structured around three overarching questions. First, it asks if students' relationship with GAI adopts differentiated forms that combine frequency of use, perceived usefulness and ethical concerns. Second, it examines the extent to which these combinations can be organised into relatively coherent profiles that reflect the internal heterogeneity of the student body. Third, it investigates whether these profiles are associated with distinct attitudes toward the pedagogical integration of GAI, ranging from more favourable positions to cautious or reluctant orientations. These questions guide the empirical analysis and justify the typological proposal presented in the following sections.

Methodological design

The study adopts an exploratory-descriptive approach aimed at identifying patterns of use, perceptions and attitudes among students toward generative artificial intelligence (GAI) in the Political Science degree of a public Spanish university. The purpose is not to estimate causal effects or produce population-level generalisations, but to understand how the relationship between instrumental practices, evaluations and ethical concerns is articulated within a disciplinary context characterised by high reading demands and substantial written production. The approach is therefore conceived as a way to generate knowledge useful for designing learning activities and for informing teaching policies regarding the use of GAI.

Information was collected through an anonymous online questionnaire administered during the 2024-2025 academic year. The instrument included closed-ended questions and numerical scales from 0 to 10, and was organised into five blocks: (1) frequency of GAI use and which tools were employed; (2) academic purposes of use; (3) perceived usefulness for learning; (4) concerns related to intellectual autonomy, technological dependency and the quality of academic work; and (5) attitudes toward the pedagogical integration of GAI, including expectations regarding the role of lecturers and the degree of regulation considered desirable. Participation was voluntary; respondents were informed about the objectives of the study and the exclusively academic treatment of the data, and no direct identifying information was collected. A total of 64 valid responses were obtained: 34 from face-to-face students and 30 from online students. The mean age was 31.3 years, with marked differences across modalities (approximately 21 years in the face-to-face group and 44 in the online group), reflecting the coexistence of generational cohorts and heterogeneous educational trajectories within the degree. As this is a convenience sample limited to a single programme, the results are interpreted descriptively and contextually, with no claim of generalilzation to the wider university student population.

The analysis combined descriptive statistics (frequencies, percentages and measures of central tendency) with the purpose of creating a classification scheme informed by the theoretical framework. Consequently, we developed a typology of student profiles based on the combination of four dimensions: frequency of GAI use, predominant purposes, perceived usefulness and level of ethical or academic concern. The development of these profiles did not follow an algorithmic classification procedure, but relied on the inductive identification of recurrent configurations that capture the heterogeneity observed. The three resulting profiles, pragmatic enthusiasts, cautious sceptics and intensive reflexives, function as an analytical scheme to organise internal differences among students and to link these with their attitudes toward the pedagogical integration of GAI. This typology constitutes an exploratory tool that guides the interpretation of the results presented in the following section.

Results

The analysis reveals, first, an almost complete normalisation of generative artificial intelligence (GAI) use among students. Of the 64 valid questionnaires, 55 (85.9%) report having used some GAI tool, indicating its consolidated presence in academic routines. Among users, frequency is high: 20% rely on these tools daily and 45.5% several times a week, while only small minorities use them monthly (5.5%) or sporadically. Moreover, the ecosystem of use is strongly concentrated around a single conversational model: ChatGPT registers 53 mentions, far above Copilot (21), Gemini (15) or Deepseek (8). Everyday experience with GAI is thus organised around a reduced and clearly dominant repertoire.

The purposes for which GAI is used confirm a selective yet consolidated adoption. Students employ it mainly for support tasks that facilitate entry into academic work: idea generation (41 mentions), information search (38) and text summarisation (30). Functions associated with final production —such as drafting full essays— are far less common (9 mentions), suggesting that the tool rarely substitutes fully for argumentative work. This pattern is reinforced by students' perceptions of changes in study routines: one third indicate minor changes, while nearly another third report no substantial change or non-use. These data describe widespread use, but concentrated in preliminary phases of intellectual work.

