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Higher Education Future in the Era of Digital Transformation

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Abstract: A significant number of educational stakeholders are concerned about the issue of digitalization in higher educational institutions (HEIs). Digital skills are becoming more pertinent throughout every context, particularly in the workplace. As a result, one of the key purposes for universities has shifted to preparing future managers to address issues and look for solutions, including information literacy as a vital set of skills. The research of educational technology advances in higher education is now being discussed and debated, with various laws, projects, and tactics being offered. Digital technology has been a part of the lives of today's children from the moment they are born. There are still many different types of digital divisions that exist in our society, and they affect the younger generation and their digital futures. Today's students do not have the same level of preparation for the technology-rich society they will have. Universities and teaching should go through a significant digital transformation to fulfill the demands of today's generation and the fully digitized world they will be living in. The COVID-19 pandemic has quickly and unexpectedly compelled HEIs and the educational system to engage in such a shift. In this study, we investigate the digital transformation brought about by COVID-19 in the fundamental education of the younger generation. Additionally, the study investigates the various digital divides that have emerged and been reinforced, as well as the potential roadblocks that have been reported along the way. In this paper, the study suggests that research into information management must better address students, their increasingly digitalized everyday lives, and basic education as key focus areas.

Keywords: higher education; digital transformation; technology; teaching and learning

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1. Introduction

One of the greatest moments of uncertainty for higher education in recent memory is currently underway [1]. The pandemic has profoundly affected every single person and area of education. However, doubt does not solely come from that. The skills we learn in school are continually changing and becoming obsolete in a few of years since technology advances so quickly [2]. It is possible that some of the most intriguing job openings will be for positions that do not even exist yet in fields we cannot even envision. In order to satisfy the demands of a developing national analog industrial economy, higher education underwent significant change in the 19th and 20th centuries. Higher education is undergoing another transformation right now, this time to meet the demands of a digital, global information economy. What form that revolution will take, however, is a matter on which people fundamentally disagree.

Higher education used to be a privilege reserved for a select few members of society, but it is now more of a prerequisite for success, family care, and tackling the world's most pressing issues. Traditional education still has a place, but we also need access to lifelong, skills-based education that is available to people at any stage of their lives [3]. We must acknowledge how quickly technology develops and how much the conventional model restricts access to education. According to experts from across higher education [4], education should be less regimented and allow for more variation. They advocate for new

courses, numerous streams, and a larger range of credentials so that people can retrain as needed and use their new abilities right away.

All stakeholders will benefit from improved teaching, learning, and university operations if they have a better knowledge of the skills needed in the future and how universities are educating students to develop those skills. Having this insight is essential, especially in light of how quickly the workplace is changing. The main reason behind this transformation is technological advancement [5]. University professors, employers, and students must get ready to accept the uncertainties brought on by technological upheaval. However, no one can anticipate the future, and upcoming events are hard to foresee.

Recent developing technological advances are forcing a dramatic reassessment and conversation about the necessary skills and abilities to succeed in the globalized world of the twenty-first century [6]. Increased automation is disrupting employment opportunities and higher education delivery due to changes in labor demand, occupational sectors, job skills, and career prospects. Educational academics and policymakers are debating future career paths and higher education challenges [7]. Colleges will be affected by this. In the context of developing technology, uncertainty regarding the appropriate course higher education institutions should take in building flexible, strong educational support systems to satisfy educational and future employment objectives is crucial. Universities will continue to be crucial in equipping students with the skills they need to succeed in the workplace of the twenty-first century. Higher education institutions are finding it difficult to effectively plan, strategize, and anticipate the range of desired educational objectives due to the rapid advancement of technology. To be able to fulfill their role as major contributors to assisting students in preparing for the workforce in the future, they need to be able to do all of this.

Due to technological advancements, educational institutions will be compelled to offer more courses that place a heavy emphasis on technical, higher-order cognitive, knowledge-based, and digital skills at the expense of more integrated, collaborative, multidisciplinary, and cross-cultural learning approaches. Some people also assert that as a result of technology, the relationships between students and institutions in terms of learning expectations and needs are changing. It has promoted the development of competitive and alternative learning to enhance flexible, in-depth, and individualized learning experiences.

2. The Role of Technology in Digital Learning

The growth of internet-based technologies has altered the academic environment and helped colleges and universities undergo a digital transition. They have proved particularly helpful in improving communication between students and teachers in higher education [8]. Even though historically, this kind of technology has mostly taken place in the classroom, it is clear that it no longer just occurs in this location and that it may now happen practically anywhere and at any time [9] pushing students and teachers should support the revival of digital transformation use in modern culture. This strain has been acknowledged by certain authors, who claim the advancement of technology in the world's fast transformation demands must be met through higher education [10]. Students use mobile gadgets to refresh their learning processes and increase their efficiency in their daily work. Also, students have developed because of the accessibility of knowledge and are more autonomous Additionally, educators have modified their methods and taken advantage of increased accessibility. However, this could also call for more accessibility, as there are many instances where students communicate with their professors anytime or at night [11]. It is envisaged that universities and other comparable organizations would be involved in creating and executing infrastructures for technological communication that will provide them access to the right channels for learning their viewers. Additionally, these technologies ought to give students and teachers the resources. To fulfill the teaching and learning objective, they must encourage their contact [12].

