

Digital Transformation and Global Inequality in Higher Education: An Intersectional Morocco–China Comparative Study

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ABSTRACT

Higher education is currently undergoing major changes due to digital transformation despite the different levels of implementation across social and institutional contexts. This paper investigates how digital transformation connects to finance, institutional communication, and academic diplomacy using a comparative approach based on two cases of study: Hassan II University of Casablanca, Morocco and the Central University of Finance and Economics (CUFE) in People's Republic of China. From an intersectional political-economy perspective, the research aims to assess how institutional differences impact both participation and access to digitally mediated higher education. Using a mixed-methods design, combining surveys and interviews, the findings demonstrate that digital transformation does not lead to reduced inequality; rather, its outcomes are affected by the interaction of political economy, funding structures, institutional capacity, and the complexity of the lived experience of students and faculty.

Keywords: digital transformation, financial governance, higher education, intersectionality, institutional capacity

INTRODUCTION

Globally, digital transformation is being implemented in higher education systems and transforming the learning experience. Most research has identified digital technologies as tools for increasing access to education and enhancing engagement in the academic environment; however, that benefit is not evenly distributed. Gillwald and Partridge (2022) note that people may have different levels of internet access according to their geographical location and social group (p. 3). Thus, higher education systems operate within different political and economic configurations that shape access to resources, infrastructure, and technological capacity. These conditions equally impact the financial governance structures which ultimately determine whether or not there is funding for sustainable digital initiatives.

The experience of digital transformation is linked to structural dynamics and broader social inequalities. The interplay of these factors can be interpreted through intersectionality as a way of understanding how these differences are produced. Intersectional inequality can be defined as inequality that occurs at the intersection of two or more salient social dimensions (Meili et al., 2025, p. 1). It is, therefore, produced through the intersection of multiple dimensions rather than isolated factors. Consequently, these dimensions are the outcome of the power dynamics shaping a particular learning environment. This paper argues that digital transformation in higher education is not simply a technological change but a socio-institutional process whose outcomes are shaped by the interaction of political economy, financial governance, institutional capacity, and the social positions of those expected to benefit from it. The paper proceeds as follows: it first reviews the relevant theoretical frameworks across political economy, financial governance, and institutional capacity; it then situates Morocco and China as comparative contexts; it presents the mixed-methods methodology and empirical findings; and it concludes with a discussion of the implications for policy and research.

According to Bartolic et al. (2020), “not all students are equally situated when it comes to thriving in these newer online learning environments” (p. 3). Their ability to benefit from digital learning depends on factors such as socioeconomic background, environment and digital literacy. Although research on digital transformation in higher education has grown rapidly, much of the literature still

tends to focus either on technological adoption or on governance within a single national setting. Far fewer studies bring together political economy, financial governance, institutional capacity, and intersectionality within one analytical framework. Comparative studies across different structured higher education systems also remain limited. Such comparisons are essential for understanding how global structures influence both the trajectory of digital transformation as well as the associated inequalities.

To address this gap, this research compares Hassan II University of Casablanca in Morocco and the Central University of Finance and Economics (CUFE) in China. These two contexts offer a large contrast. The comparison brings together four analytical dimensions that are often treated separately in the literature: political economy, financial governance, institutional capacity, and intersectionality. The paper contributes to the existing research in three ways. First, it presents a comparative analysis of two higher education systems, situated in different parts of the global knowledge economy. Second, it identifies diverse factors that impact digital transformation beyond technological adoption: funding stability, institutional coordination, and governance capacity. Third, it illustrates how digitalisation can broaden access while simultaneously reproducing inequalities depending on the social and institutional context in which it is experienced.

These contributions matter because the field has tended to treat digital transformation either as a technological problem requiring infrastructure solutions, or as a governance problem requiring policy reform, rarely as both simultaneously, and rarely in a comparative framework that cuts across the global North–South divide. By situating Morocco and China within a shared analytical framework, this study challenges the assumption that more technology straightforwardly means more equity, and shows instead that the same digital tools produce different outcomes depending on the structural conditions in which they are embedded. This has direct implications for international development agendas, institutional strategy, and the design of equity-focused digital policies in higher education systems at different stages of development. More broadly, it suggests that the concept of digital transformation needs to be theorised differently depending on structural context. The framework developed here offers a transferable analytical template for future comparative research across other semi-peripheral and peripheral higher education systems. Theoretically, the findings speak to a broader debate in world-systems and institutional theory about whether digital technology functions as a converging force that narrows the gap between core and peripheral knowledge economies, or as a stratifying one that reproduces existing hierarchies in new technological form; the evidence here favors the latter interpretation, at least in the absence of deliberate redistributive governance. For policy, this implies that international funders and national governments should treat investment in digital infrastructure and investment in institutional governance capacity as

inseparable conditions for equitable outcomes, rather than sequencing the former ahead of the latter.

