

Digitalising Higher Education Pedagogies: Gauging the Perspectives of Selected Senior Academic Members in Ghana

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ABSTRACT

This study examined factors affecting digital technology use and their adoption in Higher Education pedagogies to promote economic equity and transformation toward a better society. Using a descriptive research survey design with purposive sampling of one hundred respondents, the following were the major findings: Overall, incorporating technology into higher education pedagogy was rated very highly. Younger faculty, compared to older ones, were found to be more technology user-friendly in pedagogical delivery. Years of teaching experience and workload strongly impacted faculty use of digital technologies, while institutional-related factors such as availability of professional development, accessibility to technology, and technical and leadership support were rated as leading factors affecting faculty's perception of the use of technology. Even though the majority considered a significant relationship between the digitalization of pedagogy in Higher Education and the development of a better society, the connection was not perceived to be automatic. While acknowledging the impact of digital pedagogy in Higher Institutions to leverage business and economic output, there was also the need for conscious crafting of technology development and national digital transformation towards a more inclusive and sustainable direction from both Higher Education and Government.

Keywords: Better society, digital pedagogy, economic equity, higher education.

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1. INTRODUCTION

In many geopolitical areas, such as the Russian Federation, the digital economy defines businesses in such areas as production and services. There is a paradigmatic shift towards a more digital society in which key factors of production and services are characterised by data in the digitised form: mass provision of online services, analyzing and processing large quantities of data to ensure the efficiency of varied types of production and technology, etc., (cf. <https://ioppublishing.org/publications/conference-series/>). This emphasis has been the basis for countries setting goals to train and educate future human capital who will be skilled and competent in digital technology (West & Heath, 2009). Russia's programme dubbed 'Digital Economy in the Russian Federation' targets 800,000 people annually who are graduates from both vocational and higher education, as well as 40% of their population having digital skills by the

year 2024 (<https://datareportal.com/reports/digital-2024-russian-federation>).

There appears to be a relationship in the literature between 'digital economy' and 'digital literacy', 'digital pedagogy', 'digital education', 'digital didactics and several other ideas (Liu *et al.*, 2020). The European Union's Digital Education Action Plan (2021–2027) is the continent's education response to enhance alternative education and training that will facilitate and support a continental digital economy with a focus on the training of trainers, that is, teachers, students, policymakers, academia as well as researchers. This Action Plan (2021–2027) has two top priority areas: a) fostering the development of a high-performing digital education ecosystem and b) enhancing digital skills and competencies for digital transformation. The origin and learning competencies derive from changes at the social level in the last decade, namely, the exponential creation of information in the current knowledge-based economy. This has accelerated the use of varied sources and



digital media, resulting in unprecedented consumption. The demand for educational platforms permitting both distance learning and teaching or the modification of face-to-face teaching to what is now referred to as Emergency Remote Teaching (ERT) consequent upon the COVID-19 global health crisis are exemplifications of the digital revolution (Trust & Whalen, 2020). In this context, digital competence in pedagogy and teacher education continues to gain strong emphasis in the educational milieu (Tejada & Pozos, 2018).

Teachers are particularly required to master this in contemporary society and the future (Cabero *et al.*, 2020). In Spain, the National Plan of Digital Competencies (MINECO, 2021) has identified teacher acquisition of digital competencies as paramount at all levels of education, with a special focus on the university level. This is because of the intrinsic connection between a knowledge-based economy, digitalization, and sustainable and inclusive economic growth. The teacher is a key figure in integrating technologies and a crucial factor in adopting and implementing classroom ICT. Situated in a highly informative global society, traditional education ideas are no longer sufficiently adequate for Higher Education to effectively prepare human capital to fit into a contingent and dynamic world (Pillay *et al.*, 2004). How we think, live, and work is changing drastically towards investment in intellect and creativity, with emerging jobs requiring radical knowledge, skills and attitudes (Pillay *et al.*, 2004, p. 17). Skills imparted by schooling, especially Higher Education, are now carried on and used post-school. These skills are primarily digital-based (Büyükbaykal, 2015; Haddad & Drexler, 2002). University Teachers' effective digital competencies cannot be overemphasised.