A study on university students' views, attitudes, beliefs, and standards of privacy and trust surrounding online activities such as social networking, web surfing, and email. In

addition, to be aware of institutional policies students believed that their electronic learning within the university was private [13]. Other factors analyzed included the supportive medium, the impact on presumed privacy, the effects of institutional policies on follow-up, and the potential loss of privacy and trust. A study was conducted to investigate the influence of social networks on cooperative learning [14]. This was done in light of the fact that social media are evident in a student's everyday life and therefore could be an effective tool in supporting in the teaching context, with peers, and with teachers. Social media use enhances student engagement, peer contact, and student-teacher interaction. Other research points to peer contact and course participation as factors that significantly enhance collaborative learning. The ability to develop measures to support, promote, and motivate the application and use of social media in an online learning environment, as well as to provide effective implementation and monitoring for teachers with increased adoption of social media, may be advantageous to students and educators of institutions with great outcomes [15]. Highly focused research using Wikis in the context of learning and education may be advantageous for students. The findings revealed that most students utilize wikis for the chance to collaborate but also because of concern that the information can be improperly changed. Consequently, the authors realized that students would not use wikis even if they provided benefits.

Another study on the assessment of the perspective of digital learning is that learning has been impacted by technological advancement and that, as a result of the opportunities offered by digital technology, the academic community has improved its understanding of implicit technology and how it is perceived and used by all. Digital learning made it easier to comprehend the possibilities, advantages, and constraints of the technology that should be researched for use in academic learning [16]. The effectiveness of students' use of e-learning platforms was examined in different studies this analysis looked into the students' reliance on, adoption of, and integration of technology into academic activities. The study patterns vary, and students' opinions of the platforms' utility and usability are related to their desire to utilize them successfully. Therefore, institutions should encourage and support integrating e-learning platform functions into teaching-learning activities [17]. The emergence of new technologies, digitalization, and professional efficiency is altering people's lives, work, and businesses. The impact of technological advancements on institutions, society, and quality of life provides substantial problems for the employment market in institutions and digital transition [18]. Jobs now performed by faculty will change due to digital learning' constant and continuous advancement, and certain jobs may even become obsolete. According to studies, many activities will change significantly, and many people will need to adjust to new abilities' requirements [19].

As digital technology replaces more antiquated working practices, traditionally well-defined operations become more complicated and collaborative. For employees to adapt to changing work and processes, institutions' faculty must build digital skills in the new digital era [20]. Technical, empirical, social, and personal organizational abilities can be classified as necessary for the new technology paradigm, according to Leonardi & Treem [7], the use and development of organizational skills impact one's capacity to create networks or tackle difficult challenges connected to creativity. Business and Higher Education, with an emphasis on human resource management. Erol & Yıldırım [21], contend that multidisciplinary mentoring is essential for fostering creative problem-solving in an environment that is complicated and constantly changing, such as one associated with technology in the educational sector. Global sources of innovation, policy, knowledge, and resources include higher education [22]. It is crucial for the growth of new professional abilities in the faculty members which impacts the learning fundamental [23].

Concern has been raised concerning the educational gap in new technologies and innovations, which are frequently absent from Higher education institutions and curricula [22]. One of the main causes of unemployment has been a lack of essential graduate employability [24]. Higher education must keep up with the rate of technological advancement to ensure that the technical and non-cognitive skills of faculty members it is necessary for

future employment will be acquired; jobs will be hard to come by for people lacking the necessary talents. To effectively address the skill requirements of the emerging technological job market, Higher education institutions must be creative in their teaching and learning procedures [22]. In an environment of uncertainty, unpredictable change, and significant risk, the faculty of institutions will be required to participate in complicated processes of developing fundamentally new technologies and businesses and updating the decision-making power. Professionals will be accountable for a wider range of activities and will need to comprehend the links between students and teachers [25]. A mindset focused on creating and sustaining networks of specialists who can work together on demand to identify suitable answers to specific challenges will be necessary due to this increasing breadth and complexity [21]. faculty work will concentrate on the limits of knowledge-intensive activities, where creativity and problem-solving flexibility will be essential for competitiveness.

3. Digital Transformation and Higher Education Institutions

Higher education is changing due to digital transformation. In the digital transition, higher education is evolving, not just concerning instructional techniques but also in anticipation of the current abilities that must be imparted, including hitherto unrecognized non-cognitive, technological, organizational, and program administration traits. Non-cognitive skills, sometimes called digital skills, are increasingly vital for professionals in the age of digital transformation because they may help them make better decisions, fix issues, and manage their teams [18]. New graduates, executives, and digital learners need innovative tools and methodologies to increase digital skills and employability [26]. The workplace environment has transformed due to digital transformation [6]. More focus is being placed on its social and emotional aspects. The non-cognitive skill of emotional intelligence, which is the capacity to comprehend, use, and control emotions, is required for administration, customer relations, and decision-making. On the other hand, as technology develops toward more mechanical and digitalized systems, such skills become more crucial [5]. McMurtrey et al. [27] examined the importance of knowledge, technical, and nontechnical skills in a successful professional setting emphasizing information technology. In order to support an appropriate university curriculum for the upcoming years, he highlighted crucial nontechnical skills in the information technology business. Jackson [28] discovered that Higher education institutions considered "knowledge" the most crucial talent, but faculty valued interpersonal abilities like dependability, responsibility, and empathy more than technical ones. Researchers have looked at the significance of non-cognitive skills as educational objectives in light of the hypothesis that social and emotional skills can have a positive impact on one's professional efficiency [29].

The two categories of intrapersonal and interpersonal abilities of faculty members may be used to frame the broad concept of social and emotional competencies. Effective conduct requires intrapersonal abilities (such as realistic goal-setting, a positive outlook, self-control, emotional management, and coping mechanisms). One needs interpersonal skills, such as social problem-solving, viewpoint-taking, conversation, and listening, to engage with people. In the context of the Information Age, attention has turned to psychological and social abilities. Stronger problem-solving skills are required when communication and service delivery becomes more rapid [29]. The literature has identified faculty collaboration, creativity, real concern, negotiation and communication, versatility, the ability to cope with timeframes and psychosocial factors, and observational, transdisciplinary, and systemic thinking as the soft skills that are most important for faculty members and institutions [21]. The process through which psychological and social competencies are developed is known as student learning. Through this technique, it is possible to gain and effectively use the knowledge, preferences, and skills required to comprehend and control emotions, set and achieve positive goals, experience and demonstrate empathy for others, create and uphold good interactions, and make ethical decisions [30].