LITERATURE REVIEW

Political Economy, Digital Transformation, and Global Inequality in Higher Education

Through a political economy perspective, digital transformation in higher education is affected by state power, global hierarchy, and concentration of capital rather than being a simple technological upgrade. World-systems theory helps understand how research systems, financial resources and technological capacity are used to the advantage of core institutions, as opposed to the peripheral and semi-peripheral systems, which are subject to significant structural restrictions (Wallerstein, 1974, 2004). In this regard, a university's digital transformation is related to its position in the global knowledge economy and not only to local reforms. Performance metrics and rankings reinforce the advantages and boost the reputations of those already well positioned (Hazelkorn, 2015; Pusser & Marginson, 2013; Castells, 1996; Zapp & Ramirez, 2019).

At the national level, developmental state theory and academic capitalism research shed light on the fact that digital transformations take on diverse systematic forms, ranging from strong public coordination, long-term planning and investment, resulting in a more coordinated, strategic approach than that driven by market pressure (Evans, 1995; Slaughter & Rhoades, 2004; Amsden, 2001). These efforts are more effective when they are developed in a context of regulatory stability, institutional integration and ongoing commitment, rather than through isolated technological solutions (Evans & Rauch, 1999; Hinings et al., 2018; Mergel et al., 2019). From this perspective, the digital transformation should not be understood as a uniform shift affecting all institutions, but as an uneven process, conditioned by differences of context, capacity and power. These macro-structural dynamics set the conditions within which financial governance operates, determining which institutions can access sustained investment and which cannot, as the following section examines.

Financial Governance, Digital Transformation, and Global Inequality in Higher Education

In higher education, digital transformation depends on ongoing investment, steady funding, and strong accountability systems. Research in public financial management shows that when fiscal predictability is poor, the digital revolution often stays superficial instead of becoming systemic, resulting in 'isomorphic mimicry' or a 'capability trap' (Schick, 1998; Allen et al., 2013; Andrews et al.,

2017; Kattel & Mazzucato, 2018). Performance-based allocation and competitive steering are funding models that shape inequality, to the benefit of institutions with larger endowments, as they allocate more resources to digital platforms for the stronger institutions while the weaker institutions struggle with digital quality (Johnstone, 2004; Jongbloed & Vossensteyn, 2016; de Boer et al., 2007; Boliver, 2015). Universities' access to public funding, tuition revenue, and grants therefore impacts their ability to develop their digital infrastructures. New Public Management logics equate investment with competition and audit rather than inclusion and this intensifies pressures resulting from procurement failures (Hood, 1991; Jensen & Meckling, 1976; Eisenhardt, 1989; Mergel et al., 2019; Selwyn, 2021; Assefa et al., 2025). Financial governance links macro political economy to institutional digital capabilities. Allocation mechanisms, funding stability, and accountability frameworks shape whether digital transformation acts as an equalizing force or as a stratifying force by embedding technological advantage in already affluent institutions. Whether those financial conditions translate into meaningful and equitable digital change ultimately depends on institutional capacity.

Institutional Capacity, Digital Transformation, and Global Inequality in Higher Education

The success of technology-based educational reforms is determined by institutional support, infrastructure and governance abilities, qualified teachers, and long-term strategic planning. In this regard, the Inter-American Development Bank states that programs using technology require “five enabling conditions: digital devices, meaningful educational connectivity, digital resources and platforms, teachers’ digital and pedagogical competencies, and governance” (Arias Ortiz et al., 2025, p. 44). These enabling conditions “cannot operate independently, but must instead interact,” which means that digital transformation depends on coordinated institutional capacity rather than isolated technological investment (Arias Ortiz et al., 2025, p. 56). This transformation in education must therefore be understood as an institutional and policy process, not merely as the diffusion of digital tools.

While political economy determines macro-structural conditions and financial governance determines resource allocation frameworks, it is institutional capacity that ultimately determines whether digital transformation will be systemic, sustainable and equitable (Evans, 1995; Fukuyama, 2013). Institutional capacity operates as the operational mediator between financial governance and digital inequality outcomes. Institutions do not respond to change in the same way. Absorptive capacity is equally crucial, given the variation in universities’ ability to identify and exploit new knowledge through professional development and internal learning systems (Cohen & Levinthal, 1990; Lo & Tian, 2020; Bond et al.,

2018). While digital structures are installed as a result of coercive, mimetic or normative pressures, the formal adoption of digital technology does not necessarily translate into meaningful implementation (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). The COVID-19 transition is one example where claims of digital readiness often hid poor coordination and limited governance capacity (Czerniewicz et al., 2020; Watermeyer et al., 2021). The maturity of governance is therefore a precondition for effective digital transformation. These macro-structural and governance conditions play out differently in the two institutional contexts examined in this study.

China and Morocco as Comparative Contexts of Digital Transformation and Global Inequality in Higher Education

China and Morocco occupy different positions in the global knowledge economy and demonstrate how digital transformation can mirror and reproduce inequality (Altbach, 2016; Komljenovic, 2021). China exemplifies a state-coordinated, high investment model that is aimed at modernization and research competitiveness, while Morocco exemplifies a reform-oriented, but more resource-constrained trajectory with uneven institutional capacity and unequal student conditions.

