Digital Transformation in the Higher Education: Challenges and Opportunities for Faculty Unions

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Abstract

It has long been conventional wisdom among historians and political philosophers to conceptualize technology as the engine of social transformation that has guided societies through the tunnel of history. Understood as a medium or the application of scientific knowledge for practical purposes, technology is a society-shaping dynamic that constantly changes, and its successive waves of applications affect all spheres of society, including the education sector. While technology has historically been an integral part of education systems, its application in teaching and learning activities has gained significant momentum since the outbreak of the COVID-19 pandemic, which forced worldwide educational institutions to undertake an abrupt transition to online delivery of curriculum. The digitalization of education has acted as a double-edged sword for faculty unions. While growing online teaching and learning has generated a wide variety of compelling challenges that threaten to erode the bargaining power of faculty unions, it has simultaneously provided opportunities for them to counter and overcome those challenges, thereby revitalizing their organizational, communication, and mobilization capacities.

Keywords: digitalization of education, collective bargaining power, faculty unions, technology-enhanced teaching and learning

1. Introduction

While the integration of Information technology in the learning and teaching systems has been a gradual development, its application was intensified during the COVID-19 pandemic, which disrupted many aspects of normal life, including teaching and learning. The preventative health measure requirements intended to contain the spread of COVID-19 necessitated a major shift to online teaching across the entire educational sector around the globe**.** Though shifting to online teaching and learning has been a persistent trend for the last two decades, remotely delivered teaching became a pervasive and ubiquitous worldwide phenomenon during the COVID-19 pandemic. There is no doubt that the impacts of the COVID-19 pandemic on education system will cement electronic teaching and learning as an indispensable ingredient of the traditional teaching and learning system. The intensification of the shift to digital teaching and learning is believed to have the potential to slash educational costs, increase accessibility, and reduce bargaining leverage of faculty unions in the education sector. It will be argued that while technology-enhanced teaching and learning has generated new challenges for faculty unions, it has simultaneously provided enormous opportunities for faculty unions to counter those challenges and hence retain their bargaining leverage. More specifically, the effects of technological adoption in the higher education to a significant degree are shaped by institutional rules and by the opportunities that technology provides for faculty unions to address and overcome the challenges they face.

This paper is divided into four parts. Part one provides a concise outline of the main theoretical perspectives on the impact of technology on workplace relations and specifies the methodological approach that is utilized in this paper. Part two briefly discusses the history of the shift to online teaching and learning across the education sector. Part three reviews the literature on the opportunities and limitations of technological changes in the higher education and their ramifications for faculty unions. Part four analyses faculty unions' responses to digitalization of education and their use of digital platforms to revitalize and enhance their organizational, communication, and mobilization capacities. In conclusion, the main findings and themes will be recapitulated.

2. Theoretical Perspectives and Methodology

Within the burgeoning and exuberant theoretical literature on the impact of technology on workplace relations, three theoretical perspectives have gained significant momentum. These approaches to the interpretation of the technological advances on work and workplace relations are Techno-Deterministic, Institutional, and Affordance approaches that have dominated the existing literature. The Techno-Deterministic perspective identifies technology as the overriding and primary force of societal changes in societies. This perspective emphasizes the autonomous and society- shaping nature of technology as the driving force behind social transformation (Dafo, 2015). According to this perspective, technological breakthroughs are bound to replace living labor with machines, promote a flexible workforce, empower administrators to control the workforce which are in turn conducive to reducing union density and hence decline in the bargaining power of unions (Nissim & Simon, 2021). More specifically, technological changes can effectively undermine the existing workplace relations and hence enervate the power of unions. However, this unilinear view of the impact of technology on workplace relations does not take into consideration the role of institutional structures and workers as social agencies. As Feng etal. (2025) have pointed out that while technology has enormous transformative power in the educational settings, its adoption in higher educational institutions is not unilinear. Variety of factors and forces including institutional rules and arrangements within the environment of higher education influence its adoption.