Assessments of usefulness and risk confirm this structural ambivalence. Among users, the mean score for "it has improved my ability to learn and understand the degree contents" is 6.42 (0–10 scale), indicating moderate usefulness. Meanwhile, concern about effects on intellectual autonomy and argumentative capacity is higher (6.98). The coexistence of both dimensions reflects a form of conditional acceptance: GAI is perceived as valuable provided it does not undermine core components of Political Science training (critical reading, source comparison, analytical justification and writing). Among users, the cases where perceived risk equals or exceeds perceived usefulness are the majority.

Attitudes toward pedagogical integration reflect the same prudence. Nearly 60% accept some degree of instructor use, but most prefer selective application (48.4%); only 12.5% support frequent use. Conversely, almost 40% consider integration unnecessary or potentially counterproductive. Evaluations of its impact on teaching quality are moderate (mean 5.39). Perceptions of academic integrity risk are also notable: 54.7% believe GAI may constitute plagiarism depending on use; 14.1% view it clearly as a risk; and 28.1% distinguish legitimate support from problematic substitution. Concerns about dependency and erosion of competencies are high, helping explain why 84.4% consider lecturer training necessary. Unlike polarised public debates, these findings depict students who do not reject GAI but demand clear frameworks and explicit pedagogical mediation.

Based on these dimensions, an interpretive typology of usage profiles was constructed by combining frequency of use, perceived usefulness, level of concern and attitudes toward integration. Three recurrent patterns emerge. Pragmatic enthusiasts use GAI frequently (daily or several times a week), find it highly useful and show low or moderate concern, viewing it as a functional tool that optimises time and effort. Intensive reflexives also use it frequently and value its usefulness but express equally high concern and support integration only under explicit rules. Cautious sceptics use GAI sporadically, report lower usefulness and express high concern, holding more reluctant or critical positions on pedagogical integration. A residual "other profiles" group (43.6% of users) captures intermediate combinations typical of heterogeneous exploratory samples. Among users, intensive reflexives represent 25.5%, pragmatic enthusiasts 18.2% and cautious sceptics 12.7%. In the full sample, these groups account for 21.9%, 15.6% and 10.9% respectively, while non-use reaches 14.1%.

The distribution of profiles also varies by study modality, although without abrupt differences. The online modality shows a relatively larger presence of intensive users: pragmatic enthusiasts and intensive reflexives jointly represent 40% of online students, compared with 35.3% in the face-to-face modality. In the latter, however, the group of intermediate patterns included under "other profiles" is more numerous (47.1% versus 26.7% online), which may indicate less stabilised usage or greater dependence on pedagogical context. Cautious sceptics appear in similar proportions across both modalities (around 9–13%), while non-use is somewhat higher among online students (20.0%) than among face-to-face students (8.8%), consistent with the presence of older students who may intentionally choose not to incorporate GAI into their routines. These trends are compatible with the second expectation.

Table 1 summarises the three main profiles identified from the combination of frequency of use, perceived usefulness, and degree of ethical or academic concern. Its structure reflects the interpretive logic underpinning the typology: what distinguishes each group is not merely the intensity of use but the way each student articulates instrumental benefits and formative reservations. Pragmatic enthusiasts prioritise efficiency and show a moderate level of concern; intensive reflexives, on the other hand, integrate frequent use with strong concerns, forming a profile of "critical acceptance"; cautious sceptics, for their part, represent sporadic practices, low usefulness, and strong ethical or formative reservations.

Table 1. Typology of student profiles according to frequency of use and perceived usefulness of generative AI

	High perceived usefulness	Low perceived usefulness
High frequency of use	Intensive reflective users: Deliberate use, grounded in critical and formative awareness. They value AI as a learning tool, not merely as an efficiency aid.	[Not present in the sample]
Low frequency of use	Pragmatic enthusiasts: They recognise its usefulness, but their use may be mediated by specific tasks or contexts. They consider AI efficient but not essential.	Cautious sceptics: Sporadic or no use; they perceive low usefulness. Ethical reservations and distrust toward AI-mediated learning prevail..

Source: authors' elaboration.