Integrating the intersectional approach in the comparative study of Morocco and China allows the study to explore the relationship between digital transformation and the unequal experiences of the two systems, rather than simply comparing national policy differences. Annamma & Booker (2020) argue that diversity is a lens to understand learning environments and power relations (p. 3). In this sense, the intersectional approach enables the study to link macro-level political economy structures and financial governance arrangements with the differentiated experiences of students and academic institutions operating within digitally transforming higher education systems.

The digital transformation of higher education in China is part of a broad developmental-state approach, with higher education and technological development being closely linked to each other and to the state's modernisation project. Universities are positioned as strategic actors contributing to the state's competitiveness and production of knowledge. This framing offers a perspective to understand the digitalisation of higher education as linked to major national initiatives, such as Education Informatization 2.0 and the National Educational Digitalization Strategic Initiative launched in 2022, which have contributed to the improvement of digital infrastructure and to the expansion of data-driven governance across the sector. These dynamics have been made more prominent during the COVID-19 pandemic period, with China's "Suspending Classes Without Stopping Learning" policy exemplifying the benefits of centralised coordination, while the case of Peking University exemplifies how pre-existing

digital readiness investment has enabled institutions to adapt more smoothly to the transition. That said, China's digital transformation is indeed part of a larger plan for modernization led by the state. However, China's progress has not removed inequality, as disparities in infrastructure and institutional capacity across regions and elite universities continue to have considerable advantages over regional institutions in funding, partnerships and digital systems (Bickenbach & Liu, 2013; Mok & Jiang, 2018; Williamson, 2017; Komljenovic, 2021). China therefore shows how strong state capacity can expand digital access while still reproducing hierarchy.

Morocco's trajectory however, is different. Its higher education digitalization agenda has been driven by reform ambition and modernization goals, but without the same fiscal depth or institutional consolidation. Policy frameworks such as Maroc Digital 2020, the New Development Model, and PACTE ESRI 2030 present digitalization as a lever for governance improvement, research development, and employability. However, progress at the level of Moroccan universities remains uneven considering the varied levels of institutional readiness, governance coordination, infrastructure and pedagogical preparation (Bamarouf & Laiachi, 2024; Babou et al., 2022; Kerroum et al., 2020; Jebbour, 2022; Benlhabib & Berrado, 2024). The main challenge is not only the adoption of digital tools, but the creation of institutional and governance capacity to effectively use them.

Financial governance deepens this contrast. China's long-term public investment and strategic concentration of resources through initiatives such as Project 211, Project 985, and the Double First-Class plan gave leading universities a stronger base for digital learning systems, research infrastructure, and smart campus development (Li et al., 2014; Zong & Zhang, 2019; Dong et al., 2025; Zhang, 2025). On the other hand, Morocco is more constrained in terms of fiscal space and has less capacity for massive digital investment (El Ferouali & Ouhadi, 2024). Also, despite strong support from the Higher Education Reform Support Program, the project-based funding and strict procurement rules may lead to a lack of continuity and long-term execution (Nokhaili & Ait Lemqeddem, 2025). Thus, institutional capacity is important in both contexts. In both cases, digital transformation does not lead automatically to less inequality. These results are dependent on systems' ability to harness governance, resources and institutional coordination to generate inclusive and effective digital change (Williamson et al., 2020; Komljenovic, 2021; Selwyn, 2021). Such insights inform the empirical analysis that follows on Hassan II University of Casablanca and Central University of Finance and Economics.

RESEARCH METHOD

This research adopts a comparative mixed-methods approach to explore how the political economy structures, financial governance arrangements, institutional capacity, and intersectional inequalities influence the digital transformation in higher education. The research compares two contrasting higher education systems: Morocco and China.

Research Variable

Digital transformation outcomes form the dependent variable in this research. There are two main independent variables: political economy structures and financial governance arrangements. Institutional capacity is a mediating variable in the translation of structural factors into digital transformation outcomes. Intersectional inequality is also a conditioning variable that shapes the diverse experiences and struggles of individuals and institutional groups with digital transformation. These variables are operationalized through survey indicators measuring access, support, participation, and institutional digital infrastructure.

Participants

With regard to the Moroccan context, the study takes place in Hassan II University of Casablanca. The empirical information was collected by means of a digital survey instrument that was distributed to members of the campus community using Google Forms. The survey targeted two categories of respondents: students and professors. The sampling method used in this research study was purposive sampling since it sought to select the individuals who were involved in digitally mediated education. The convenience sampling technique was equally adopted because of the use of an online questionnaire. In total, the survey included 110 student respondents and 18 professor respondents, resulting in a sample of 128 participants. This approach guarantees respondents have direct experience of digital transformation and their input is relevant to the aims of the study.

