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Abstract: This study focuses on the "Development of the Future Curriculum at the university level," aiming to define and understand the elements of a progressive curriculum in higher education. Using a quantitative methodology, the study involved surveys of 100 Heads of Departments (HODs) using a three-point rating scale to assess their perceptions and expectations concerning curriculum innovations driven by advancements in science, technology, and global socioeconomic changes. The results underscore the imperative to integrate ongoing research trends and cross-cultural elements into curriculum planning, preparing students for upcoming challenges. The study highlights the necessity for faculty to be aware of these research trends and the implementation of policies that meet international standards and adapt to changing educational needs. Additionally, it points out significant deficiencies in existing curricular structures that hinder their adaptability to global developments. The research recommends embracing interdisciplinary methods and continuous professional development for educators to keep curricula pertinent and evolving.

Key Words: Future Curriculum, Internationalization, Higher Education, Future Studies, Enabling, Professional Development and Challenges

Introduction

The idea of the future curriculum is based on social and economic development. This study was designed to explore the "Development of the Future Curriculum at the university level." International collaboration, knowledge dissemination, skills, and quality assurance are the keys to success for any institution. This review aims to identify crucial factors that can play a significant role in developing the future curriculum in higher education. Therefore, various types of research are exchanged, and the summary is that international collaboration, sustainability, economy, technology, management, educators, and learners are crucial in enhancing the future curriculum and transmission at the international level. The future curriculum is based on three important elements: social relationships at the international level and economic relationships at the international level. The third element is the most important, as it establishes a relationship between these two emerging knowledge at the current level of national and international levels. The knowledge is emerging in social, economic, and political aspects. It is based on various factors related to the future curriculum. The element of the philosophy of the curriculum. It is based on the current trends of emerging knowledge among students and teachers at the university level. The curriculum philosophy is the most important part of preparing the curriculum at the university level. Experts in the curriculum, curriculum developers, and policymakers should be aware of the current trends in global knowledge.

The prospects, impacts, and challenges of future curricula are factors for nations to contend with for development in the world. However, experts in the field of education should be aware of the emerging trends in artificial intelligence through forecasting the future curriculum. The progress of nations should

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be based on the knowledge and skills of science. Nations are prepared through education, science, engineering, medicine, agriculture, and information dissemination. The emerging future curriculum is based on science, such as emerging disciplines like bio-medical correlate of learning, nanotechnology, machine learning, artificial intelligence, research ethics, and active and disruptive technologies. The future curriculum should be prepared based on the diversity of knowledge, which should be research-based, interdisciplinary, and transdisciplinary. The wisdom to change the future curriculum depends on the expertise of curriculum developers, and policymakers should be aware of societal, national, and international social needs. Students, educators, and curriculum developers should be aware of global trends in emerging subjects. Future experts should be aware of the predictive needs of the nation's future curriculum.

In the past few decades, numerous critical research studies have been conducted and published in the form of books and articles to assist researchers in finding ways to improve the curricular system according to the evolving needs of the time. Generally, due to the changing and unforeseen challenges of the future, various issues are still being deliberated upon, making it imperative to prepare curricula for the future and devise new ways to deliver them to learners. In this context, understanding the development of curricula and the changes in the nature and role of higher education is necessary. The fundamental aim of this review is to identify past potentially significant initiatives taken to improve future curricula in the field of higher education, along with their significance and limitations. Anticipating the future cannot be left to chance; instead, it is something that must be taken seriously and addressed through appropriate planning. This can be accomplished by conducting research on future curricula, the possibilities associated with them, and their potential impacts. It is crucial to plan for future curricula not only for the next fifty years but also for the entire nation, involving policymakers, curriculum developers, and the entire country.

The future generations and the current generation can be shaped by providing essential data through research for the future. The advancement of research through the future curriculum is based on trends, events, and their impact on learners. Therefore, discussing the objectives, definitions, fundamental concepts, and importance of the future curriculum is crucial.

Literature Review

In today's rapidly evolving landscape, marked by swift advancements in information and technology, there has been a noticeable shift in learning environments, methods, and techniques. Learning is inherently a social activity, requiring well-organized, robust materials. Learning experiences can now occur not only through materials but also through online communities and networks. Additionally, the differences in place and time, rapid population growth, and the population's evolving needs have led to rapid changes in the knowledge learned. Therefore, efforts to develop curricula are progressing in line with these new advancements, and the concept of curriculum development is increasingly being used in distance education methods. Program development studies are ongoing processes that involve interaction between entities, objects, and interactions. Thus, it can be said that the program development process is a study of solving these principles and activities within the program to achieve program objectives correctly, effectively, and realistically, which has been put into practice. Since there is a positive relationship between achieving educational objectives and carrying out educational activities within the program's scope, elements affecting the results should be considered within the system's completeness, and preparation for changes should be made constantly in collaboration with each other. This expectation will be from the educational path (Ting, [2000](#)).