This becomes more compelling in universities in developing countries because of digitalization's enormous opportunity to boost growth in less-income countries (<https://www.brookings.edu/research/democratizing-innovation-putting-technology-to-work-for-inclusive-growth/>). While some societies benefit from digitalised technologies, shaping economics and services, creating better jobs, and enhancing human welfare, less-income economies have not benefitted (*ibid*). This trend will likely continue and could create widening inequality between developed and less developed economies (Bentahar & O'Brien, 2019). Digitalization, especially in the area of artificial intelligence, continues to lead to major shifts in the labour market, which include some jobs disappearing and new ones being created on a massive scale in the labour market (Bonin *et al.*, 2015; Brzeski & Burk, 2015; Dengler & Britta, 2015; Lorenz *et al.*, 2015). Given this high stake, it is important to investigate teacher education and the competencies needed in this digital transformation (Yildiz, 2022).

'The European Union defines Digital Competency' (DC) as: "the safe, critical and responsible use of and interaction with digital technologies for learning, at work and participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), security (including digital well-being and cybersecurity-related skills), intellectual property issues, problem-solving

and critical thinking." (Consejo de la Unión Europea (2018), p. 9). Even though terminology such as 'Teacher Digital Competency' (TDC) has been used in varied and nuanced ways, there appears to be a commonality with its reference to teachers: the need for teachers at all levels, but more so in Higher Education, to master combined knowledge and skills in didactics and technology needed to predispose them to more effective use of digital technologies in their professional practice (Silva *et al.*, 2018). Durán (2019) submits that TDC involves three necessary variables, knowledge, skills, and attitudes, to help teachers use ICT effectively from different aspects.

In Ghana, national and sector priorities since 2000 have influenced the government's policy on information communication and technology generally, among which are the following:

1. The 2000 Global Forum on Education in Dakar (UNESCO, 2000),
2. The 2002 Report of Educational Reforms in Ghana: Meeting Challenges in the 21st Century (Anamuah-Mensah *et al.*, 2002),
3. The role of ICT in Ghana's Education Policy, which highlighted the expected benefits of ICT and its key issues in Education (Government of Ghana, 2006),
4. The 2003 Ghana ICT for Accelerated Development (ICT4AD) Policy (which acknowledged education as critical in supporting the remaining thirteen national pillars (Government of Ghana, 2003a),
5. The 2003–2015 Strategic Plan of Ghana Education: Volumes I and II (2003), the 2004 White Paper Report of the Review Committee of the Education Reform (Government of Ghana, 2003b, 2004).

All these policy documents in Ghana, as well as scientific studies on university teachers' digital competencies and how they influence students' transition into the labour market, are still emerging.

1.1. Statement of the Problem

Given that teachers' digital competencies continue to gain prominence in the educational context, as well as the Ghana Government's policy documents on the use of digital technology in the education context (The Ghana ICT for Accelerated Development (ICT4AD) Policy (2003), research on improving this area in lower-income countries are still nebulous (Basilotta-GómezPablos *et al.*, 2022). Notwithstanding numerous research addressing digital pedagogy and its impact on developing better societies from other geopolitical areas, little has been done in developing economies. Secondly, the interconnectivity between technology and economics/labour market has implications for wealth creation in the 21st century and for the future. The trend is likely to induce a widening gap of disparity. Closing this gap is related to empirical studies on lower-income countries' university teachers' digital knowledge and competencies to help build a digital economy (cf. Cabero *et al.*, 2020; Yıldız, 2022). In this respect, not much has been published in the study area. Thirdly, a systematic review of the literature published in the last decade in the Web of Science and Scopus suggests a paucity of studies on the digitalization of pedagogies in Ghanaian Higher

Education. Besides few empirical Ghanaian studies, [Ntim et al. \(2021\)](#), [Boateng et al. \(2022\)](#) focusing on the use of digital technology, majority of studies in Ghana on technology use and pedagogy have focused research at the pre-tertiary level, while digitalization of pedagogy and its relationship to fostering the development of better societies at the tertiary level have received little attention, hence this study.