Figure 1 displays the distribution of these profiles by instructional modality among GAI users. Although the differences are not very strong, there is a greater concentration of intensive users (enthusiasts and reflexives) in the online modality, whereas face-to-face students fall more often into the "other profiles" category that captures intermediate patterns. The proportion of cautious sceptics remains stable across modalities. This pattern suggests that modality interacts with trajectories and learning routines, but does not determine usage patterns on its own.
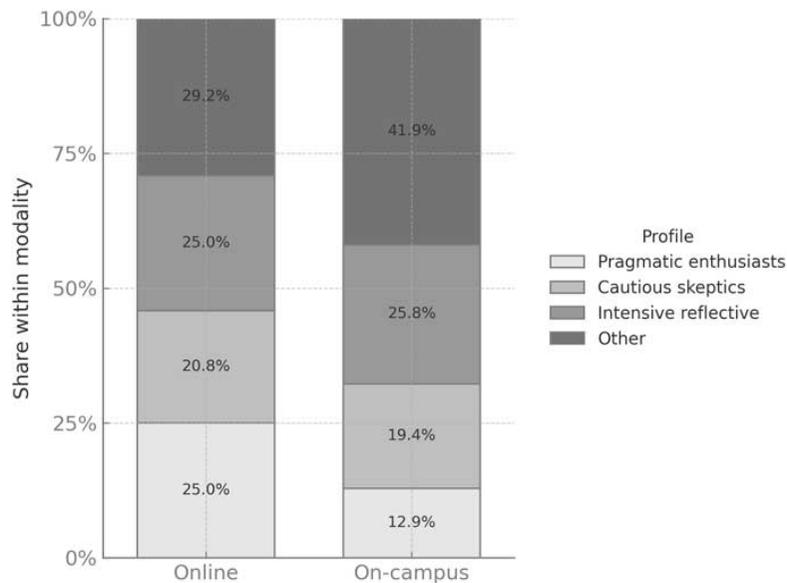

Figure 1. Generative AI usage profiles by study modality. N = 30 (online) and N = 34 (on-campus); percentages calculated over GAI users

Beyond frequency and purposes of use, the typology also allows us to explore how each profile relates to attitudes toward pedagogical integration. Since the introduction of GAI in the classroom depends both on perceived usefulness and on students' normative expectations, it is relevant to examine whether the profiles identified here correspond to distinct positions regarding when, how and under what conditions GAI should be used in teaching. Figure 2 displays this relationship based on the cross-tabulation of typological profiles and categories of attitudes toward pedagogical integration.

In Figure 2, clear associations emerge between usage patterns and attitudes toward integration. Pragmatic enthusiasts constitute the group most favourable to pedagogical use, concentrating the largest proportion of students who support frequent or selective integration. By contrast, cautious sceptics predominantly include those who consider the use of GAI unnecessary or potentially problematic, reflecting consistency between their ethical reservations and their sporadic practices. Intensive reflexives occupy an intermediate position: they use GAI regularly but support its integration only under specific conditions and with clear guidelines for responsible and transparent use. Taken together, these differences confirm that attitudes toward pedagogical incorporation are not homogeneous but depend on how each profile combines instrumental usefulness with ethical sensitivity.
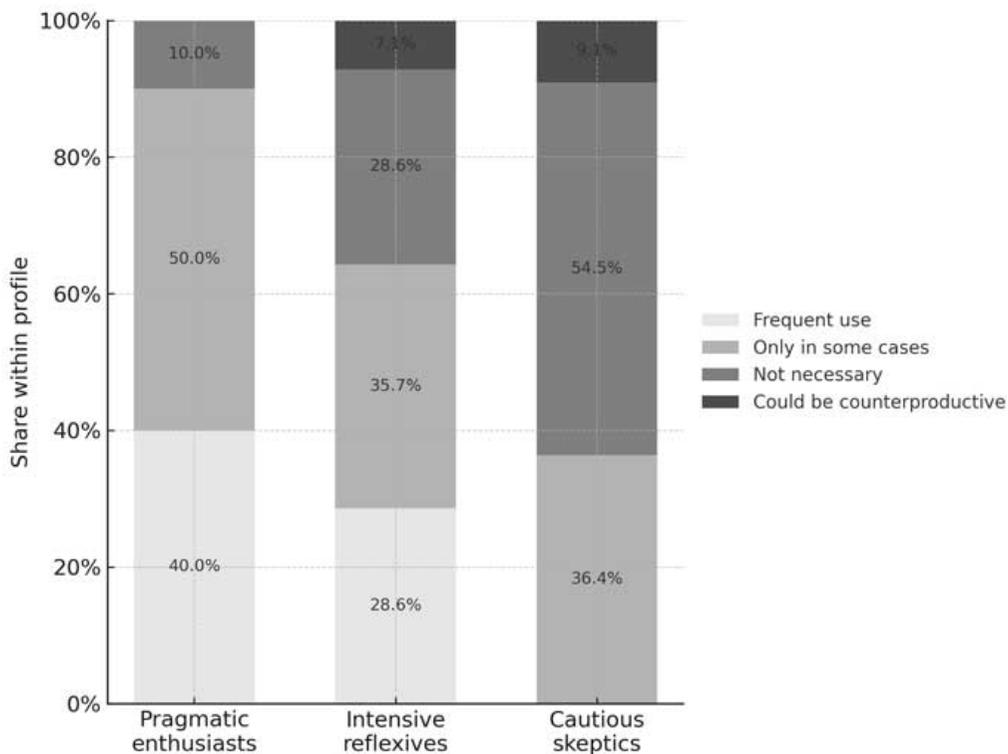