To compare the findings of this study, a second survey was conducted through the Wenjuanxing (问卷星) platform for respondents who belong to higher educational institutions in China. The Chinese sample included 118 students and 51 professors from the Central University of Finance and Economics, Beijing; 中央财经大学 (北京) (CUFE-Beijing). The study follows the same purposive sampling strategy, targeting students and faculty members actively engaged in digitally mediated teaching and learning, while also incorporating elements of convenience sampling through online distribution via WeChat (微信). Students participating in this empirical study include Chinese individuals and international

students at different stages of their studies. The selection was made to ensure diversity of responses. Their responses provide valuable empirical evidence of how digital transformation plays out in a highly coordinated higher education system.

Data Collection

The study relies on two primary sources of empirical evidence: questionnaire surveys and qualitative interviews.

For Morocco, survey questionnaires were conducted online via Google Forms and in China via Wenjuanxing (问卷星) platform. The questionnaires were designed to tap into the perceptions and experiences of Moroccan and Chinese respondents across some key dimensions of digital transformation such as access to digital infrastructure, online learning platforms and digital competencies. The survey included both closed-ended and scaled questions to allow respondents to evaluate different aspects of digital transformation within their institutional contexts.

The study also adopts semi-structured interviews. In the Moroccan context, a total of 38 interviews were conducted, including 31 students and 7 professors. In the Chinese context, 13 interviews were held with selected participants, specifically students and faculty members from the Central University of Finance and Economics. This qualitative method allows the study to explore the respondents' academic backgrounds, previous experiences with technology, and the institutional structure surrounding them. The interviews were designed to explore key dimensions related to institutional capacity, financial governance, and the broader context in which digital transformation takes place. They seek to better understand the intersectional dimensions of digital transformation, such as how different categories of students and faculty members experience digital learning environments differently, depending on their technological access, institutional resources and academic trajectories. Interviews were conducted in person within classroom environments with students and faculty, via telephone with professors in Morocco, and through videoconferencing for participants located in China. They were conducted in English or French, depending on participants' preference, and typically lasted between five and ten minutes depending on participants' availability. As participants did not wish to be audio-recorded, handwritten notes were taken throughout each interview. Interview participants were drawn from the larger survey sample and took part on a voluntary basis.

Data Analysis

Survey data were analyzed using descriptive statistical methods (frequencies and percentages) in SPSS in order to identify patterns in respondents' perceptions of digital transformation. A comparative approach was adopted to explore the

differences between the Moroccan and Chinese contexts, particularly in terms of access, institutional support, and digital engagement. The qualitative interviews were analysed using an inductive thematic analysis approach, broadly following Braun and Clarke's (2006) six-phase framework. Interview notes were manually reviewed and coded by the author in a working document, with no second coder involved; themes were therefore generated and refined iteratively through repeated review of the material rather than verified through inter-rater coding. Common themes emerged, including digital infrastructure, institutional support, the use of AI tools and intersectional inequalities (Gimpel et al., 2025; Sun & Deng, 2025). These themes were interpreted in light of the study's analytical framework. This approach facilitated the identification of recurring themes in participants' experiences across different contexts. This combined approach makes it possible not only to describe patterns but also to interpret how institutional and structural factors influence digital transformation in higher education.

RESULTS

Institutional Digital Infrastructure, Support, and Training

Findings reveal a cross-country pattern: the Chinese higher education context appears to offer a more consolidated and better supported digital environment than the Moroccan one. This tendency is visible among both students and professors.

On the student side, Chinese respondents reported significantly more positive evaluations across all three dimensions: platform effectiveness, infrastructure adequacy, and institutional investment in digital transformation (see Table 1). All differences were highly significant ($p < .001$), with the strongest effects appearing for infrastructure and investment. Institutional encouragement of AI use also differed significantly, though with a smaller effect size.

In China, digital learning seems to operate within a more formalized ecosystem, with strong reliance on platforms such as Chaoxing and a wider institutional digital environment. In Morocco, students appear to rely more on practical tools such as Google Meet, websites, and social media, while Moodle does not appear as a meaningful platform in the student data. The interview material supports this contrast. Interviews with Moroccan students often linked digital learning to weak support and difficult study conditions, calling for more guidance in the use of digital platforms and even "somewhere to study without noise." Chinese students, by contrast, described a system where digital resources were already part of normal academic life, highlighting advantages such as "data availability and digital library" and the usefulness of "recorded lectures... especially before exams," while also pointing to the need for greater coordination and simplification across existing systems.