1.2. Research Questions

The following three questions guided this study:

1. What are the factors affecting Faculty use of digital technologies and their adoption in Higher Education in Ghana?
2. What perceptions influence teacher usage of digital media in Ghanaian Higher Education?
3. How are the emerging discussions on digitalization, economic equity, and the transformation towards a better society perceived by Ghanaian Higher Education Faculty?

1.3. Significance of the Study

There is a global shift toward a more digital society focusing on key factors of production and services in digitised forms. This has necessitated the global need to set goals in the educational sector to form skilled and competent graduates in digital literacy. This demand is directly connected to the digital competency of teachers in higher education, especially in less-income economies, who can understand, analyse and use information in varied forms. In this respect, this study's findings will be significant. This study is also significant because of the least expected global pandemic of COVID-19. To contain the health crises and promote distance learning, schools had to be closed for a much longer period. This raises the question of the mode of pedagogy delivery for the future and whether or not it will be wiser to focus on digitalising pedagogy in addition to on-site delivery. It is against this backdrop that the outcome of this study will be beneficial to education stakeholders: teachers, students, and heads of academic institutions, as well as economist/business entrepreneurs who have to employ human resources who are digitally literate.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. The Technological Divide

Without the technological divide, one can hardly talk about the digitalization of pedagogy in Higher Education in a developing economy. It is the answer to the technological divide that should help offer some direction for a conceptualization of digitalization of pedagogy in Higher Education ([Thatcher, 2011](#)), the direction of interacting with the internet ([Surman et al., 2014](#)), what model of digital literacy to adopt ([Murray & Perez, 2014](#)). All this must be seen in the context of fundamental questions, such as, what kinds of problems are solved by being digitally literate? What is the key reason for ensuring the digitalization of pedagogy in higher education in developing

economies? Are there possible benefits and losses, etc.,? The other critical question concerns the outcomes of the digitalization of pedagogy on learners' cognition, motivation, and attitudes/affectivity when engaged in digital literacy compared to traditional learning in the classroom ([Shea, 2007](#)). Making the case for digital literacy in Higher Education underscores two implicit significant assumptions and changes: a) institutions help to prepare students for the labour market and other economic pursuits that are becoming more digitalised; b) increase in students' enrollment with fewer constraints to increasing both physical infrastructure and students' physical presence. Digitalization pedagogy implies that educational access is significantly enhanced with less investment in physical infrastructure ([Shea, 2007](#)). Closing the digital divide will constitute a significant initial step to ensuring that university teachers' digital literacy is key in motivating students through support, feedback and learning skills.

2.2. Digitalizing Education: The Theory of Three Waves

The three waves theory of digitalization of education proposed by [Tække and Paulsen \(2017\)](#) examines the educational responses before the onset of the internet, which they describe as the closed classroom. The first wave was the ushering in of the internet, which penetrated classrooms. The second wave was the intensification of the internet in the classroom, and finally, the third wave was a networking classroom. Each wave gradually shifted from the traditional face-to-face classroom to an open classroom of interaction between students, teachers and third parties. The underlying assumption of this theory was the relationship between students' attention and time and why education and teachers could not simply write off the internet penetration and intensification in the classrooms. With time, students were more likely to focus on social media and chat with friends instead of paying attention to the interactions in closed classrooms. Instead, schools and classrooms had to accommodate digitalization.

For example, in the first wave, the digital and wireless networks era, empirical studies suggest a considerable drop in students paying attention to educationally relevant content ([Mathiasen et al., 2014](#)). Activities of students, such as focusing on the digital culture by sending/responding to messages, not only significantly impeded grades but also caused students not to remember information and fail to take notes in the classroom ([Kuznekoff et al., 2016](#)). In a ten-year longitudinal study conducted to find out teachers' responses, there were two responses: a) to ignore or b) to prohibit using digital media ([Tække & Paulsen, 2013](#)). The two strategies never worked. Instead, there was impoverished and destabilised teaching as students tried multitasking between schoolwork and playing computer games ([Tække & Paulsen, 2013](#)).