These shortcomings in the Techno-Deterministic perspective are addressed in the Institutional Perspective which does not recognize technology as a neutral and inexorable force but emphasizes the role of institutional structures in shaping the outcomes of technological transformation. According to this theoretical perspective, the effects of technological adoption in the workplace are to a significant degree shaped by the nature of the legal frameworks that govern workplace organization and the collective bargaining agreement which is the most effective tool in the arsenal of unions. Thus, in line with the Institutional perspective on technology, unions can utilize the institutionally established bargaining mandate to influence the implementation of technological platforms in the workplace through negotiations (Lloyd & Payne, 2025). The Affordance Perspective shifts discourse beyond the unilinear impact of technology as emphasized by the Techno-Deterministic approach, and the role of institutions in moudling the effects of technological adoption in workplaces as highlighted by the Institutional Perspective. The Affordance perspective on the impact of technology discusses the possibilities that unions can harness the digital tools to consolidate their bargaining leverage (Hennebert, Pasquier, & L évesque, 2021). According to this perspective, technological advances have provided enormous opportunities for unions to utilize digital platforms (such as Facebook, WhatsApp, Twitter, Zoom and AI tools) to increase their visibility, broaden their communication reach, intensify their mobilization and organizational capability, and consolidate their solidary for collective action (Hennebert, Pasquier, & L évesque, 2021).

The methodology in this paper is congruent with the above-mentioned theoretical perspectives on the impact of technology on workplace relations. This paper utilizes a qualitative approach that focuses on content analysis of secondary sources, selected faculty unions' statements, and released reports and surveys which fall within the domain of the outline theoretical approaches in this paper.

3. Historical Evolution of Online Teaching and Learning

The use of the concept of digital learning in educational discourse may be contemporary, but it has a long history. Historically, different forms of technology have been utilized in classrooms to enhance communication between teachers and learners. To advance distance learning throughout the early decades and the second part of the twentieth century, a wide range of mediums such as educational films, correspondence education, educational radio, instructional television, telephone, and audiovisual or telematics technology, were harnessed in higher educational institutions as well as in the K-12 environment (Barbour, 2021)

Early experience with computer-based instruction in the twentieth century laid the foundation for online learning (Raouna, 2024). However, the roots of online learning are profoundly entwined with the breakthroughs in the development of computing technology and the advent of the World Wide Web that heralded the emerging era of the internet. It was, in fact, the development of the internet that facilitated the utilization of technology to enable distance teaching and learning (Raouna, 2024). Since the turn of the millennium, digital education has spread worldwide, particularly in those countries that have a long tradition of experience with distance education (Zawacki-Richter, 2023).

The outbreak of COVID-19 functioned as a great catalyst to intensify the utilization of digital media and tools for advancing distance teaching and learning across educational institutions. To counter the spread of Coronavirus, all higher educational institutions and even public schools shifted to online curriculum delivery.

The eclipse of the threat of the COVID-19 pandemic and the gradual return to normalcy did not lead to a sharp decline in online teaching and learning. Despite the diminishing threat of the COVID-19 outbreak, the demands from students and administrators to expand the scope of online teaching and learning have remained pervasive (Irhouma and Johnson, 2022). Furthermore, based on their 2022 national report on digital learning in Canada, Tasneem Irhouma & Nicole Johnson have predicted that growth in hybrid and online offerings will be a general trend across educational institutions. Due to the attractiveness of accessibility, flexibility, and efficiency associated with digital education, the demand for continuing hybrid and online options alongside traditional in-person delivery of courses has become a reality across educational institutions. Universities have been forcefully expanding the scope of online teaching and learning by capitalizing on their success during the pandemic. Factors such as cost saving, flexible work schedule, caregiving responsibilities, distance from campus, and transportation are the driving forces behind growing demands by students and administrators for online teaching and learning (Johnson, 2023). Across Canada, higher educational institutions have responded to these growing demands by providing a range of course delivery modes which are: In-person Learning that requires students to attend classes held on campus. Online learning which implies that all instructions and interaction are fully online which can be either synchronous (means instruction takes place in real-time and requires student presence) or asynchronous (means instruction is available for students to access at a time that best suits them). Blended mode combines online and in-person instructions (while some instructions are accessible online, students are also required to visit campus during a specified period), and Hyflex which blends online with in-person where instruction is simultaneously available online and in-person, and students can move between these two modes (Irhouma &Johnson, 2022).