In distance education, exercises that began through mail learning and continued with the use of radio, video conferencing, teleconferencing, computers, and the internet have evolved with advances in communication mediums on a large scale. In other words, educational programs will continuously renew and progress themselves. (Kilic, [2014](#)).

It promotes a more flexible, adaptable, and responsive approach to meet the needs of students. Therefore, studying this subject is essential for a better understanding of curriculum development in Indonesia and reflecting on the success of previous models in the context of the future. (Setiawan & Ahla, [2023](#)).



In their study, Barnhardt and Kawagley (2005) identify three interrelated themes that initiate research into indigenous knowledge systems. Articulation and documentation of indigenous knowledge systems. Definition of scientific frameworks and learning/practical knowledge associated with indigenous ways of knowing. Developing practical wisdom to integrate Western and Indigenous ways of knowing and conducting an assessment. Barnhardt and Kawagley engage in a substantial exchange of ideas on local ways of knowing, leading to significant research endeavors. (Setiawan & Ahla, 2023).

Understanding Indigenous Ways

Indigenous ways of knowing or local epistemologies refer to the research being conducted in this area. It aims to identify the internal workings of various indigenous knowledge systems and the need to understand them better. By striving to find common ground, these knowledge systems can be better understood at a global level. (Setiawan & Ahla, 2023).

Culturally Responsive Pedagogy or Contextual Education sees the incorporation of indigenous ways of knowing into curricula as a hopeful addition, with reference to the work of Alaska Native scholars in 1998, as cited by Barnhardt & Kawagley (2005, p. 18). Ethno mathematics is a new field that has examined the cross-analysis of mathematics.

A better understanding of what mathematics is and how it can be applied is essential for science education. Once again, Barnhardt and Kawagley (2005, p. 18) refer to work done in Alaska, where teachers have integrated local constructions, such as fish racks, into their curriculum. (Setiawan & Ahla, 2023).

The study of mathematics can significantly affect local students' learning and performance on state assessments. Learning indigenous languages is seen as an essential part of understanding indigenous knowledge. Barnhardt and Kawagley (2005) emphasize the importance of researchers not only conducting research in the language but also understanding the deep meanings of local languages to better comprehend local students' ways of thinking. (Setiawan & Ahla, 2023).

Cross-generational learning/elders' roles/camps are seen as an important and valuable aspect. Initiatives to prepare the scientific system of Aboriginal youth are essential. However, there are limited studies in this area regarding the types of pedagogical and curricular practical wisdom that can assist students in their learning across generations. (Setiawan & Ahla, 2023).

Place-based education for local students is seen as significant. They refer to research conducted by Johnson (2012) and others that advocate for the inclusion of local environments as an essential component of promoting intercultural education. Local science or sensitization sees how knowledge is constructed, organized, utilized, and communicated in local populations and Western science. There is some conceptual harmony, but disagreement lies in how knowledge is learned and applied. (Setiawan & Ahla, 2023).

Two other topics are cultural systems, complexity, and local research in learning and education. The connection between these research domains lies in how a better understanding of scientific systems is achieved within them. Learning can benefit Aboriginal and non-Aboriginal students alike. They feel local scholars can develop their research methodologies when they understand this context better. There is a need for research. (Setiawan & Ahla, 2023).

Theoretical Foundations

There is a concept of hereditary epistemology and ontology in understanding ways of knowing. Epistemology is related to knowledge and is considered true about the body given by science. Epistemology is often equated with rationality and reason, while ontology is used to classify systems of these concepts that constitute the body of knowledge. Both are used for expression. The process of thinking is based on individual foundations and cultural beliefs and practices on a large scale. The meaning of this through ways of knowing is mostly understood within literature. Nature is theoretical. These scientific paradigms are mostly centered around the existing tension. (Shaw, 2009).

All curricula of higher education, up to various degrees, are constructed with theoretical foundations as well as knowledge acquired through work and social means (Bernstein, 2000). Regarding more theoretical curricula, it can be said that they maintain conceptual coherence (Muller, 2009, p. 217).

Conversely, knowledge acquired from the field of practice can be aligned with context coherence. While both diplomas and degrees hold context coherence and conceptual coherence elements, diplomas generally will embody specificity through alignment with coherence. Muller emphasizes the point that these different curricula, in varying proportions, are prepared from different scientific foundations, and there are different organizational logics. The conclusion drawn from this argument is that diplomas and degrees may have different impacts, both in how they play out within the university in the future and also in how they position non-degree holders in future jobs. To better understand and comprehend these impacts, a method used was the prospectus motion that was used to engage the owners of shops in discussing the possible consequences of implementing degrees instead of diplomas.