The second wave is the period when new media were factored into pedagogy. This enhanced teacher-student classroom interaction when teachers started using digitally-based written interaction and online documents. Students' collaboration was high when guided and monitored by teachers. This led to intensified pedagogical interaction, attention being returned to class, and increased participation. Teachers received feedback from

all students simultaneously using microblogging media such as Twitter ('X'). This media and others made students more involved and engaged in class interaction (Tække & Paulsen, 2013; 2015; 2016). This second wave enhanced, improved, and more interaction without radically changing the settings of classrooms and educational forms.

The *third wave* is the most radical of all three: other stakeholders who are not students and teachers using the internet become involved in pedagogical/educational interaction. Since the beginning of the printing press, education has radically changed. We observe an open system of education rather than a closed system of education with only teachers and students. This new open education system brings on board other persons outside of the classroom to participate and contribute to learning, thus radically bringing new perspectives to the education structure. The teacher assumes a new role as a 'mediator of otherness' (Tække & Paulsen, 2017, p. 8). This new model focuses on group interconnectivity to other school classes, databases, and individuals, with this new mode of schooling being an essential part of people's education, comparable to Jenkins's (2008) *convergence culture*. In this convergence model, groups interconnect to learn to navigate, taking part in society's form of production, culture and communication, and networking. There is, therefore, a pedagogical shift of teaching from closed production to open activity in which, instead of transmitting only knowledge to students as in the traditional model, the teacher's role now essentially connects students to other relevant stakeholders, making knowledge-sharing across borders and differences a reality.

The three-waves theory aligns somewhat with the distinctions Anderson and Dron (2011) made on the three generations of distance education. These authors explain that there is first: a) a *cognitive and behavioural generation*, then b) a *social constructive generation*, and c) a *connectivist generation*. Most schools and teachers are likely to navigate through such three waves.

2.3. Digitalization of Pedagogy: Technology Acceptance Model (TAM)

One of the topmost theoretical constructs used to test digital/technology acceptance has been the Technology Acceptance Model developed by Davis (1989). According to this theory, two primary factors determine whether or not technology use will be accepted: a) perceived use of ease and b) perceived usefulness. Taking two elderly university teachers as an example, the one who, despite his/her age, perceives playing digital games as fun and interesting, offering the needed intellectual and mental stimulation, is more likely to be positively predisposed to digitalisation compared to the one who sees it as a waste of time. However, the literature has criticised TAM as a model for various reasons. Nevertheless, it still serves a heuristic purpose as a broad framework consistent with many empirical investigations testing the older generation's predisposition to use or refuse to use technology/digitalisation in their teaching.

2.4. Summary Statement

Digital competence is one of the key competencies gaining strong prominence in higher educational contexts

across the globe. More than ever, university teachers are being called to have highly digital competencies and positive attitudes to teach and manage classes more effectively. All this is due to a global paradigmatic shift towards digital society. Therefore, given the contemporary focus on digitalisation and its implications for economics and human resource formation, university teachers responsible for training future human resources for the labour market are especially required to be more conversant in technology use and its application to pedagogy. This paper intends to test empirically the theory of the Three Waves and the Technology Acceptance Model (TAM).

3. METHODOLOGY

3.1. Design and Sample

This study used a descriptive research survey and a random purposive sampling of 100 respondents. They were sampled from four universities in the middle belt of Ghana. This location permitted easy sampling for the author. Having explained the purpose of the survey as purely academic, permission was sought through personal contacts and telephone calls to the target population of university teachers. Having obtained permission from respondents, a consent form with a survey pack containing the data collection instrument was sent online to respondents. The return rate of the completed questionnaire was high.

3.2. Procedure and Measures

The questionnaire was in the following different sections: a) respondents' personal data which sought to find out age, academic qualification, years of teaching in higher education; b) respondents' personal vision of the digitalised culture in higher education pedagogy: the focus was to investigate whether or not from respondents experience, contemporary migration from the face-to-face traditional teaching into multimedia was undermining quality of pedagogy in terms of their scale of preference using an adapted version of Intelligence Scale (Okagaki & Sternberg, 1993); six items in the form of Likert's-point scale in the ranges of 1 (strongly disagree) to 5 (strongly agree); c) the first research question was on factors affecting Faculty use of digital technologies and their adoptions in Higher Education in Ghana; d) second question focused on perceptions influencing student and teacher usage of digital media in Ghanaian Higher Education and e) third question on how emerging discussions on digitalization, economic equity and the transformation towards better society in digitalization of pedagogies were perceived by Ghanaian Higher Education teachers.