In order to enhance learning capacity, it may be tempting to compile a list of digital skills; nevertheless, what is important is how these talents will be integrated into a continual transformational process where students learn to generate information to fit various activities and contexts [31]. Several research studies have looked at how digital skills may be developed in a collaborative learning environment and how many external stakeholders can be included in the curriculum creation [32]. According to Bond et al. [33], pedagogical approaches to developing digital skills in higher education can benefit from being integrated with the students and faculty members. As a result, the educational system must ensure that students are receiving adequate instruction certification in digital learning to prepare them for the changing nature of institutions [34].

Higher education institutions are extremely important when it comes to solving technology-related joblessness in developing nations [18]. The scarcity of competent workers and the hardship that results from it are serious problems for these businesses. One of the most serious causes of poverty in emerging nations is employability, which is highly correlated with inadequate higher and technical education. Technology and innovation are essential components for increasing growth in these societies. For Higher education institutions in these nations, training workers to meet the demands of institutions must be a top priority since, despite a booming digital market, there are currently not enough experts with the necessary new skills [35]. However, even though Higher education institutions in advanced economies have a crucial role to play in tackling this issue, they frequently function in a dysfunctional manner, acting more as institutions with the social purpose of qualifying professionals both technologically and as community members than as institutions with the public purpose of acting as certifications of knowledge and experience [36]. The impact of this failure on technological education is particularly worrisome.

Higher education institutions must train their employees to meet the demands of educational institutions and digital transformation [35]. In order to assess the curriculum of several digital courses in a developing nation, data from participant observation were gathered to better understand how students felt about their applicability, certification, the graduation process, and the development of their Digital abilities at Higher education institutions. Additionally, the desired professional skills and profile as envisioned by the employers; the course's goal and alumni profiles; and the advantages of professional student growth. To browse the data and contextualize the topic of the study [37]. For instance, those that said "team spirit" or "cooperative learning of faculty" were categorized as collaborative work abilities, while the ability to communicate ideas. Categorizing content items into analytical categories of abilities, we developed categories by content elements grouped by their relatedness [38].

4. Underpinning Theories

4.1. General Theory for Learning and Teaching in Higher Education

A brief overview of a modern theory of Learning and Teaching (L&T) at higher education institutions that is theoretically reasonable, empirically dependable, and hence (should prove to be) helpful. With its distinguishing traits and procedural components, this theory forms the cornerstone of its creation. Although teaching and learning are connected activities, they need conceptually to be distinguished from one another to allow for clear evaluations of their intricate mechanisms and interactions [39]. For the same reason, it makes sense and is advantageous to distinguish between the L&T environment (in its broadest sense) and student objectives, learning gains, and evaluation. But only the purported outputs and performance put on a show by participants may be used to determine learning and learning outcomes due to their neurologic and behavioral realization and implementation foundation. Hypotheses on how L&T environment circumstances and presumptions may lead to or arise from teaching and learning processes run into a similar problem. Learning also entails the conceptual and practical growth of information, abilities, opinions, behaviors, and perspectives, it should be long-term consequences on how students see the world and behave [40]. Therefore, learning is an activity that depends

more on individual evaluations and reactions to their mental, interpersonal, and learning aspects, whether conscious or not, former or current than is often assumed. Learning is a transformational, mostly autonomous activity rather than merely storing unprocessed knowledge. the notion of competency coordination and amplification in L&T, in theory, represents the dialectic communication between learning and teaching, including a definition of the responsibilities of both instructors and students. Because L&T progressions may help to promote the growth of competencies if they place a greater emphasis on learning than they did in the past such a model should include more than simply a teaching model [41].

In theory, six common learning phases that lead to a learning increase in competencies may be used to define the needed actions of the learners, teachers, and students working together. Finding the issue (subject, question, task, significance) and determining the cognitive and affective learning desideratum are the characteristics of the first stage. Generating concepts for the issue assignment and introducing them into the conversation or offering a task is the focus of the second stage. The fourth step discusses a further level that entails modifying the learning materials that have been received and creating learning products. The learning gain is determined in the fifth stage, for instance, by comparison to previously created ideas for the issue assignment and explanation of the evolution of the abilities. The sixth and final level includes networking abilities and using them in new circumstances [42]. Generally speaking, the concept of competencies the proficient expertise, behavior capabilities (societal and self-aptitudes), academic subject matter capabilities, transdisciplinary competencies, and methodological proficiencies [43].