Digitalization of education is hailed as an effective technological revolution that has the potential to expand educational opportunities and facilitate a flexible work-study schedule. It is also praised for enhancing digital literacy, which has become a sine qua non to employment opportunities in the twenty-first century. Finally, digitalization of education is believed to streamline curriculum delivery, which is conducive to reducing educational costs for both educational institutions and students. However, it is also argued that the shift of to online teaching can undermine faculty unions' collective bargaining power.

Prior to discussing how faculty unions have responded to the technological adoption in the higher education, it is imperative to review the literature on the impact of technological changes on the higher educational institutions and the implications of those changes for faculty unions.

4. Literature Review

Within the existing literature, there is a prevailing theme that technological developments have had debilitating impacts on labour unions' bargaining power to effectively improve working conditions and wages/salaries of their members (Nissim & Simon, 2021; Rogers, 2023; Novick et al., 2022; Bernards et al., 2023). Accordingly, workplace technology is increasingly weaponized to undermine workers' collectivity and unionization and hence reduce the bargaining leverage of unions (Reiber, Cha-Yeong Kim, McDonald & Calacci, 2026). In their major study that involved focus groups and interviews of Canadian school teachers which took place during 2023 to 2024, Ellen McEache et al. (2025) found that the shift to online teaching posed certain occupational challenges such as digital surveillance, technology-induced stress, perceived loss of control over teaching environment, difficulty in maintaining student engagement, and moral discomfort that arises from the dissonance between educators' moral obligations and their ability to fulfill those obligations. In accordance with this line of reasoning, technological advancements are poised to significantly disrupt the education sector. As a corollary of this general argument on the implications of technological advancements for the work, it is also asserted that machines have already been able to emulate human intelligence, and technology might soon replace classroom teachers. Consequently, technological tools that can answer students' questions will gradually render teachers unnecessary (Gomez Carrillo, 2012). Microsoft owner Bill Gates has predicted that artificial intelligence (AI) advances can trigger a seismic shift in drastically diminishing the role of human beings in many fields, including education (The Economic Times, 2025). In fact, AI has engendered a climate of consternation and fear among faculty and staff who believe emerging technologies particularly, AI will supplant their roles. A recent survey found that almost 55 per cent of respondents expect their job security will be impacted by AI developments within the next five years (Ponikvar, 2025)

Terry Moe has made the most elaborate case for the existential threat of technology to faculty and teachers' union power. In his apocalyptical prediction of the ramifications of digitalization of education for faculty and teachers' unions, Terry Moe, the author of Special Interest: Teachers Unions and America's Public Schools, has vehemently asserted that technological revolution will bring a massive cost saving substitution of technology for faculty and teachers, and hence, fewer teachers per student will be needed (Moe, 2012). Moe conceptualizes the digitalization of education as a "tsunami" which will gradually gain an unstoppable momentum that cannot be halted by faculty unions. Accordingly, technological breakthroughs are likely to erode the bargaining power of faculty unions.

Moe has passionately argued that technology-driven dispersal of teaching has the potential to generate formidable and perplexing challenges for faculty and teachers' unions to maintain their social cohesion, which is indispensable to exhibiting their bargaining power to elicit concessions from educational institutions' administrators. Moe has therefore concluded that not only will cheap technology substitute expensive teachers, but online teaching will also make it difficult for teachers to organize and project their bargaining leverage (2012). Consequently, these transformative changes will become an inexorable force to undermine the "very foundations of union power" and hence diminish their organizational capacity to achieve successful collective bargaining agreements.