3.3. Pilot Study of the Questionnaire

Ten university teachers, constituting 10% of the entire sample size, were randomly sampled to measure the reliability of the data collection instrument. IBM SPSS Statistics version 23 was used to test Cronbach's alpha's internal reliability test to help ensure the reliability of results. A reliability coefficient of 0.70 was found, which is considered satisfactory for social science research (Nunnally & Bernstein, 1978).

4. RESULTS

4.1. Demographic Profile

All 100 respondents were purposively sampled from Senior Academic members in the selected four universities. Out of the total number, 75 were below the professorial rank. 50 were lecturers, and 25 were senior lecturers who had taught at the higher education level for 4 to 12 years, respectively. Out of the remaining 25 professorial ranks, 20 were associate professors, and 5 were full professors who had been engaged in higher education teaching for between 12 and 20 years, respectively. All respondents were full-time humanities, social and natural/physical sciences teachers. 40% of the respondents were females.

4.2. Respondents' Personal Vision of the Digitalised Culture in Higher Education Pedagogy

60% of 60 respondents expressed a positive vision of the digitalised culture in Higher Education, giving the rationale that it gives a new paradigm to pedagogy with a contemporary focus on the consumer of education, the student. Being pressed further to explain what, in their views, were the driving factors determining this new culture, all the 60 respondents, having a positive vision of digitalised pedagogy in Higher Institutions, expressed two driving imperatives: a) *social* and b) *pedagogical*. The social imperative was that all educators, especially Higher Education, continue to face a challenge: the challenge of keeping up with a new breed of students in this 21st century who are more digitally inclined. Contemporary students tend to pay more attention to the digital culture of social media-WhatsApp, Twitter ('X'), Instagram, etc. Additionally, and perhaps more importantly, their out-of-school life is virtually bombarded with digital technologies: they watch television, which is digitalised; listen to digitalised radios; use smartphones; are more fluent than their parents and grandparents in Web 2.0, social networking, etc. Based on these social imperatives of the dominance of digitalised culture, parents, guardians, communities, industries, and the business world who pay to educate and will employ such graduates understandably expect the universities to turn out technologically fluent students.

The second significant driving factor for digitalizing higher education pedagogy besides the social factor was pedagogical. Relating pedagogy with technology-use enhanced development in student-centred learning theories, such as constructivism, connectivism and distributed constructionism. Technology significantly changes *how* we teach, from depositing information into empty heads to assisting students to create knowledge through collaboration, networking, and knowledge sharing. Thus, for these respondents, digitalised and technology-infused teaching presented a new paradigm of pedagogy- the teacher is seen more as a facilitator and e-moderator of learning. Of the 40 remaining respondents, 35 favoured the use of digitalization in pedagogy. However, they also cautioned against using it over against traditional physical face-to-face teaching and advocated for blended/ hybrid learning. Five respondents were not too sure.

4.3. Perceptions Affecting Faculty Use of Digital Technologies and their Adoptions in Higher Education in Ghana

This part of the survey gauged respondents' perceptions of the factors influencing faculty's use or non-use of digital technologies in Ghanaian Higher Education. Two main psychological factors were identified: a) perceived usefulness and b) perceived user-friendliness of technology. These two broad categories were subdivided into the following: a) teacher personal-related factors, which included i) teachers' mental frame of mind (attitudes), ii) teacher technology/digital competence, iii) teacher self-efficacy in technology use; iv) gender, v) years of teaching and vi) teacher workload. The second factor was institutional: i) exposure to teacher professional development in digital usage by the institution; ii) Accessibility to technology/digital use in the institution; iii) technical and leadership support by the institution. The third and final factor focused on technological characteristics.