It remains to be seen whether this perspective can also be promising in the field of curriculum inspection. Methods of prospectus motion have also been used in the study of higher education, particularly in predicting what future universities might be like and what effects policy and general curricula may have (see, for example, Blass & Woods, 2012; Montuouri, 2012). However, less attention has been given to how such prospectus methods can promote future-based, expected learning and how such learning can be articulated and investigated. (Garraway, 2017).

Over the past 30 years, various perspectives have been recommended for the development of L2 curricula. While a comprehensive discussion of these approaches is beyond the scope of the current article, it will explore some key ways in which heritage language (HL) curriculum development can differ, namely learner-centered, content-based, and outcome-based.

In learner-centered curriculum development, "learners themselves should be taken as the central reference point for decisions about the form of both language and subject matter instruction, and... this objective should be achieved through interactive consultation and negotiation among the partners in learning" (Tudor, 1996, p. 23). Due to the unique backgrounds and characteristics of HL learners, the concept of learner-centeredness is important and beneficial in teaching these learners (Douglas, 2005; Webb & Miller, 2000; Wu, 2008). From this perspective, it is imperative for the instructor first to determine what learners already know or want, and if there is any discrepancy between the expectations of instructors and learners, it should be resolved through dialogue between instructors and learners (Nunan, 1988).

Recent research investigating the motivations and preferences of HL learners for learning HL has suggested that dialogue between instructors and learners is necessary and helpful for curriculum development (Ducar, 2008; Husseinali, 2006; Jensen & Llosa, 2007; Jensen & Kamm, 2008). For example, a survey of Spanish HL learners conducted by Ducar (2008) recommended that, while HL researchers and educators generally emphasize the importance of advancing HL learners' knowledge and skills in formal educational settings (see the final section for post-secondary HL guidelines), obtaining educational Spanish may not be as interesting for learners.

In this study, the majority of learners were not Spanish majors and had little interest in pursuing a career in education. Instead, they were more interested in working with non-standard varieties of Spanish (such as Mexican or Mexican-American varieties) because they were more relevant to their lives and career goals. Based on this finding, Ducar recommended incorporating sociolinguistic projects where learners critically assess non-standard varieties of Spanish, such as self-written language, surveys on language use in the community, etc. (Kondo-Brown, 2010).

Sustainable learning and education (SLE) is a concept designed to change the way people think. Learning and education - to create a paradigm shift towards higher, current, and professional education. As a course or training program, SLE strives to integrate partners with diverse styles of knowledge, skills, methods, tools, and creativity to maintain conditions conducive to dynamic, continuous, and renewable learning wherever and whenever work is done. Learning is of utmost importance for purposeful, ongoing, and progressive individuals, teams, organizations, and communities. In fact, it can be argued that continuous learning is essential for global prosperity and well-being and is necessary to address the greatest challenges of our time (Hays & Reinders, 2018).

So far, we have not recognized such courses, although there is no doubt they exist. There was a need and thought for such courses and a shape and place or presence. Stephen Sterling expressed the necessity



and ideas for such courses in his book "Sustainable Education: Re-Visioning Learning" (Sterling, 2001, p. 94).

A challenge is related to terminology. Certainly, "sustainability" is still being tested in terms of content and learning approaches and educational enterprises. It has been included in many curricula worldwide (Barth & Rieckmann, 2012; Schneider et al., 2018). Although often under different names. Furthermore, the concepts of "sustainable learning" and "sustainable education" are still new to many education experts and are being debated for their meanings. An issue of misinterpretation may arise merely from the assumption of what it is. The issue here is not about environmental sustainability or learning or teaching about it. However, our concern is a framework and awareness for educational change, where curriculum and pedagogy are designed or reconceived based on principles, values, and aspirations for sustainability. Such education, in accordance with nature, will be transformative and sustainable. (Hays & Reinders, 2020).

Future studies can be defined as a systematic and timely study of the possibilities and environment of the future, which can impact the consequences of any action or policy undertaken by a country (Mokski et al., 2022). According to the claims made by Glenn and Gordon (1994) research on the future has provided the world with an approach that not only creates new opportunities but also offers further information about potential risks associated with the future, from the perspective of professions, manifestations, and systems of control.

1. Empowering the capacity of current societies to plan for their future.
2. Assisting policymakers in formulating institutional curricula and clarifying choices and resources related to projects. (Ayers, 1969)
3. Assisting policymakers and curriculum developers:
 - a. in envisioning preferred futures,
 - b. identifying events with higher probabilities of occurrence in the future,
 - c. and elucidating action plans in response to actions undertaken by a policy prescription or by a nation. (Joseph, 2015)
4. Crafting considerations and reflections on future curricula for the benefit of stakeholders. (Amara and Salank, 1971-1972)
5. Clarifying measures to avoid erroneous assumptions about the future. (Bell & Ramirez, 1997).