Table 1: *Cross-country comparison of institutional digital infrastructure, support, and training*

	Indicator	China	Morocco	Key test statistics
Students	Platform effectiveness	Mean rank = 131.66	Mean rank = 66.38	$U = 1879.000, Z = -8.529,$ $p < .001$
Students	Infrastructure adequacy	Mean rank = 141.51	Mean rank = 80.21	$U = 2831.000, Z = -8.002,$ $p < .001$
Students	Institutional investment in digital transformation	Mean rank = 142.03	Mean rank = 79.62	$U = 2769.000, Z = -8.270,$ $p < .001$
Students	Institutional encouragement of AI use	Mean rank = 124.05	Mean rank = 99.64	$U = 4891.000, Z = -3.045,$ $p = .002$
Professors	Official e-learning platform available	96.1% Yes	44.4% Yes	$\chi^2(2) = 25.554, p < .001,$ $V = .609$
Professors	Institutional access to the platform	98.0% Yes	50.0% Yes	$\chi^2(1) = 24.776, p < .001,$ $V = .599$
Professors	Received training in digital pedagogy / online teaching	94.1%	33.3%	$\chi^2(1) = 28.893, p < .001,$ $V = .647$
Professors	Received AI-related training	92.2%	0.0%	$\chi^2(1) = 52.027, p < .001,$ $V = .868$
Professors	Training sufficiency	Mean rank = 37.29	Mean rank = 11.65	$U = 60.500, Z = -4.909,$ $p < .001$
Professors	University support for digital tools	Mean rank = 42.18	Mean rank = 14.67	$U = 93.000, Z = -5.770,$ $p < .001$
Professors	University investment in digital transformation	Mean rank = 42.84	Mean rank = 12.78	$U = 59.000, Z = -6.537,$ $p < .001$
Professors	Infrastructure quality	Mean rank = 42.87	Mean rank = 12.69	$U = 57.500, Z = -6.041,$ $p < .001$
Professors	Lack of funding limits digital development	Mean rank = 36.18	Mean rank = 31.67	$U = 399.000, Z = -0.929,$ $p = .353$

The professor data reinforce this interpretation even more strongly. Chinese professors were much more likely to report the existence of an official e-learning platform (96.1% vs. 44.4%; $\chi^2(2, N = 69) = 25.554, p < .001, V = .609$) and institutional access to that platform (98.0% vs. 50.0%; $\chi^2(1, N = 69) = 24.776, p < .001, V = .599$). They were also far more likely to have received training in digital pedagogy / online teaching (94.1% vs. 33.3%; $\chi^2(1, N = 69) = 28.893, p < .001; V = .647$) and especially AI-related training (92.2% vs. 0.0%; $\chi^2(1, N = 69) = 52.027, p < .001; V = .868$). These are some of the strongest contrasts in the whole theme.

The evaluative indicators point in the same direction. Chinese professors rated training sufficiency (37.29 vs. 11.65; $U = 60.500, Z = -4.909, p < .001$), support for digital tools (42.18 vs. 14.67; $U = 93.000, Z = -5.770, p < .001$), institutional investment (42.84 vs. 12.78; $U = 59.000, Z = -6.537, p < .001$), and infrastructure quality (42.87 vs. 12.69; $U = 57.500, Z = -6.041, p < .001$) much more positively than Moroccan professors. The only indicator that did not differ significantly was perceived funding limitation ($U = 399.000, Z = -0.929, p = .353$), suggesting that

financial pressure remains visible in both systems. The interview evidence again gives this pattern more depth. Moroccan professors stressed lack of training, bureaucracy, and insufficient funding for digital teaching activities, whereas Chinese professors spoke less about the absence of tools and more about the need for stronger coordination, better pedagogical integration, and clearer long-term strategy. This suggests that the Moroccan challenge is still one of institutional consolidation, while the Chinese challenge is increasingly one of refinement and system coherence. In Morocco, digitalization is clearly progressing, but it appears more fragile and less evenly embedded in academic practice. This structural difference helps explain why later differences emerge in international engagement and in the distribution of digital benefits.

Digital Internationalization and Global Academic Engagement

Table 2: *Cross-country comparison of digital internationalization and global academic engagement*

	Indicator	China	Morocco	Key test statistics
Students	Participation in international online academic activities	83.9% Yes	29.2% Yes	$\chi^2(1) = 68.485$, $p < .001$, $V = .553$
Students	Digital transformation improved access to global academic opportunities	98.3% Yes	71.7% Yes	$\chi^2(1) = 32.283$, $p < .001$, $V = .380$
Professors	Participation in international digital teaching/research	74.5% Yes	38.9% Yes	$\chi^2(1) = 7.442$, $p = .006$, $V = .328$
Professors	Institution promotes online exchange programmes	94.1% Yes	5.6% Yes	$\chi^2(1) = 50.695$, $p < .001$, $V = .857$
Professors	Institution provides support for digital international collaboration	94.1%	5.6%	$\chi^2(2) = 50.781$, $p < .001$, $V = .858$
Professors	Digital exchange strengthens international visibility	Mean rank = 37.74	Mean rank = 27.25	$U = 319.500$, $Z = -2.319$, $p = .020$
Professors	Online collaboration contributes to soft power/global positioning	Mean rank = 38.88	Mean rank = 24.00	$U = 261.000$, $Z = -3.257$, $p = .001$

These findings shift the analysis from internal digital capacity to the outward-facing academic uses of digital transformation, especially international engagement. Here again, the comparison is clear: digitalization is far more strongly connected to international academic participation in the Chinese context than in the Moroccan one.