In the Learning and Teaching (L&T) theory, one or more of the six processes may be more or less emphasized, more or less clear, or the order of the different steps may change. However, it appears without question that each of the six Learning & Teaching processes must be followed. The main responsibility of a teacher is to professionally guide students' learning, including personal and material governance. These may be broken down into four primary actions, the first of which is the provision of tasks (such as giving work assignments, learning materials, or techniques) that consider the learners' skill levels and are focused on the planned improvement in competencies. The second phase involves providing appropriate learning resources, including the necessary tools, media, and teaching and learning approaches. Additionally, the learning process needs to be controlled, and the competency level of the students needs to be diagnosed and given feedback "transformative in-depth learning" should be conceptualized from various angles to describe competency-oriented Learning & Teaching processes [44]. It implies that a set of operational requirements must be satisfied. Thus, in university Learning & Teaching, Planning must be based on goals and skill development., Learning & Teaching material should refer to difficult challenges, and learning content should be contextualized. In light of this, the management of contents (knowledge and skills) should contribute to developing competencies; specifically, L&T scenarios should, to the greatest extent, reflect pragmatically, applied, and transdisciplinary characteristics. Additionally, it is critical to enable numerous problem-solving stances and keep coping with real-world need scenarios in mind (methodological pluralism). A transformation of learners' understanding and skills should be desired, not only deferment of their prior information and facilities, and evaluation and metacognitive strategies of learning materials and L&T processes should be promoted [45]. The following six research-based learning principles may be used to further distinguish this broad knowledge of L&T at higher education institutions [46]. Goal-directed learning practices with specialized feedback are necessary for effective learning. Prior knowledge of students can positively or negatively impact learning. Learning and how students use their information and abilities can be positively or negatively impacted by how they organize their knowledge. The direction, intensity, perseverance, and quality of students' digital learning behaviors (as well as their engagement) depend greatly on their motivation. Students' digital learning and functioning can be positively or negatively impacted by the climate of the learning environment, which includes its intellectual, social, emotional, and physical components. Students must learn to keep track of and modify their

learning strategies to become autonomous (self-determined) learners. These L&T concepts are not only based on research, but they are also unaffected by subject areas, proficiency level, and structural and functional. Thus, everyone should be able to use their ideas. Learning objectives, training material, and evaluation of learners' performance are the three main components of L&T procedures since the first cognitive concept in the list above is accurate [46]. The latter includes examining and learning, which entails determining whether desired (and unexpected) knowledge and capabilities have been attained through effective learning that represents the beginning and ending conditions of the gaining and training environment, as well as the teaching methods and skills.

To clarify the modeling basis and wellspring of reasoning for the principal investigators of Learning & Learning in colleges and universities that are below described, it is helpful to quickly review a few of the most well-known and observationally sound contemporary theories of learning applied to higher education teaching [47]. These theories encompass information processing, social (constructivism), cognitive, and digital behavioral learning, as well as humanistic learning. These learning theories emphasize illustrative issues such as learning principles, procedures, and sub-models relevant to and reflected by the collections for L&T in higher education institutions. These worries span from learner-centeredness, the importance of feedback, the dynamic nature of learning and teaching, the significance of incentives and healthy competition, and the significance of personality development and self-determination [48].

4.2. Digital Transformation of Social Theory

One crucial contradiction of earlier social theories of digital transformation is to stop at digital depictions of evolving digital reality if digital transformation is properly regarded as an imitation of the digital era. The absurdity's endurance is intriguing due to how strikingly it resembles the scenario in the initial stages of digital computation and learning: In 1945, electronic parts were commonly accessible, nonetheless, digital conduct stood out. Instead of dividing up images into bits, television broadcasts scanned images into lines. The correspondent representation of the repeats reverted by a continuously sweeping microwave beam was provided by radar. Hi-fi systems brought the warmth of vinyl-pressed analog music into postwar living rooms without introducing any losses from digital simulation. Teletype, Morse code, and punch card financial reporting machines were considered sluggish, low-fidelity, and outdated examples of digital technology. The world is governed by digital transformation [49]. Therefore, we resemble ancient illiterates who converse about written works they cannot read. Our writings on digital transformation in the literature indicate that we mistakenly perceive the digital world. The assertion that compositions are uncommon in social theory, and its more frequently connected with observational academic research, and if with theory, then with "the older techniques of Talcott Parsons," is consistent with our digital signal's instigation on time constant to what is more appropriately comprehended as a framework [50].

The earlier theory has never stopped being suspected of influencing economic interventionism, in contrast to the latter theory, which has been criticized as "a sententious Oriental organizing framework, within which indication of historical ambivalence is intricately tortured to fit Parsons' grand theoretical instrumentation" [51]. Luhmann [52] explains how Parsons combined two distinctions—the system-related difference between internal and external and the execution perspective difference between the desire to achieve against orientation—to create the infamous structure to restructure the agonizing Learning management paradigm. The outcome of the activity is a systematic sociological theory that is now existing. It offers a formulation of common social ideas, via cross-tabulation, an explanation of the core notion of action. According to Luhmann [52], Parson's theory's fundamental matrix architecture enabled a previously unheard-of and as-of-yet unparalleled potential for combining disciplinary and transdisciplinary knowledge. Although Luhmann may be correct in emphasizing that more potent alternatives have not replaced Parsons' general theoretical superstructure, it is still uncertain What potential there is