The rapid progress in science and technology has facilitated the creation and discovery of the latest gadgets and transformed how scientists and analysts delve into certain theories. As a result, changes have been observed in some practices and concepts in recent years. Distance education has become an essential part of our lives today, and educational institutions have taken up the responsibility to disseminate knowledge. Platforms like web-based learning and e-learning have smoothed educational and professional development paths, providing better avenues for advancement. However, in the system of distance education, not only is the adoption of some advancements and inventions necessary but progress-related agreements are also needed for the future of education. Continuous efforts are the only way through which scientific and pragmatic approaches for future advancement can be embraced. A glance at this framework reveals the importance of international collaboration, pedagogical design, and entrepreneurship in differentiating technological initiatives related to distance education (Kilic, 2014).

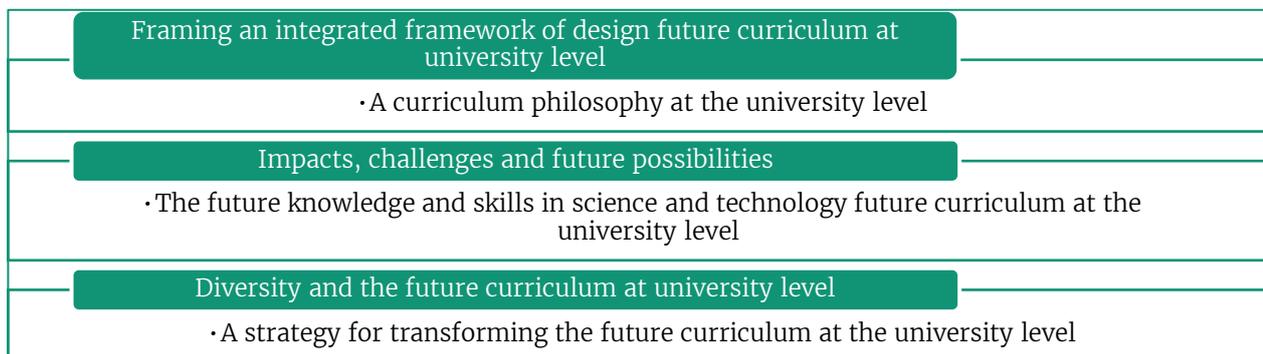
By examining initiatives in higher education curriculum reform, one can delve into the nature of comprehensive curriculum reforms undertaken and implemented by universities, thereby uncovering their implications for the global economy in the 21st century. This exploration involves key inquiries regarding self-assessment, strategies, planning, and processes to understand the measures taken by universities to implement curriculum changes effectively. Additionally, it involves investigating the tools used by universities to assess and evaluate the impact of the revised curriculum on teaching and learning outcomes. According to research conducted by Pegg, A. in 2013, leadership in higher education, evaluation processes for curriculum reform initiatives, and student-staff engagement serve as sources for establishing clear objectives and aligning curricula with the universities' needs (Pegg, 2013).

The competencies and capabilities adopted in higher education encompass numerous nuanced issues and outcomes fundamentally related to the interaction between instructors and students, teaching methodologies and assessment, the conception of general competence, and perceptions related to

curriculum support. These aforementioned challenges were identified by (Chan et al., 2017), who, through a comprehensive analysis of reported literature over the past two decades, indicated that these issues are not effectively addressed in ensuring the manifestation of general competence. Hence, there is a lack of conceptual foundation for these issues.

Figure 1

Conceptual framework of the study



A Curriculum Philosophy at the University Level

If we look at the research done on the philosophical approach to undergraduate curricula, then it becomes obvious that this approach, most of the time, is presented as 'socially critical vocational'(SCV). SCV, unlike other approaches, doesn't include training and traditional academic provision. Rather, it emphasizes the solution of certain problems that arise due to tension in the curriculum debates of higher education. Moreover, it was reported by Peach, S. that it is important to emphasize changes in higher education for the movement of traditional liberal HE toward vocational and functional curricula. In this regard, for the development of future HE curricula, SCV can be taken as a valuable source of theoretical and evidence-based framework (Peach, 2010).

Impacts, challenges, And Future Possibilities

Internationalization has become a topic of interest for education and research development in higher education systems. In research executed by Shaffer TJ, Longo NV, Manosevitch I, and Thomas (2017), various contemporary issues concerning European and European-influenced higher education policies, dialogues, and practices were focused.