The digitalization of education is believed to have generated opportunities and limitations for higher educational institutions. Since online teaching does not require physical attendance on campus, it is geared to expand educational opportunities for students who can enroll in online courses from different locations. By removing barriers to physical attendance and providing a personalized learning experience, online teaching is conducive to promoting equity in accessing educational opportunities. However, the digital divide, as manifested in differential access to resources needed for online learning, is a major challenge to the realization of equitable access to education (Tate & Warschauer, 2022). Ameliorating the digital divide in online education necessitates universal access to digital hardware such as laptops and desktops, software (like learning platforms), and high-quality broadband (OECD, 2023)

It is widely acknowledged that online delivery of education has significant potential to reduce educational costs. This presents a welcome opportunity for higher educational institutions that continue to face substantial funding constraints and cost-saving pressures. Likewise, online instruction can lower the overall cost of obtaining a degree for students by reducing tuition fees and eliminating travel-related expenses (Deming, Goldin, Katz, &Yuchtman, 2015; Morris, 2008). Within the existing literature on the digitalization of education, several pathways through which online teaching and learning can achieve cost reductions have been identified. These include increasing student–teacher ratios by enrolling more students per course section, shifting certain instructional activities to computer-based platforms, reducing salary expenditures through the redesign of academic processes to enable more effective and efficient use of faculty time, lowering facility-related costs, and exploiting economies of scale by distributing initial development costs across a larger student population (Bakia et al., 2012; Morris, 2008).

Undoubtedly, the potential cost-saving of online delivery of both public and private services is enormous (European Commission, 2016). Both public and private sectors have capitalized on this technology- driven opportunity to reduce administrative and transaction costs, thereby enhancing their service delivery performance (Karimi, 2021). However, a high-quality education combined with promoting equity is indispensable to a well-functioning, stable, and productive society (OECD, 2018). Consequently, cost efficiency should not be regarded as the only criterion in the implementation of educational reforms. Furthermore, education constitutes a distinctive good whose quality assurance demands may obstruct the attainment of cost efficiencies linked to economies of scale (Morris, 2008). As a result, cost-efficient service delivery in the education sector can be challenging and it is therefore difficult to realize the benefits of economies of scale in the educational sector.

As an opportunity to reduce salary costs, increasing the student-teacher ratio purports to be an attractive and tantalizing option to school administrators. However, this policy option runs counter to maintaining quality assurance standards in educational institutions. In addition to a robust digital infrastructure, incessant IT support for faculty and students, and the need for teachers to be skillful in using technology, lowering the student-teacher ratio is one of the most overriding factors that can ensure maintaining quality assurance for online courses (Bates, 2019). Among experts and analysts within the field of digitalized education, there is a growing consensus that class size is positively correlated with the quality of interaction between teachers and students (Burch, 2019). In their study of faculty's attitudes toward online teaching, Lowenthal, Patrick et al., (2019, p.65) have found that it was the prevailing conviction among faculty members under study that small -size online classes were geared to fostering student learning and faculty satisfaction. Furthermore, they found out that "some faculty perceive high-enrollment online courses as antithetical to student success".

The student-teacher ratio is a significant indicator of the level of resources that are needed to devote to education system (OECD, 2026). Smaller class size not only allows teachers to focus more on the needs of students, but it also contributes to effective learning environment. (OECD, 2026). Class size is one of the crucial and decisive impetuses behind the propensity of many parents to send their children to private schools (National Council of Teachers of English, 2014). Despite variation in employed methodologies, a significant number of researchers have concluded that an optimal class size for an online university or college course should range from 8 to 20 students (Burch, 2019). It can be argued that such an optimal class size requirement, which is imperative to maintaining quality assurance standards, can hardly lead to curtailing salary costs. Based on a University of California study, students in small classes are more engaged in classroom discussion and debates, perform better on their tests, are less intimidated in posing questions, and tend to develop teamwork cooperation (Macleans, 2022). Thus, educational institutions may in fact be forced to hire more educators if they are adamant in expanding their online course offerings.