The survey showed that an overwhelming majority of older respondents in the Professorial rank, 25, expressed scepticism about using digital technology in pedagogical delivery. 80% of the professors expressed reservations about the use of technology. The reason was not because it was unnecessary but because they had challenges supervising/controlling absenteeism using technology. Some cited the case of Zoom and Microsoft Teams. Students would sign up using the appropriate links, yet on crosschecking, some students were not physically present. Such experiences, in their view, undermined the perceived usefulness of digital technology vis-à-vis the traditional face-to-face classroom. The remaining 20% of the Professorial rank, while admitting that such occurrences were real, said they were minimal in their experiences. The other 75 respondents, who ranged from ordinary lecturer to senior lecturer ranks, supported adopting digital technologies in higher education. This was because of digital technologies' versatility and potential to capture the attention of 21st-century students, who are already immersed in a digitalised culture.

Additionally, these younger teachers supported digitalised pedagogy because of its openness and likelihood to a much larger audience. Geographical limitations did not impede digitalised pedagogy. Students could learn from anywhere on the globe. Regarding the perception of digital competence and self-efficacy in technology use, 73% of the respondents reported perceiving themselves as very digitally competent, 20% as digitally competent, and the remaining 7% as not digitally competent. Gendered impact in terms of self-efficacy and technology use did not significantly differentiate between the two genders.

Years of teaching experience and workload have strongly impacted teachers' perception of faculty use of digital technologies. 18 out of 25 most senior faculty staff of professorial rank, who had taught for years as professors with little use of technology in their pedagogy, nonetheless approved the digitalization of pedagogy. This notwithstanding, 18 out of the 25 full and associate professors were not particularly familiar with technology use in pedagogy. This was because they had to relearn how to use these new technologies and did not have the time due to workload. Sixty-five respondents of the younger faculty staff

appeared more amenable to relearning and using the new technologies in their pedagogy.

Institutional-related factors: availability of ongoing professional development within and outside the institution, accessibility to technology, and technical and leadership support were the top most institutional-related factors, apart from personal characteristics that affected faculty's use of technology. Two benchmarks ranked higher (95%) under these institutional characteristics were: a) availability of on-going professional development and b) courses in technology use in pedagogy.

4.4. *Emerging Discussions on Digitalization, Economic Equity and Transformation Towards Better Society and How they are Being Perceived by Ghanaian Higher Education Teachers*

This section measured respondents' perception of how contemporary discussions on digitalisation, especially digitalisation of pedagogies, can foster economic equity and the transformation towards a better society. Respondents were asked to answer three questions: a) How can digitalising pedagogy benefit business and the economy? b) In what ways does digitalisation of pedagogy increase resilience against crises? c) How does digitalisation of pedagogy promote building a greener planet?

85% of the respondents believed there was a correlation between digital transformation and business and the economy. However, this correlation was not automatic. There was a need to make deliberate efforts to craft development in technology and national digital transformation towards a more inclusive and sustainable direction, beginning from higher education. Pressed further to explain this position, the reason was that the digital culture already continues to define how work should be conducted, how business is being carried out, and even how humans interact with one another. The other 15% of respondents were unsure that technology was the deciding factor for a better world regarding business and the economy. In their view, this depended on peoples' choices, especially the need to collapse the digital divide, which otherwise would promote the alienation of more poor people.

On the question of digitalisation and responding to resilience in crises, 95% responded with examples from the COVID-19 pandemic school lockdown. Urban households in Ghana, with some level of digitalisation, served to navigate the crises, compared to households with less digitalisation. Many poor households across the globe, without access to technology, struggled to receive, for example, proper health care. Most countries in the developed world, with a high digital infrastructure, had better resilience in responding to the crisis. Responding to how digitalisation of pedagogy could promote building a greener planet, 78% believed that digital technologies were influential in addressing contemporary environmental challenges and introducing innovative solutions. Besides, digital technologies are already being used to foster climate resilience, protect the most vulnerable from natural disasters through increased computational power, and use more sophisticated modelling to enhance simulations and plans for climate emergencies.