Figure 2. Attitudes toward the pedagogical integration of Generative AI by usage profiles

Conclusions

The study confirms that generative artificial intelligence (GAI) has become significantly integrated into the academic practices of Political Science students, although its use is not free from tensions. Most students resort to these tools as support in the early stages of academic work (idea generation, information search, and text summarisation), rather than as a full substitute for writing or analysis. This pattern reflects a pragmatic form of acceptance: the instrumental usefulness of GAI for organising information and lowering cognitive barriers is recognised, yet substantive concerns persist regarding intellectual autonomy, academic integrity, and the overall quality of learning.

The typology developed, which consists of pragmatic enthusiasts, intensive reflexives, and cautious sceptics, allows us to make visible the internal heterogeneity of the student body and challenges the notion of a single, uniform "type" of AI user. Each profile combines frequency of use, perceived usefulness, and level of concern in a distinct way, implying that pedagogical responses cannot be uniform. This finding is key for informing teaching policies and practices: rather than relying on binary prohibitions or unrestricted permissiveness, it becomes necessary to design differentiated strategies that respond to diverse attitudes and needs. The relationship between profiles and attitudes toward the instructional integration of GAI reinforces this reading. Pragmatic enthusiasts concentrate the most favourable positions toward frequent, or at least selective, instructional use; cautious sceptics cluster most of the views that deem its incorporation unnecessary or potentially counterproductive; and intensive reflexives occupy an intermediate point: they combine habitual use with acceptance that is conditional upon explicit rules and a clear pedagogical framing. Taken together, these patterns indicate that students' preferences regarding the role of instructors are shaped by how each profile articulates instrumental usefulness and ethical sensitivity. This implies that any instructional decision concerning GAI, from usage guidelines to the design of learning activities or assessment criteria, must take this heterogeneity into account, since groups respond differently to the same intervention. From a pedagogical perspective, the findings suggest that GAI should be understood neither as a threat nor as an automatic solution, but rather as an opportunity to renew teaching approaches. Its integration should rely on forms of critical AI literacy that include training on biases, limitations, and the effects of GAI on knowledge construction. This requires shifting the emphasis away from sanction-based control toward assessment models that reward processes, transparency, and reflection on the use of GAI. When incorporated deliberately and under clear regulations, GAI can contribute to strengthening transversal competencies such as analytical thinking, intellectual autonomy, and academic responsibility.

Finally, the limitations of our study must be acknowledged: its exploratory nature, the reduced sample size, and the focus on a single degree programme constrain generalisation. The proposed typology constitutes an initial approximation that calls for validation through statistical analysis and comparative research. For future studies, the findings suggest expanding the investigation to other programmes and universities, incorporating longitudinal designs, and triangulating with qualitative evidence to better understand how usage profiles evolve and how they shape learning in higher education.

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