Taking advantage of economies of scale is widely identified as one of the driving forces behind the accelerating move to digital teaching and learning (Morris, 2008; Christenson & Eyring, 2012). As a result of the ongoing technological revolution, higher educational institutions are now capable of digitizing education and expanding their student recruitment reach to a global level. Consistent with the application of economies of scale in online learning, large-scale organizations such as universities can reduce average costs by developing processes and systems that support enrollment growth at minimal marginal cost (Morris, 2008). Once additional sections of an existing course are introduced, enrollment revenues tend to increase at a much faster rate than the costs associated with adding those sections. It is based on this prospect of efficiency gains that many higher educational institutions are persuaded to allocate substantial levels of resources to the development of online courses.

However, there are certain substantive and procedural barriers to the realization of economies of scale in the education sector. These structural and institutional constraints to the achievement of economies of scale in the education sector are the corollaries of the prevailing governance structure in higher educational institutions. The institutionally well-established collegial governance model in higher educational institutions allows faculty unions via the Senate to share decisions making power over university affairs particularly, academic policy with the Board of Governors (Jones, 2013). In line with the institutionally entrenched governance model, faculty members not only participate in governance but also enjoy academic freedom, which refers to the liberty faculty members have in teaching and researching to explore and disseminate knowledge that contributes to the common goods of society. The institutionalization of academic freedom, which has historically been fortified by collective bargaining mechanisms, ensures greater latitude for faculty members in determining the design and content of courses that they teach (Turk, 2020; Karimi, 2021). Similarly, the design of online courses, which has a significant impact on student performance, is mainly determined by faculty members who are assigned to teach online courses (Jaggars & XU, 2016). Since different sections of the same online course are taught by different faculty members, there will inevitably be significant variation in learning outcomes, textbook use, and other reading material requirements (Karimi,2021). As a result of such a unique faculty-specific approach to learning and pedagogical philosophy, total costs will increase rather than decrease for educational institutions (Cini & Princeas, 2014). Other things being equal, the lack of a centralized and unified teaching and learning model is a source of inefficiency, and hence a formidable barrier to scaling online education. In other words, higher educational institutions cannot be envisaged as manufacturing facilities where, through the application of an assembly line and the use of skilled and semi-skilled workforce, large-scale standardized goods can be produced. Unlike a manufacturing production line, education involves human learners who are directly affected by and invested in the quality of the process, whereas motor cars remain unchanged regardless of how they are produced (Kromydas, 2017)

The quest for utilizing online teaching and learning as a means for cost saving must take quality assurance into consideration for the educational outcomes. As Tony Bates (2012) has asserted, “online learning can improve productivity, but not through automation (and it ain’t going to be easy)”. The institutional constraints to the achievement of economies of scale in the higher educational institutions shed doubt on a widely held assumption that the shift to digital education will corrode the pillars of faculty unions' bargaining leverage.

5. Digitalization and Faculty Unions' Responses

As has already been pointed out, the suggestion that enlarging enrollment in a single online class, which is intended to save cost and hence reduce the number of teachers, cannot necessarily guarantee maintaining quality assurance standards. The class size, which affects student learning, faculty workload, pedagogical strategies, and schools' finances, is one of those areas that faculty and teachers' unions can challenge administrators' attempts to enlarge online class sizes. As has already been discussed, enlarging online class size allows school administrators to realize economies of scale. Within the existing literature on the relation between class size and learning outcome, it is found that small online classes are essential if the pedagogical objective is to enable students to develop skills, higher-order thinking capacity, and mastery of complex knowledge (Taft, Kesten, & El-Banna, 2019). By highlighting concerns about faculty workload and student learning quality, faculty unions can capitalize on the desirability of small-sized online courses, which is conducive to counteracting and decelerating administrators' push for enlarging online class size.