Where they reported internationalization as a process of readdressing cross-cultural challenges and correction of related shortcomings along with the development of deliberative pedagogies and enrichment of individual and collective agency engagements (Shaffer et al., 2017)

According to a statement by Robson, S., & Wihlborg, through the exploration of conceptual and methodological challenges as well as the possibilities concerning internationalization, various institutional aims, such as new research approaches and analytical tools to design national and international frameworks, can be achieved (Robson & Wihlborg, 2019)

Several interpretations of internationalization in higher education exploration were explored by analyzing the structural and cultural aspects. The curriculum was explored through stimulating discussion by tertiary staff who took part in it from around the world. The discussion during this online course was essential and critical enough to raise questions concerning the privilege of defining the internalization curriculum as well as the constituents important for the transformation of the curriculum. Clifford and Montgomery also illuminated various theoretical and practical stances toward the internationalization of the curriculum. Through the exploration of certain frameworks, their research highlighted that indigenous knowledge and positioning of marginal and diaspora people are overlooked during the internationalization of curriculum practices (Clifford & Montgomery, 2017).

Previously, a study was conducted to design education in a diverse and fragmented way; for this purpose, a series of investigations were conducted to evaluate the academic performance of Hong Kong



University's design departments, in which almost 13 to 1 individuals contributed as informants. This quality-based study of the data was fruitful enough to provide information and interpretation about the study designed, preferably expressed and studied by the local designers, faculty members, and design experts. Moreover, the recommendations for the university senior management designs were also found to support the transformation of ideas (Szeto, [2010](#)).

Science and Technology and Skills in Future Curriculum

Certain questions are raised in response to the hypothetical statements about the increase in specialization and differentiation, along with the rise in certain questions posed in response to the contemporary features of this science, technology, engineering, and mathematics (STEM) knowledge. The two most important responses are delineated; the first one is minimal rather than a default response known as traditionalism, which strives to support a high accuracy, alternation of the low curriculum through repair service to achieve an exclusive and better curriculum, and the beginning of academic development in the world. The second one is rather a response to traditionalism and is known as the 'progressive response', which strives to deposit the position of learners and learning activities in the limelight, thereby unwittingly emphasizing the teaching and learning of strong-based knowledge and polishing of skills. However, detailed research was done on the second response, and it turned out that a different way is required to address the issues, as the second response somehow undermines the capacity of universities to deal with emerging specialization and differentiation (Muller, [2014](#)).

Several challenges concerning the future-proof graduates are being faced by institutes of higher education. These institutes have a demanding authorization to pave the way to produce decision-makers and future leaders who aren't only capable of addressing problems but also have an understanding of finding solutions accordingly. Certain functions focusing on multi-disciplinary thinking are required to help future leaders identify problems, address challenges, and discuss rewards. Two theoretical functions based on objective and action research were introduced to be effective in discussing the alignment of curriculum for future practices. Moreover, steps are required for the continuous evaluation, revision, and delivery of curriculum during certain issues such as climate change as well as other natural problems (Fahey, [2012](#)).

During the recent years of the 21st century, certain changes took place in higher education, which not only affected the traditional identities of scholar and student communities but also produced a variety of operating systems with an abundance of conditions. These conditions revolve around face-to-face/delivered at a distance, part-time/full-time, and institution-based/work-based systems of curriculum delivery. Altogether, these changes allowed the students to experience informal but diverse forms of curriculum. In this regard, various research and dissertations focusing upon the rival's knowledge endeavoring to acclimatize the formal undergraduate curriculum of the 21st century; the analysis of the subject, as editorialized, for instance, making a transferable and adjustable curriculum, web-based learning, and learning outside a formal environment. However, it is also obvious that the structure of the curriculum and subject matter plays a key role not only in the identification of any organization but also in the assessment of research exercises in higher education. Therefore, the Higher Education Funding Council's strategies and quality assurance agencies have been working on them. However, research also indicated the possibility of certain radical changes that somehow, in one way or another, can affect the familiar elements of future higher education. (Bridges, [2000](#)).

In 2015, Susilo conducted research on the Indonesian Qualification Framework. S, which was aimed at the analysis of the development of curriculum according to IQF description, the effect of global status on national identities, the role of the English language and teacher's education, and the blending of 21st-century trends in the traditional curriculum. It was found that these factors, when studied deeply, turned out to be fruitful not only for the equivalencies between Indonesian and foreign qualifications but also for the improvement of the international competitiveness of Indonesia, hence can serve as a key to open trade globally (Susilo, [2015](#)).

Globalization has been the major reason various universities have added international components to their curriculum. In this regard, research was done by Pimpa, N. at Australian Universities, which

emphasized the identification of the practices that played a major role in the internalization of Australian Universities. Moreover, it was inquired which factor is used to symbolize the internationalization of the Australian curriculum and how it is practiced for the improvement of international engagement. According to an evaluative study on contrasting initiatives taken by the Indian government for the sustainability of the educational environment in different educational institutes, it was found that India is perhaps the only country where environmental education at all levels of formal education was made compulsory by the highest court, and which is why an undergraduate course is also made compulsory. Moreover, Chhokar, K. B. also reported that through the analysis of challenges and prospects of future programs, several principles for sustainable development can be embedded in educational policies. (Goodwin, [2020](#)).