5. DISCUSSION

The findings reported here suggest that, overall, Higher Education teachers in Ghana understood the driving imperatives of the digital culture and why it was paramount to embed this culture in university pedagogy. Realising that students' lives within and outside of schooling were surrounded by digital culture, from digital television to digital radios, smartphones, etc., respondents believed that modern-day students could hardly be reached without digitalisation. Contemporary Ghanaian university students are more digitally inclined and tend to pay more attention to digitalised information than information not digitalised. Consequently, there was little chance for university teachers in the lecture halls to gain their attention outside of digitalisation. This corroborates the findings of [Tække and Paulsen \(2013, 2015, 2016\)](#) and [Mathiasen et al. \(2014\)](#). Similarly, most respondents believe that the contemporary trend towards a more digital society, significantly shifting teaching and learning to Emergency Remote Teaching (ERT), makes it imperative to digitalise university pedagogy. This again confirms the position of authors such as [Tejada and Pozos \(2018\)](#) and [Trust and Whalen \(2020\)](#).

Regarding the usefulness and user-friendliness of digital technology, almost all senior respondents in the professional rank expressed reservations about technology use compared to younger faculty staff. This particular finding also supports what has been highlighted in the literature regarding teachers' mental states (attitudes) and beliefs by [Hew and Brush \(2007\)](#) and [Keengwe and Onchwari \(2008\)](#). Younger faculty staff, lecturers, and senior lecturers in this study were not found to raise issues with technology/digital use in pedagogy. In contrast, older ones did, citing students' issues with their physical presence and suggesting blended/hybrid learning. This confirms [Teo's \(2008\)](#) submission that teachers tend to be more favourable towards the use of technology in teaching rather than perceptions of the usefulness of technology and their control of technology. Compared to junior staff, chronologically older staff appeared to have challenges using technology to control attendance. This notwithstanding, this report found no senior staff completely writing off technology to digitalised pedagogy in Ghana. This strengthens [Tejada and Pozos's \(2018\)](#) position that digital competence in pedagogy and teacher education is increasingly gaining more focus in the educational milieu.

As indicated in the data, the emerging potential influence of digitalising higher education pedagogies and its connectivity to economics, productivity, business, and the labour market came up strongly. The benefit of technology/digitalisation supporting structural transformation in knowledge diffusion, developing new services and products by human capital already trained and conversant with skills in digitalisation from the universities, is more likely to foster these structural changes. This finding also aligns with the 2016 International Monetary Fund Report submission ([IMF, 2016](#)). This report submits that digitalising pedagogy in higher education fosters the development of better societies, enhances the lower cost of doing business, promotes higher urbanisation, and fosters access to finances, among others. In

this sense, digitalising higher pedagogies leads to levelling the playing field for women, especially in the business environment, confirming the submission of Alper and Miktus (2019). Additionally, digitalisation is more compelling, especially in Sub-Saharan Africa, because digital depth is woefully inadequate in Africa. It is estimated that in 2019, for example, e-commerce income grew at an average of only 24% relative to other geopolitical regions outside of the African continent (<https://www.elibrary.imf.org/display/book/9781513536835/ch03.xml>).

6. CONCLUSION

In a global information era, where contemporary students' lives are embedded in digital culture, educators face the challenge of refining teaching and learning to keep abreast with students. The fundamental issue is not why we need a digital pedagogy. Instead, what is critical is how to develop a digital pedagogy to sustain the culture of digitalization of pedagogy in higher education to foster the development of better societies that are also going digital. The findings in this study suggest two psychological factors influencing faculty use of technology in teaching: a) perceived usefulness of technology and b) perceived user-friendliness of technology. Respondents were convinced that to enhance collaborative and constructive learning outcomes among students, faculty had no choice but to incorporate technology into teaching if they were to get their students' attention. Younger faculty were more at home with the digitalization of pedagogy, seeing technology generally as user-friendly. While not dismissing the contemporary imperatives of digital culture in higher education pedagogy, the older faculty advocated a mixture of blended learning. The number of years in teaching and workload strongly impacted teachers' perception of faculty use of digital technologies.

Additionally, institutional-related factors, such as availability of ongoing professional development within and outside the institution, accessibility to technology, and technical and leadership support, were among the leading predicting factors (besides personal characteristics) that affected faculty's perception of the use of technology. While acknowledging the possible relationship between digital transformation and business and the economy, the connection was not automatic without higher education and the government consciously crafting technological and national digital transformation development in a more inclusive and sustainable direction. This would facilitate higher education's mandate to train future human capital for a world increasingly becoming digitalised from all dimensions- economic, business, and labour market- to develop better societies.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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