Furthermore, faculty unions can also emphasize the widely held perception that technology can be utilized as an aiding and facilitating means of communication for enhancing learning processes, rather than a substitution for teachers. As George Couros (2014, para.9) has meticulously articulated, "technology will never replace great teachers, but technology in the hands of a great teacher can be transformational." In other words, it is not rational to expect technology to supplant the knowledge and life experience that effective and empathetic teachers can transmit to students (Owen, 2015). Moreover, teaching is relational since positive teacher-student interactions are an essential and indispensable component of students' learning experience. Despite the attractiveness of virtual learning, certain essential learning objectives can hardly be accomplished via online learning. Interpersonal skill development, which is central to employment opportunities in the twenty-first century, and motivation to learn and form opinions that result from classroom debates and discussions, are learning objectives that can be better achieved through in-person classes rather than online classes (Hughes, 2025). As Seth Hughes has pointed out, interpersonal communication skills and teamwork spirit are two main competencies that business leaders expect from university graduates.

As Andreas Schleicher (2020) has observed, the chaotic and rapid shift to online learning necessitated by efforts to contain the COVID-19 pandemic reinforced the understanding that learning is not merely a transactional process but a fundamentally relational and social experience. Consequently, assessment should serve as a tool to guide both student learning and system-level improvement (Schleicher, 2020, para. 4). Furthermore, Victoria Cain & Adam Laats (2021) compellingly argue that historical experience with educational technology in the United States has demonstrated that technology has consistently proven to be "a poor solution to teacher shortages." Cain & Laats have also warned policymakers that technology cannot supplant in-person teaching and learning. In their view, effective education depends on investing in trained, engaged human teachers, because face-to-face interaction motivates and connects with students better than online teaching.

If technology can allow higher educational institutions to expand their enrollment capacity across different geographical regions, faculty unions can also utilize the same technology to revitalize their organizational cohesion, solidarity, mobilization capability, hence strengthening their bargaining leverage. This is one of the ironies of technological development that while it has functioned as one of the most decisive forces in undermining labour unions' power, it has simultaneously enhanced the organizational capacity of labour unions to maintain and even revive their bargaining leverage (Schleicher,2020; Upchurch & Grassman, 2016). Social media platforms have enabled unions to pursue organizational renewal and revitalize their political influence (Geelan, 2022). Social media platforms which have significantly altered traditional mode of communication and organization in workplace relations, have enabled social movements and unions to galvanize their coordination and mobilization capability at "the scale and speed previously unimaginable" (Ford & Sinpeng, 2025, P. 2). If physical space is no longer a requirement for learning and teaching, then physical presence of teachers in a specific location is no longer an indispensable condition for maintaining organizational solidarity and cohesion.

It is beyond doubt that effective communication is crucial for any organization to mobilize its members. The proliferation of digital platforms has immensely enabled faculty unions to extend their communication reach to external audience such as other unions and the general public. As Brickner, Biro, & Hates (2024-2025, P. 1) have pointed out, "In an ever-changing media environment… focusing on communications strategies well before beginning the bargaining" has become a prerequisite for an effective and successful faculty union bargaining process.

The ongoing revolution in information and communication technologies (ICTs) has not only neutralized the distance, but it has also facilitated the ability of labour unions to organize their activities. The recent proliferation of mobile devices widens the organizational reach of unions to hold large-scale conferences and meetings to mobilize their members and rally public support for their cause. Organizing online teaching can also be harnessed by unions to garner wider public support by explaining the rationale behind their strikes. Furthermore, the fear of job loss due to technological breakthroughs has propelled faculty unions in certain universities to engage in close collaboration in order to expand and strengthen their bargaining position (Marcus, 2022).