Among students, Chinese respondents were much more likely than Moroccan respondents to report participation in international online academic activities (83.9% vs. 29.2%). This difference was highly significant, $\chi^2(1, N = 224) = 68.485$, $p < .001$, and the effect size was strong ($V = .553$). This is one of the most important results in the dataset because it shows that digital infrastructure is not merely

facilitating domestic academic routines; in China, it is also functioning as a gateway to transnational academic engagement.

A similar pattern appeared for perceived access to global academic opportunities. Nearly all Chinese students (98.3%) reported that digital transformation improved such access, compared with 71.7% of Moroccan students. The difference was again highly significant, $\chi^2(1, N = 224) = 32.283, p < .001$, with a moderate effect size ($V = .380$). This suggests that digital transformation is more effectively translated into international opportunity in the Chinese setting. The interview material supports this reading. In Morocco, students linked digital change to global competitiveness and future opportunities, with one interviewee warning that “If higher education doesn’t change we risk losing our chances in the job market and internationally.” In China, students and professors alike described a system where digital tools already open access to resources, exchange, and academic networking, but where stronger coordination and long-term integration are still needed.

The professor results deepen and strengthen this conclusion. Chinese professors were significantly more likely to report participation in international digital teaching or research activities (74.5% vs. 38.9%), $\chi^2(1, N = 69) = 7.442, p = .006, V = .328$. However, the more striking differences concerned the institutional environment surrounding that participation. Chinese professors overwhelmingly reported that their institutions promote online exchange programs (94.1% vs. 5.6%), $\chi^2(1, N = 69) = 50.695, p < .001$, with a very large effect size ($V = .857$). Likewise, they were far more likely to report that their institutions provide support for digital international collaboration, $\chi^2(2, N = 69) = 50.781, p < .001, V = .858$.

These are exceptionally strong effects. They show that the Chinese case is not simply characterized by more international participation at the individual level; it is marked by a much more explicit institutional strategy linking digitalization to international academic engagement. The interview evidence helps clarify the contrast. In Morocco, several professors pointed not only to material constraints but also to institutional resistance, referring to “resistant minds” and a “lack of will.” This suggests that weak digital internationalization is not only a question of resources, but also of institutional culture and leadership. In China, by contrast, respondents did not question the existence or value of digital internationalization itself; instead, they emphasized the need for stronger coordination, better platform integration, and a clearer long-term strategy.

This interpretation is reinforced by the Mann–Whitney comparisons on broader academic perceptions. Chinese professors were more likely to agree that digital exchange strengthens university international visibility (mean ranks: 37.74 vs. 27.25; $U = 319.500, Z = -2.319, p = .020$) and that online academic collaboration contributes to soft power or broader global positioning (mean ranks: 38.88 vs. 24.00; $U = 261.000, Z = -3.257, p = .001$). These results suggest that digital internationalization in China is perceived not merely as a practical tool, but as part

of a wider institutional and academic strategy. In the Chinese case, digitalization appears embedded in a broader model of outward-looking academic development. In Morocco, its international potential is visible and clearly recognized, but it remains less consistently institutionalized and less strongly connected to everyday academic practice.

Intersectional Patterns and Unequal Digital Benefits

Table 3: *Comparative intersectional patterns in student responses*

Country	Grouping factor	Indicator	Pattern
Morocco	Lower-income vs. middle-income	Digital learning improved access	72.2% vs. 84.7% yes
Morocco	Lower-income vs. middle-income	Participated in international online academic activities	22.2% vs. 34.6% yes
Morocco	Rural vs. urban	Participated in international online academic activities	22.2% vs. 30.7% yes
Morocco	Different city vs. same city	Digital learning improved access	87.1% vs. 75.0% yes
Morocco	All students	Digital transformation benefits all students equally	51.9% said no
China	Bachelor vs. Master’s vs. PhD	International participation	69.2% vs. 90.5% vs. 77.8%
China	Bachelor vs. Master’s vs. PhD	AI guidelines/training	7.7% vs. 24.3% vs. 55.6%
China	Female vs. male	International participation	89.8% vs. 78.0%
China	Female vs. male	Say digital transformation does not benefit all students equally	8.5% vs. 18.6%
China	Laptop vs. phone users	AI guidelines/training	27.5% vs. 18.2%
China	Different city vs. same city	International participation	40.0% vs. 85.8%*(very small subgroup)

Findings show that digital transformation is not experienced in exactly the same way by all students, but the form and intensity of these differences vary across contexts. In Morocco, the clearest patterns appear around socio-economic position, geography, and distance from the faculty. In China, variation is still visible, but it is more selective and tends to emerge through level of study, gender, device use, and city proximity (Oehlhorn et al., 2025; Paravastu, 2025) rather than through a strong rural–urban divide. In other words, the Moroccan case reflects a setting where digitalization is more visibly shaped by structural inequality, while the Chinese case reflects a more established digital system in which inequalities remain, but in a narrower and more differentiated form.