for such a broad theory in contemporary social studies. Holton [53] joined the equally negative predictions of the Effectively theory program early on. Although he consistently supported dissimilarity in the design of this program, He admitted that the theory represented a turning point for social theory in its current form. Parsons doesn't fit into any of his theory's numerous categories since it does not address the problem of cognitive self-implication. The theory only provides subjective, more or fewer views of contemporary Society, which is why it cannot make a systematic distinction between social organization and culture Luhmann [52]. It is well known that this review was the catalyst for the rollout of Luhmann's self-implicative theory program. Even if we could agree with Luhmann's censure, we contend that the main problem with Parsons's theory is not the basic cross-tabulation technique or the lack of self-implication. Instead, Parson's decision to focus on modern society was a wise one, and the combination of his theory with it was able to effectively turn it into a real-life version of a digital social theory. The primary problem is that he applied differences when cross-tabulating, an essential digitization technique. When we examine the two basic differences that comprise them, we see that only one of them distinguishes anything contrast between both in and outside could be rationally regarded as both thorough and exclusive. Even though it may ingeniously transform it into the difference between present and future direction, the distinction between consummator and vision based is false, as Luhmann [52] notes. Because it is impossible to divide and recode the whole observation area using the distinction between the present and the future, developing a complete social theory is challenging. The problem with Parson's theory does not lie and is not misunderstood probable that their original driving distinctions were too mixed. Instead, it is probable that he was misled by his interpretation of the foundational sociological works and created and used a distinction that conflicts with the framework of his theory. Luhmann [52] was unaware of, or at least did not remark much on this error; if he did, it was for Parsons' careless and arbitrary selection of his guiding distinctions rather than their dubious distinctiveness. The reasonably correct of the two Parsonian divisions, system vs. environment, was still chosen by Luhmann as the governing distinction and master code of his theoretical architecture. Although the attempt to reduce this entire architectural style to symmetric distinctions characterizes it as a whole, false distinctions continue to crop up frequently, not only when The basis of Luhmann's infrastructure, as well as significant underlying characteristics from his social theory. His paradigm of autonomous social systems Luhmann [52] which differentiates organisms, psychological systems, and social systems, is intuitively conceived, but it does not draw real differences because not all non-organisms are social systems. Although a cross-tabulation is a true distinction that can be used to distinguish and highlight the various forms of social differentiation segmentation, centralization, differences, and functional differentiation and false distinctions continue to be used to draw the boundaries, such as between the function systems of scientific research and learning system, as well as the non-scientific goals of education, artistry, and devotion [54]. His critical differences, such as complex platforms, social connection, precise connotations, and the contemporary as opposed to the past and the future, are still relevant despite these and other related issues. As revolutionary as Parsons' first work in this regard is Luhmann's attempt to segment the entire field of social theory and reframe the distinctions.

In light of this, Luhmann's theory is possibly analogous to social theory that has undergone digital transformation. Contrarily, most other social theories and the associated theoretic discussions depended on being drawn to false differences. Examples include prescriptive, framework, behavior patterns (and, within the action, ambient techno versus valuation and evidently, versus communication), evolvement, survivorship, conflict, faculty member, community/society, and financial system. The problem is not only with the selection's arbitrariness but also with the caliber of the distinctions produced, as none of these divisions are necessarily exclusive and exhaustive. Think about the societal and economic systems as examples. This Weberian intrinsic difference weakens the arbitrary emphasis on education and society. A real digital social theory would also have to examine

the major distinctions of previous theories for their digital properties and, if required, convert erroneous distinctions into correct ones. This contingency focus, which dominated Luhmann's evaluation of social theories, would be necessary to maintain the contingency focus. This emphasis on accurate differences does not imply that erroneous distinctions may never be useful. Since the beginning of sociology, differences like economy/society have proven useful in developing research questions and academic discourses.

Additionally, common in management studies are false differences. For instance, researchers consistently push for the observation of the artificial boundary between teacher and student and the ongoing conflicts or challenges that inevitably result from it. In truth, the forced separation and overlap of the education system justifies the continuation of a focused discourse on the digital environment Therefore, rather than challenging erroneous distinctions, we will treasure them for as long as we live for or on our study difficulties. It is possible to categorize all mankind as long as these artificial divisions look convincing or at least intriguing and do not generate other issues, they will remain useful. However, digital learning functions differently and is tremendously helpful for solving traditional learning issues, as evidenced, among other things, by our daily encounters with the growth of digital transformation [55]. Therefore, issues with distinctions that have become dysfunctional, ambiguous, or uninteresting are particularly well-suited for digital theorizing [56].

5. Higher Education Future

Before COVID-19, higher education had not undergone a significant shift in decades. We wonder what will shape higher education in the upcoming decade more than 20 years into the 21st century. A new pedagogical method has emerged as a result of the contemporary Information Age. Learning can be done in ways that are more active, collaborative, self-paced, adaptive, experiential, and individualized. The pandemic and the additional virtual settings in the blended model have expedited everything. Higher education is now more inquiry-driven and learner-focused, with lectures taking on the role of facilitators in what are known as "flipped classrooms".

Despite the present trends, it is important to critically study the most recent advancements in learning theory, didactics, and digital education technology in light of the rising digitization of higher education. The landscape of higher education is anticipated to alter, taking into consideration technological advancements in society not as an isolated force but rather as part of a larger context. The anticipated change will be brought about by changes in industry knowledge and competency standards, social changes brought about by an increasingly digitalized world, new developments in didactics reflecting ongoing discussions in the field of didactics and learning theory, and new uses of digital technologies that are likely to result in the creation of new learning environments and modes of instruction.

The literature makes it abundantly evident that the economic view of higher education's future places a strong emphasis on students, labor-market requirements, and labor-market content. The importance of learning and the abilities and competencies that students will need to succeed in the workforce are highlighted from the perspective of educational science. From a technological standpoint, computing is the only discipline where digitization and digital transformation are major themes. The view into the future of higher education must combine all of these perspectives into a unified, all-encompassing viewpoint. Demand and the freedom to shape and modify higher education, which is governed by governance regulations such as legislation, financial techniques, and quality assurance, are key factors in the question of how higher education might appear in the future.

The distinction between physical and virtual learning is blurred by the use of digital technology, which also provides options for flexible learning. The future of higher education can be summed up by the four learning models [57], which can be seen as four trends or modes:

1. With the university acting as a closed ecosystem that supports and mentors students while they pursue a course of study, the study program offers fundamental, thor-

ough preparation for post-graduation employment. For those who enter college or a university straight out of high school, this plan works effectively.

2. The first-degree program provides a strong base of skills and knowledge. It can resemble a condensed study schedule. On top of this base, the curriculum is continuously developed by the student using fresh learning units. Several training companies make these extra blocks available.
3. At a college or university, the course of study is no longer completed as a little unit. Instead, it consists of separately merged modules from many training providers, all of varying sizes. Which learning phases or units the students choose to finish is up to them. The university is also accountable for officially acknowledging finished learning phases by issuing certificates or other forms of evidence.
4. As high school graduates, the students in this module do not go on to higher education. They already have individual identities and life experiences. Later in life, they enroll in college or university and incorporate their life experience into their studies. They require a flexible course of study that alternates between the advisers' and teachers' didactic control and their own autonomy.