Faculty unions also utilize social media platforms such as Facebook, Telegram, YouTube, and WhatsApp as mechanisms to propagate their messages, rally their members, garner support from other unions, and build wider public support efficiently and effectively. For example, a 2018 teachers' strike in West Virginia, which was coordinated through a Facebook group that was primarily initiated with a couple of hundred members, succeeded in increasing the numbers to 24000 in a few months. This remarkable achievement of the teachers' union took place in a state that has systematically emasculated public sector workers of their collective strength (Jameison, 2018; Kunkle, 2018). Reflecting on the Brock University faculty association's bargaining negotiation in April 2020, Larry Savage, the Chief negotiator for the Brock University faculty association has pointed out that despite the challenges posed by the global Coronavirus disease, the Brock University faculty union was able to effectively utilize technology to mobilize and engage its members, which culminated in a successful collective bargaining agreement outcome (Savage, 2020)

Furthermore, information and communication technologies have also facilitated the utilization of virtual picket lines as an alternative to the traditional picket lines held at workplace facilities. As Ken Green (2019, Para.15) has aptly pointed out, "as social media have become more sophisticated, so have picket line tactics.". Through overcoming spatial limitations associated with participating in traditional picketing activities, virtual picketing can broaden the scope of participation.

Finally, despite universities' ownership claims over online course materials, their ability to utilize the online course contents such as recorded lectures and course outlines as a tool to break faculty strikes is limited since intellectual property rights rest with faculty members who have created those contents (Grove, 2021). University of Toronto Faculty Association (2020) clarifies this point which is a general trend across other universities:

Employment of U of T's Copyright Policy states that the employer owns the copyright in work made in the course of employment, section 2.1(b) provides that work created by members of the University's Teaching Staff, librarians, or postdoctoral fellows in the course of their research, scholarship or teaching shall not be deemed to be made or undertaken in the course of their employment by the University.

6. Conclusion

The gradual introduction of distance education was suddenly intensified by the global COVID-19 pandemic, which forced educational institutions to abruptly adapt to the online learning environment. Despite the growing attraction of digital education, it would be a wishful anticipation to assume that online teaching and learning will replace traditional in-person teaching and learning, since crucial learning objectives such as interpersonal skills, motivation to form opinions, and teamwork spirit, which are central to employability, can be better achieved through face-to-face contact in classrooms. However, there is no misgiving that digital education has cemented itself as a permanent and indispensable component of the education system. There is no doubt that technology can be harnessed as a useful tool to enrich teaching and learning. While the trend towards online teaching and learning cannot be halted, traditional classroom teaching and learning would continue to remain the bedrock and the defining feature of the education system.

Technological advances are geared to enhance accessibility, engagement, communication, individualized learning, and reduce the cost of education for both educational institutions and students. However, the existing institutional and governance structures have the potential to act as constraints to achieving economies of scale in the education sector. Thus, the promise of technology-led cost saving by educational institutions is tenuous. The shift to online teaching and learning does not necessarily culminate in the demise of faculty unions' bargaining power. The same technology that threatens the power of faculty unions can also enable them to revitalize and galvanize their organizational capability. Faculty unions can utilize various digital platforms to strengthen their mobilization capability and broaden their communication reach beyond their respective members.

The effects of technological adoption in the higher educational institutions are to a significant extent shaped by the existing governance structure that allows faculty unions to be involved in decision making process on how technological changes are implemented. Despite the challenges of technological advances for educators, the institutionalized collegial governance structure has the potent potential to deflect and minimize the threats to faculty unions' collective bargaining power. Thus, contrary to apocalyptical predictions of the Techno-Deterministic perspective, the ingrained institutionalized decisions making structure within the higher educational institutions is conducive to transforming technology into an effective mechanism for supporting pedagogical innovation and promoting institutional efficiency without seriously undermining the collective bargaining leverage of faculty unions.

The findings in this paper make two modest contributions to the existing literature on the interplay between technological changes in the higher education and faculty unions. First, the findings reinforce the explanatory strength of both Intuitional and Affordance perspectives on the impact of technological changes on workplace relations. Second, the findings convey a clear message to faculty unions that they should not perceive technology as a threat but as an opportunity with enormous potential to reinvigorate and galvanize their organizational, communication and mobilization capabilities.

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