In the Moroccan student sample, students from lower-income backgrounds were less likely than middle-income students to report that digital learning improved access to education (72.2% vs. 84.7%). They were also less likely to participate in international online academic activities (22.2% vs. 34.6%). These gaps are consistent with what political economy and financial governance analysis would predict: in a context of constrained institutional investment and fragmented support, the students who most need institutional scaffolding to access digital opportunities are precisely those least likely to receive it. Geography also appears to matter. Students from rural areas were less likely than urban students to participate in international online academic activities (22.2% vs. 30.7%), suggesting that the international opportunities associated with digitalization remain unevenly distributed across space. This is not simply a connectivity problem; it reflects how geographic marginality compounds with socio-economic disadvantage when institutional support is weak. At the same time, not all spatial patterns point in the same direction. Students living in a different city from the faculty were actually more likely than those living in the same city to say that digital learning improved their access to education (87.1% vs. 75.0%). This is an important nuance, because it suggests that digital transformation can reduce some spatial disadvantages, especially those linked to commuting time and physical distance, even while broader socio-economic and territorial inequalities remain in place. The interview material supports this interpretation. Moroccan students often linked digital learning not only to devices and internet access, but also to study conditions at home, including the need for “somewhere to study without noise.” This indicates that digital inequality is not only technical, but also social and spatial in everyday life. The broader sense of unevenness is also visible in perceptions of fairness: across the Moroccan student sample, 51.9% said that digital transformation does not benefit all students equally.

The Chinese student data also show internal variation, but in a softer and more selective form. Since the sample is entirely urban and overwhelmingly middle-income, the strongest differences do not appear through a classic rural–urban or income divide. Instead, they emerge more clearly by academic level, gender, device use, and city proximity. International participation was highest among master’s students (90.5%), compared with bachelor’s students (69.2%) and doctoral students (77.8%). A similar gradient appears in relation to AI guidance or training: only 7.7% of bachelor’s students reported access to this kind of support, compared with 24.3% of master’s students and 55.6% of doctoral students. This suggests that in China, digital transformation may be broadly embedded at the level of basic access, but the distribution of higher-value digital opportunities reproduces the stratification already present in the academic hierarchy. In other words, digital systems in China appear to amplify existing academic hierarchies rather than flatten them: those already positioned at more advanced stages of the academic career gain disproportionately more from digital infrastructure. Gender

differences were present as well, although they were less pronounced than level effects. Female students reported higher participation in international online academic activities than male students (89.8% vs. 78.0%), while male students were more likely to say that digital transformation does not benefit all students equally (18.6% vs. 8.5%). Device-related differences were also visible, with laptop users reporting greater access to AI-related guidance or training than phone users (27.5% vs. 18.2%). Finally, city proximity showed a striking descriptive contrast: students living in a different city reported much lower international participation than those living in the same city (40.0% vs. 85.8%), although this pattern should be read cautiously because the subgroup is very small. The interview comments add an important nuance here: Chinese students did not question the existence of digital resources, but some noted that technology can improve access without necessarily improving teaching quality. This suggests that even in a stronger system, the benefits of digitalization are not experienced in identical ways by all groups.

These findings support a comparative intersectional reading of digital transformation. In Morocco, digitalization appears more directly shaped by socio-economic and territorial inequality. The main issue there is that digital opportunities remain constrained by uneven access to support, infrastructure, and stable learning conditions. In China, by contrast, digital transformation appears more broadly institutionalized and normalized, but not perfectly uniform. The main differences seem to shift away from basic access and toward the distribution of more advanced opportunities, especially international participation and AI-related guidance. In this sense, the two cases reveal different forms of digital inequality rather than a simple presence-versus-absence contrast. Overall, findings suggest that digital transformation does not erase inequality automatically. Instead, it interacts with existing social and institutional structures and reshapes them in different ways depending on context.

The three themes examined reveal that the China–Morocco comparison is not simply a contrast between a more and a less advanced digital system. It is a contrast between two different modes of embedding digital transformation within institutional and social life. In China, digitalization is more deeply institutionalized, more strongly financed, and more closely integrated with broader academic strategy. In Morocco, it is advancing but remains more fragile, less coordinated, and more exposed to uneven support and resource constraints. These differences have consequences that go beyond infrastructure: they shape who participates in international academic life, who receives training, and who is able to convert digital access into meaningful academic benefit.

From a political economy perspective, the contrast is especially revealing. The results suggest that digital transformation works differently depending on how universities are positioned within wider state, institutional, and organizational systems. In the Chinese case, digitalization appears tied to a broader model of

modernization in which platforms, training, smart-campus logic, and international academic engagement are already part of normal institutional life. In the Moroccan case, digital transformation is also recognized as necessary, but it seems to unfold in a context where institutional reform is less consolidated and where digital tools are more often used through adaptation than through a fully stabilized system. This is why the difference is not just one of “more” or “less” technology. It is about the degree to which digitalization is embedded in a wider developmental and organizational framework.