Institutional support, governance, and quality assurance are still up for debate. The suggested learning models will have a significant impact on how colleges and universities are run and what they do. These models can be used as a starting point to develop and generate ideas for the adoption of the models that will work best for each institution. Finally, technology is not the only foundation for innovation. Innovation is about using new technologies as conductors to help every single person reach their higher education goals more fully and successfully.

6. Discussion

Students, instructors, and administrators must collaborate to support and evaluate the changes made in order to promote this digital revolution. Participatory culture must also be fostered. Financial limitations and the limitations imposed by the current IT infrastructure are two additional obstacles that universities must overcome in order to make this shift [58]. Public universities will face shrinking budgets as a result of decreased government funding, while institutions are seeing a decline in student enrollment as a result of the current unstable economic climate. Universities' access to IT infrastructure will also hinder their ability to fully embrace digital transformation, and certain investments will be required to improve these technological capabilities [58]. Universities are generally optimistic about this shift despite all of these difficulties. In a recent poll of institutions across all nations in the European Higher Education Area, the majority of universities indicated that they have plans to investigate novel teaching methods (92%) and improve digital capability (75%), despite the current economic crisis [59].

Technical degree programs are likely to see this change earliest since there is a high demand from companies, easy online skill certification for students, and an abundance of courses taught by academics at prestigious universities. Because many working adults looking to change careers lack the time or finances for full-time, residential programs, master's programs are likely to be affected before bachelor's programs. Prior to state universities, which would be protected, private universities may be impacted. Technical master's degrees from private colleges, however, won't be the end of this shift. In the end, it will have an impact on almost every degree program and every level of the academy.

What does that leave us with then? We must always evaluate how successfully we are helping our students as educators. What is our customer value proposition, to put it in the most direct commercial terms? When we consider this subject, we often become perplexed. Because of how solid our industry has been for so long, we've confused our model with our objective. There is no doubt about it: Our model is under danger. The use of technology will alter how we work, as we have seen in other sectors, and it will be painful. Even though these developments are alarming, we are confident that they will ultimately be a positive influence.

What is the primary goal of higher learning? Now is the time to ask that question. The solution is straightforward: As educators, our goal is to provide as many students with the resources they need to identify and nurture their abilities and use them to positively impact the world. What if modern technology made it possible for us to comprehend the various backgrounds, objectives, and learning preferences of our students and then offer them individualized instructional materials? What if we could provide education to students using on-demand platforms that would let them learn whenever, wherever, and however they wanted, as opposed to forcing them to adhere to the "broadcast" schedule of the current educational model? What if the economies of scale afforded by digital delivery enabled us to drastically reduce the cost of our instructional resources, opening doors for students we had previously shut out of our immaculate quads? Could we possibly find, as the entertainment industry has, a plethora of great people with significant contributions to offer but just didn't fit within the strict confines of our previous system?

7. Conclusions

There were dramatic shifts in the main contributions and roles of community colleges and universities during the past centuries they have existed. Now, we could touch how close we are to being on the blink of another shift. The cost of higher education has grown enormously during the last fifty years. Alternatives including short courses, social media-based courses, certificates, etc. have grown enormously during the last two decades. Even the guarantee of achieving better life due to college and universities has faded. Career academies during or after high school have sprouted in many communities as a cheaper, faster alternative. Few industries are starting to accept, even encourage eight weeks to three months certifications as a preferred alternative. In this article, we have tried to answer three main questions, what will be the place of colleges and universities in the future? Should college and university faculty, staff, and students work to guide the shift, or should we just react to the changing situations? What will be the role of digital transformation in updating our reactions as faculty and students?

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References

1. Alexander, B. *Academia Next: The Futures of Higher Education*; Johns Hopkins University Press: Baltimore, MD, USA, 2020.
2. Park, C.Y.; Kim, J. Education, skill training, and lifelong learning in the era of technological revolution. *Asian Dev. Bank Econ. Work. Pap. Ser.* **2020**, *34*, 3–19. [CrossRef]
3. Prasetyo, I.; Suryono, Y.; Gupta, S. The 21st century life skills-based education implementation at the non-formal education institution. *J. Nonform. Educ.* **2021**, *7*, 1–7. [CrossRef]
4. Ahmad, T. Scenario based approach to re-imagining future of higher education which prepares students for the future of work. *High. Educ. Ski. -Work.-Based Learn.* **2019**, *10*, 217–238. [CrossRef]
5. Alenezi, M. Deep dive into digital transformation in higher education institutions. *Educ. Sci.* **2021**, *11*, 770. [CrossRef]
6. Zain, S. Digital transformation trends in education. In *Future Directions in Digital Information*; Elsevier: Amsterdam, The Netherlands, 2021; pp. 223–234.