A substantial increase in tuition fees may ease the evaluation of educational strategies for the universities of England. Certain trends, policies, and innovation practices were evaluated by Lueddeke, G. through research by which a rationale for curriculum development in educational decision-making was also presented. This research concluded three fundamental dimensions that could help higher educational institutes underpin a future-centered education. According to the report, the criteria should depend on ability so that the employment rate can be increased accordingly. Creativity is also important in this regard because, through it, students can work together to solve certain hurdles, share their ideas, and benefit from each opportunity that comes their way, either in the form of research or in the form of other projects offered by higher educational institutes. In this regard, it is also important to initiate educational reforms at the departmental level because wider institutional opportunities can be created along with an evolving learning environment (Lueddeke, [2010](#)).

Reforms of the 2000 higher education curriculum are based upon research funded by the Nuffield Foundation; this research evaluates the response of higher education institutions to the latest reforms regarding the advanced level of qualification. After evaluating the interviews, combining documentaries and the national survey, it was found that Higher Education institutions were well informed about the importance of reforms of higher education, and it was encouraged to embrace the wider and more advanced level of the curriculum at national and international level. However, this positive approach wasn't reproduced in terms of offer-making to candidates. It wasn't based on the traditionally predicted grades. Rather, it was influenced by systematic problems related to the 2000 qualifications of the curriculum, less uptake of universities by the learners, and a low level of voluntarism. (Hodgson, A. et al., [2005](#)).

Diversity and the Future

Universities will no doubt have to face new challenges to forge community through the community. That's because increasing national diversity has been adding stress, not only to the population but also to the economies of countries. In this regard, universities must play their roles to provide solutions within their dimensions. That's why the building efforts should be addressed. The proliferation of campuses, emergence, modification of identities, and reconstruction of the curriculum should also be taken into consideration (Cortes, [1998](#)).

A Strategy for Transforming the Future Curriculum

It is important to mention sustainability as a potential option to be employed for the transformation of not only campus activities but also the way we think about educational opportunities and advancements. Though sustainability also has its limits, we cannot deny the values that it puts into human lives and their decisions. An association of practices and areas of study should be transcended to exploit the potential of sustainability to enhance higher education and society. Sustainability should become a big idea to enable capabilities and connect avenues of inquiry. This is a positive association but with few limits, which, if handled correctly, can revolutionize the future of the curriculum. (Sherman, [2008](#)).

McDonald, R., and Van Der Horst, H reported in [2007](#) that transformation of education is always required if we want to democratize any country; the example of South Africa is taken and discussed in detail to explain the importance of the rediscovery of concepts and principles that can address basic curriculum in South Africa. Moreover, Sound and proven curricular thinking was also taken into account. Constructive curriculum alignment, globalization, and quality assurance are the concepts that gain particular attention during the research. It is also important to mention that individual creative thinking



and innovation in the higher education sector go side by side, and that's why the implementation, review, motivation, and rewards should be taken into consideration to embrace the spirit of these abilities. During the investigation of the scope of the study, subject-specific software was also taken into consideration by Marshall, L., and Meachem, L. It was found that the development of technologies was linked preferably with the need rather than the design, and that's why the perception of staff, day-to-day experiences, and issues arising from the incorporation of such technologies were also observed and recorded. This, in turn, helped to find the potential directions, and it was concluded that the training is mandatory to use this software and technologies to maximize the potential of the curriculum and its development for the future. As a whole, the incorporation of appropriate hardware and software within the budget, environment, and institutions should be developed (Marshall & Meachem, 2007).

The responsibility of curriculum developers is significant, as they need to be inquisitive, research-oriented, and reflective in their quest. Understanding the past and studying current trends is crucial to providing the right components for their children. By deeply considering global events, they shape human societies and ponder whether these changes will impact the nation in the future. Presently, the key trends shaping societies, as reported by UNESCO, include increased cultural diversity, globalization, enhanced socioeconomic equality, advancements in biotechnology, religious revivals, growing environmental concerns, increasing poverty, and technological education. Technology education is a broad and diverse field that necessitates addressing the challenges of various institutions. The future of our planet, our home, underscores the importance of UNESCO's International Institute for Educational Planning (IIEP) Charter, which sets forth four key principles: respect and care for community life; environmental integrity; social and economic justice; and democracy, non-violence, and peace for the future. A concise and relevant curriculum will pave the way for progress by allowing our future generations to acquire new knowledge. Working with thoughtful action is essential to maintaining peace and harmony while always respecting human values, dignity, and nature. (Joseph Cyril, 2020).