This leads directly to the issue of financial governance. The findings do not suggest that funding pressure is absent in China; on the contrary, respondents there also acknowledged that digital transformation requires continued investment. But the meaning of financial pressure differs across the two settings. In China, funding appears as a condition for consolidation within an already functioning system. In Morocco, it appears more as a source of fragility, affecting support, training, platform quality, and the ability to sustain digital development over time. In other words, the core difference lies not only in the amount of resources available, but in how effectively those resources are governed, coordinated, and translated into operational academic capacity.

The findings also point strongly to institutional capacity as the central explanatory dimension. Table 1 shows that Chinese students and professors experience a more coherent digital environment: stronger platforms, better infrastructure, more training, more institutional support, and clearer AI-related readiness. Table 2 extends this by showing that digital transformation in China is much more effectively linked to international academic participation, institutional visibility, and digital collaboration. By contrast, the Moroccan case reflects a pattern where digitalization is present and meaningful, but less consistently supported and less fully integrated into daily academic practice. This suggests that institutional capacity matters not only for the existence of digital tools, but for whether those tools become reliable and strategically connected to wider university goals.

Finally, the results highlight the continuing relevance of intersectionality. Digital transformation does not benefit all students in the same way, but the form of inequality differs across contexts. Based on the two studied contexts, digitalization does not erase inequality; it reorganizes it. In weaker systems, inequalities remain closer to the foundations of access and support. In stronger systems, they shift toward the distribution of more advanced opportunities, such as international participation and AI-related guidance.

DISCUSSION AND CONCLUSIONS

This study set out to examine how digital transformation interacts with inequality across two contrasting higher education systems. The comparative evidence from Morocco and China consistently supports the view that digitalisation is not a neutral technical process: its outcomes are mediated by how universities are embedded within wider structures of state power, financial governance, and institutional capacity, and by the social positions of those expected to benefit from it. The two cases demonstrate that systems can advance digitally while simultaneously reproducing, and in some cases deepening, the inequalities they were meant to reduce.

This asymmetry reflects each system's underlying political economy rather than simply its level of technological investment: a state-coordinated model that treats digital infrastructure as a long-term modernization priority in China, against a reform-oriented but resource-constrained model in Morocco, where the same policy ambition is not yet matched by comparable fiscal depth or institutional consolidation. This is tied to financial governance. Funding pressure exists in both contexts, but it does not operate in the same way. In China, continued investment seems to support the consolidation of an already functioning system. In Morocco, financial limits appear more directly as a source of fragility, affecting infrastructure, support, training, and sustainability. Institutional capacity therefore emerges as the central mediating mechanism: it is the variable through which macro-level political economy and financial governance conditions are translated, or fail to be translated, into usable digital infrastructure on the ground. The study also confirms the continuing relevance of intersectionality, in a pattern that mirrors the broader institutional contrast established above: where capacity is weaker, inequality attaches to the basic conditions of access and support; where capacity is stronger, it migrates toward the distribution of more advanced opportunities. Digitalization, then, does not remove inequality; it reshapes it along existing social and institutional lines, in ways specific to each system's position within the global knowledge economy.

These findings suggest that digital transformation should be treated not only as a technological priority, but as a broader institutional and policy issue. For policymakers, this means that digital reform requires long-term governance, stable financing, and clear national and institutional strategies. For university leaders, it means that investment should extend beyond platforms and equipment to include training, pedagogical support, coordination, and AI guidance. For universities concerned with equity, it also means paying closer attention to the student groups who remain less able to convert digital change into real academic benefit. In this sense, the success of digital transformation depends not only on what universities adopt, but on how effectively they organize, support, and distribute its benefits.

LIMITATIONS AND IMPLICATIONS

This study also has some limitations. The sample of professors is relatively small and is limited to the Moroccan and Chinese contexts, which means that the findings should be interpreted with caution. While these two cases offer an important comparison, they cannot fully represent the wide variety of higher education systems and institutional realities found elsewhere. The study is also based on selected universities, so some of the results may be shaped by the specific features of those institutions rather than by the national contexts alone. For this reason, future research would benefit from including a wider range of universities, regions, and academic staff profiles, as well as extending the comparison to other national contexts. Doing so would make it possible to understand how different institutional environments shape digital transformation in higher education, and why its effects on inequality do not unfold in the same way across contexts.

Future research could extend this comparative framework to other semi-peripheral higher education systems, such as those in sub-Saharan Africa or Southeast Asia, where reform ambition similarly encounters institutional and financial constraints. Longitudinal studies tracking digital governance reform over time would also be valuable, as they could capture whether the gaps observed here narrow or widen as policy implementation matures. Further work might apply an explicitly intersectional lens to student outcome data, going beyond perception surveys to examine whether digital transformation translates into differential rates of academic completion, employability, or international mobility across gender, income, and geographic lines.

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