7. Leonardi, P.M.; Treem, J.W. Behavioral visibility: A new paradigm for organization studies in the age of digitization, digitalization, and datafication. *Organ. Stud.* **2020**, *41*, 1601–1625. [CrossRef]
8. Sayaf, A.M.; Alamri, M.M.; Alqahtani, M.A.; Al-Rahmi, W.M. Information and communications technology used in higher education: An empirical study on digital learning as sustainability. *Sustainability* **2021**, *13*, 7074. [CrossRef]
9. Li, X.; Bergin, C.; Olsen, A.A. Positive teacher-student relationships may lead to better teaching. *Learn. Instr.* **2022**, *80*, 101581. [CrossRef]
10. Santos, H.; Batista, J.; Marques, R.P. Digital transformation in higher education: the use of communication technologies by students. *Procedia Comput. Sci.* **2019**, *164*, 123–130. [CrossRef]
11. Batista, J.; Santos, H.; Marques, R.P. The use of ICT for communication between teachers and students in the context of higher education institutions. *Information* **2021**, *12*, 479. [CrossRef]
12. Comi, S.L.; Argentin, G.; Gui, M.; Origo, F.; Pagani, L. Is it the way they use it? Teachers, ICT and student achievement. *Econ. Educ. Rev.* **2017**, *56*, 24–39. [CrossRef]
13. Kurkovsky, S.; Syta, E. Monitoring of electronic communications at universities: Policies and perceptions of privacy. In Proceedings of the 2011 44th Hawaii International Conference on System Sciences, Washington, DC, USA, 4–7 January 2021; IEEE: Piscataway, NJ, USA, 2011; pp. 1–10.
14. Alkhathlan, A.A.; Al-Daraiseh, A.A. An Analytical Study of the Use of Social Networks for Collaborative Learning in Higher Education. *Int. J. Mod. Educ. Comput. Sci.* **2017**, *9*, 1–13. [CrossRef]
15. Bozanta, A.; Mardikyan, S. The effects of social media use on collaborative learning: A case of Turkey. *Turk. Online J. Distance Educ.* **2017**, *18*, 96–110. [CrossRef]
16. Cilliers, L. Wiki acceptance by university students to improve collaboration in higher education. *Innov. Educ. Teach. Int.* **2017**, *54*, 485–493. [CrossRef]
17. Moreno, V.; Cavazotte, F.; Alves, I. Explaining university students' effective use of e-learning platforms. *Br. J. Educ. Technol.* **2017**, *48*, 995–1009. [CrossRef]
18. Goulart, V.G.; Liboni, L.B.; Cezarino, L.O. Balancing skills in the digital transformation era: The future of jobs and the role of higher education. *Ind. High. Educ.* **2022**, *36*, 118–127. [CrossRef]
19. Schwartz, S.E.; Kanchewa, S.S.; Rhodes, J.E.; Gowdy, G.; Stark, A.M.; Horn, J.P.; Parnes, M.; Spencer, R. "I'm having a little struggle with this, can you help me out?": Examining impacts and processes of a social capital intervention for first-generation college students. *Am. J. Community Psychol.* **2018**, *61*, 166–178. [CrossRef]
20. Kelchevskaya, N.; Shirinkina, E. Institutional Model of Drivers of Digital Development of Human Capital in the Strategic Perspective. In Proceedings of the 2nd International Scientific and Practical Conference "Modern Management Trends and the Digital Economy: From Regional Development to Global Economic Growth"(MTDE 2020), Yekaterinburg, Russia, 16–17 April 2020; pp. 499–503.
21. Erol, M.; Yıldırım, İ. The development of higher education life satisfaction scale. *Eğitimde Kuram Uygul.* **2016**, *12*, 221–243.
22. Ilori, M.O.; Ajagunna, I. Re-imagining the future of education in the era of the fourth industrial revolution. *Worldw. Hosp. Tour. Themes* **2020**, *12*, 3–12 . [CrossRef]
23. Caliskan, S.; Kurbanov, R.; Platonova, R.; Ishmuradova, A.; Vasbieva, D.; Merenkova, I. Lecturers views of online instructors about distance education and adobe connect. *Int. J. Emerg. Technol. Learn. (iJET)* **2020**, *15*, 145–157. [CrossRef]
24. Gimba Dogara, M.S.B.S.; Kamin, Y.B.; bin Abd Hamid, M.Z.; bin Nordin, M.S. Developing soft skills through project-based learning in technical and vocational institutions. *Methods* **2019**, *15*, 17.
25. de Vries, S.; Jansen, E.P.; van de Grift, W.J. Profiling teachers' continuing professional development and the relation with their beliefs about learning and teaching. *Teach. Teach. Educ.* **2013**, *33*, 78–89. [CrossRef]
26. Rao, M. Enhancing employability in engineering and management students through soft skills. *Ind. Commer. Train.* **2014**, *46* . [CrossRef]
27. McMurtrey, M.E.; Downey, J.P.; Zeltmann, S.M.; Friedman, W.H. Critical skill sets of entry-level IT professionals: An empirical examination of perceptions from field personnel. *J. Inf. Technol. Educ. Res.* **2008**, *7*, 101–120. [CrossRef]
28. Jackson, D. Developing graduate career readiness in Australia: shifting from extra-curricular internships to work-integrated learning. *Int. J. -Work.-Integr. Learn.* **2018**, *19*, 23–35.
29. Cunningham, W.V.; Villaseñor, P. Employer voices, employer demands, and implications for public skills development policy connecting the labor and education sectors. *World Bank Res. Obs.* **2016**, *31*, 102–134. [CrossRef]
30. Denham, S.A.; Brown, C. "Plays nice with others": Social–emotional learning and academic success. *Early Educ. Dev.* **2010**, *21*, 652–680. [CrossRef]
31. Suskie, L. *Assessing Student Learning: A Common Sense Guide*; John Wiley & Sons: Hoboken, NJ, USA, 2018.
32. Samkin, G.; Keevy, M. Using a stakeholder developed case study to develop soft skills. *Meditari Account. Res.* **2019**, *27*, 862–882. [CrossRef]
33. Bond, M.; Marín, V.I.; Dolch, C.; Bedenlier, S.; Zawacki-Richter, O. Digital transformation in German higher education: student and teacher perceptions and usage of digital media. *Int. J. Educ. Technol. High. Educ.* **2018**, *15*, 1–20. [CrossRef]
34. Arkorful, V.; Abaidoo, N. The role of e-learning, advantages and disadvantages of its adoption in higher education. *Int. J. Instr. Technol. Distance Learn.* **2015**, *12*, 29–42.