The purpose of this study is to analyze the processes, challenges, and opportunities associated with the development of future curricula at the university level. By assessing the specific areas and strategies required for effective curriculum development, the study aims to enhance educational practices and contribute to the overall quality of university-level curricula. Furthermore, the study seeks to address the gap in understanding the complexities of curriculum development and provide insights that can inform decision-making processes in higher education institutions.

Study Problem, Objectives, Questions, Significance, and Delimitation

Statement of the Problem

At the university level, the development of future curricula is a multidimensional and significant endeavor, shaping the educational experiences and outcomes of students. However, despite its importance, there exists a gap in understanding the specific areas and strategies required for effective curriculum development to meet the evolving needs of higher education institutions. This study aims to address this gap by examining the processes, challenges, and opportunities associated with the development of future curricula at the university level. By identifying key areas of focus and potential solutions, this research seeks to contribute to the enhancement of educational practices and the overall quality of university-level curricula.

Objectives of the Study

1. To identify the pace of development of social and economic relations within the future curriculum at the university level.
2. To clarify the emerging trends that influence the design and implementation of the curriculum.
3. To explore the dynamics of research communication in correlation with the preparation of curriculum frameworks.
4. To articulate the interplay between the advancement of research paradigms and anticipated educational trends in the future curriculum.
5. To analyze the cultural challenges inherited in the formulation and implementation of the future curriculum.

- To assess the integration of science, technology, and arts within potential curriculum models for future educational landscapes.

Significance of the Study

This study is of significant importance to various stakeholders within the educational landscape. Firstly, it contributes to the advancement of knowledge and understanding regarding the development of future curricula at the university level. By examining the processes, challenges, and opportunities associated with curriculum development, the study provides valuable insights that can inform decision-making processes in educational institutions.

Furthermore, the study's findings have practical implications for educators, curriculum developers, and policymakers. By identifying specific areas and strategies required for effective curriculum development, the study can help improve educational practices and enhance the overall quality of university-level curricula. This, in turn, can lead to better educational outcomes for students and better prepare them for the demands of the future workforce.

Delimitation of the Study

This study specifically focuses on universities and their curricula at the undergraduate and postgraduate levels, excluding other educational institutions such as schools or vocational training centers. It is conducted within a specific geographical region or country, limiting the direct applicability of findings to other regions with different educational systems or cultural contexts. The study operates within a defined timeframe, potentially overlooking long-term trends or developments in curriculum design beyond this period. Language limitations may exist, as the study primarily relies on sources available in specific languages, potentially excluding relevant literature published in other languages. The study's sample size, methodology, and data availability are delimited factors that may affect the generalizability and comprehensiveness of its findings to the broader population of educational institutions.

Methodology

This study aimed to explore the development of future-oriented curricula at the university level. The population consisted of 100 heads of departments (HODs), who were selected based on the informed consent of the school head. A purposive sampling technique was used, where all 100 HODs formed the sample, ensuring a comprehensive perspective on curriculum development across departments. The primary tool for data collection was a three-point rating scale developed specifically for this research after a thorough review of related literature. The scale included categories such as Social and Economic Relations, Emerging Trends in Higher Education, Research Communication, Development of Research through Future Curriculum Trends, Cross-Cultural Challenges, and Science, Technology, and Skills in Future Curriculum.

Table 1

Sample of the study

S. No	Faculty	Universities	Male	Female
1	12	Punjab university	7	5
2	20	University of Education	13	7
3	18	University BWP	10	8
4	13	University of Management and Technology	9	4
5	17	University of Lahore	8	9
6	20	Quaid Azam university	13	7

Data Collection and Tool Development

The researchers collected data directly by administering the rating scale to all included respondents. The cooperation level among the HODs was high. A pilot study helped determine the scale's alpha reliability coefficient at 0.829, indicating strong internal consistency. Validity was confirmed through feedback from



three educational experts. The data were tabulated and analyzed statistically using percentages and standard deviations. The analysis focused on the percentage of responses, quantitatively measuring the HODs' attitudes and perceptions toward the future curriculum. The study concluded with recommendations aligned with the insights garnered from the analysis, aiming to enhance the development and implementation of future-oriented curricula in higher education.