35. Goulart, A.R.; Liboni, L.B.; Cezarino, L.O. Qualification as a societal challenge and the role of higher education from a system approach. *High. Educ. Ski. -Work.-Based Learn.* **2021**, *11*, 1002–1019. [CrossRef]
36. Demetriadis, S.; Barbas, A.; Molohides, A.; Palaigeorgiou, G.; Psillos, D.; Vlahavas, I.; Tsoukalas, I.; Pombortsis, A. "Cultures in negotiation": teachers' acceptance/resistance attitudes considering the infusion of technology into schools. *Comput. Educ.* **2003**, *41*, 19–37. [CrossRef]
37. Cederquist, S.; Fishman, B.; Teasley, S.D. What's Missing From the College Transcript? How Employers Make Sense of Student Skills. In *Handbook of Research on Credential Innovations for Inclusive Pathways to Professions*; IGI Global : Hershey, PA, USA, 2022; pp. 234–253.
38. Muijs, D.; Reynolds, D. *Effective Teaching: Evidence and Practice*; Sage: Newcastle upon Tyne, UK, 2017.
39. Reiser, B.J. Scaffolding complex learning: The mechanisms of structuring and problematizing student work. *J. Learn. Sci. Psychol. Press* **2018**, *13*, 273–304. [CrossRef]
40. Møller, J.E.; Kjaer, L.B.; Helledie, E.; Nielsen, L.F.; Malling, B.V. Transfer of communication teaching skills from university to the clinical workplace–does it happen? A mixed methods study. *BMC Med Educ.* **2021**, *21*, 433. [CrossRef] [PubMed]
41. Jacob, B.; Hofmann, F.; Stephan, M.; Fuchs, K.; Markus, S.; Gläser-Zikuda, M. Students' achievement emotions in university courses–does the teaching approach matter? *Stud. High. Educ.* **2019**, *44*, 1768–1780. [CrossRef]
42. Voithofer, R.; Nelson, M.J. Teacher educator technology integration preparation practices around TPACK in the United States. *J. Teach. Educ.* **2021**, *72*, 314–328. [CrossRef]
43. Serdenciuc, N.L. Competency-based education–Implications on teachers' training. *Procedia-Soc. Behav. Sci.* **2013**, *76*, 754–758. [CrossRef]
44. Moore Jr, D.E.; Green, J.S.; Gallis, H.A. Achieving desired results and improved outcomes: integrating planning and assessment throughout learning activities. *J. Contin. Educ. Health Prof.* **2009**, *29*, 1–15. [CrossRef] [PubMed]
45. Carver, C.L. Transforming identities: The transition from teacher to leader during teacher leader preparation. *J. Res. Leadersh. Educ.* **2016**, *11*, 158–180. [CrossRef]
46. Ambrose, S.A.; Bridges, M.W.; DiPietro, M.; Lovett, M.C.; Norman, M.K. *How Learning Works: Seven Research-Based Principles for Smart Teaching*; John Wiley & Sons: Hoboken, NJ, USA, 2010.
47. Schoenfeld, A.H. *How We Think: A Theory of Goal-Oriented Decision Making and Its Educational Applications*; Routledge: London, UK, 2010.
48. McKnight, K.; O'Malley, K.; Ruzic, R.; Horsley, M.K.; Franey, J.J.; Bassett, K. Teaching in a digital age: How educators use technology to improve student learning. *J. Res. Technol. Educ.* **2016**, *48*, 194–211. [CrossRef]
49. Roth, S. Digital transformation of social theory. A research update. *Technol. Forecast. Soc. Chang.* **2019**, *146*, 88–93. [CrossRef]
50. López, J. *Society and Its Metaphors: Language, Social Theory and Social Structure*; A&C Black: Edinburgh, UK, 2003.
51. Baker, G. The use of performance measures in incentive contracting. *Am. Econ. Rev.* **2000**, *90*, 415–420. [CrossRef]
52. Luhmann, N.; Albrow, M. *A Sociological Theory of Law*; Routledge: London, UK, 2013.
53. Holton, J.A. Building trust and collaboration in a virtual team. *Team Perform. Manag. Int. J.* **2001**, *7*, 36–47. [CrossRef]
54. Roth, S. Draw your organization! A solution-focused theory-method for business school challenges and change. *J. Organ. Chang. Manag.* **2021**, *34*, 713–728. [CrossRef]
55. Rapanta, C.; Botturi, L.; Goodyear, P.; Guàrdia, L.; Koole, M. Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigit. Sci. Educ.* **2020**, *2*, 923–945. [CrossRef]
56. Gee, J.P.; Hayes, E.R. *Language and Learning in the Digital Age*; Routledge: London, UK, 2011.
57. Orr, D.; Luebcke, M.; Schmidt, J.P.; Ebner, M.; Wannemacher, K.; Ebner, M.; Dohmen, D. *Higher Education Landscape 2030: A Trend Analysis Based on the Ahead International Horizon Scanning*; Springer Nature: Berlin/Heidelberg, Germany, 2020.
58. García-Morales, V.J.; Garrido-Moreno, A.; Martín-Rojas, R. The transformation of higher education after the COVID disruption: Emerging challenges in an online learning scenario. *Front. Psychol.* **2021**, *12*, 616059. [CrossRef]
59. European University Association. EUA 2020: Preliminary Results of the EUA Survey on "Digitally Enhanced Learning at European Higher Education Institutions. 2020. Available online: https://www.fondazionecrui.it/wp-content/uploads/2020/05/Survey_03-04-2020_.pdf (accessed on 1 October 2022).