Table 2

Factors and responses of participants

S. No	Factors	Items Code	Agree	Disagree	Un-decided
1	Social and Economic Relations	SER1	76%	20%	4%
		SER2	82%	18%	-
		SER3	92%	6%	2%
		SER4	90%	5%	5%
		SER5	92%	6%	2%
		SER6	30%	45%	25%
2	Emerging Trends	ET1	96%	4%	-
		ET2	72%	4%	24%
		ET3	90%	7%	3%
		ET4	98%	-	2%
		ET5	89%	7%	4%
		ET6	92%	8%	-
3	Research Communication	RC1	90%	3%	7%
		RC2	94%	-	6%
		RC3	92%	6%	2%
4	The development of research through the future curriculum is based on the trends.	RFC1	45%	39%	16%
		RFC2	86%	8%	6%
		RFC3	30%	65%	5%
		RFC4	95%	2%	3%
		RFC5	90%	8%	2%
5	Cross-cultural challenges	CC1	93%	7%	-
		CC2	92%	6%	2%
		CC3	91%	3%	6%
		CC4	92%	4%	4%
		CC5	90%	5%	5%
6	Science, Technology, and Skills in Future Curriculum	STS1	90%	8%	2%
		STS2	90%	6%	4%
		3STC	94%	6%	-

Discussion

Factor-one-Social and Economic Relations

A substantial majority of the respondents expressed a strong agreement with the curriculum's alignment with evolving knowledge at both national and international levels, with 92% in favour, while only 6% disagreed, and 2% remained neutral. Additionally, the curriculum's relevance to social factors was well-received, as 90% of the participants agreed with its effectiveness, 5% disagreed, and 5% were undecided. When it came to the integration of economic trends, 92% supported the approach, 6% were in opposition, and 2% were unsure, highlighting broad consensus on the curriculum's direction in these key areas.

Factor-two-Emerging Trends

A vast majority of respondents expressed agreement on several advanced topics. For artificial intelligence, 96% agreed with its relevance, only 4% disagreed, and none remained undecided. In the area of biomedical correlates of learning, 72% agreed on its importance, 4% were undecided, and 24% had no opinion. Nanotechnology also saw a high level of consensus, with 90% in agreement, 7% undecided, and 3%

without a stance. Furthermore, the topic of machine learning received nearly unanimous approval, with 98% agreeing on its significance and only 2% undecided, illustrating a clear acknowledgment of these cutting-edge fields in the curriculum.

Figure 2

Social and Economic Relations

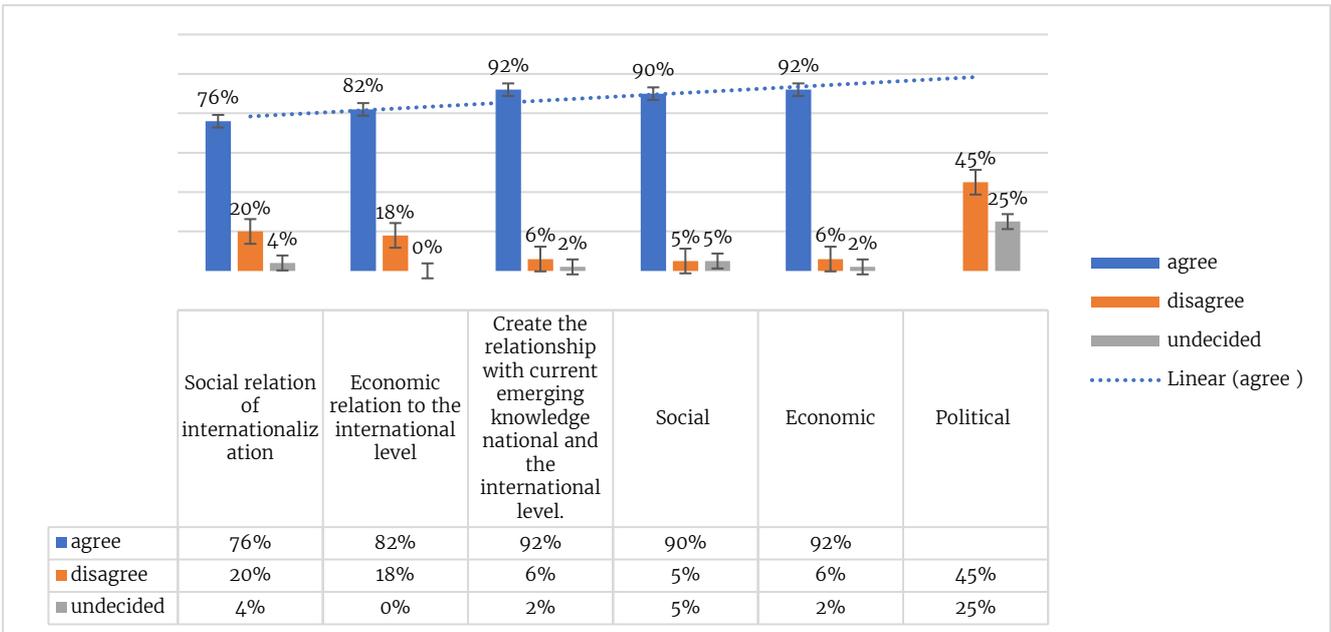
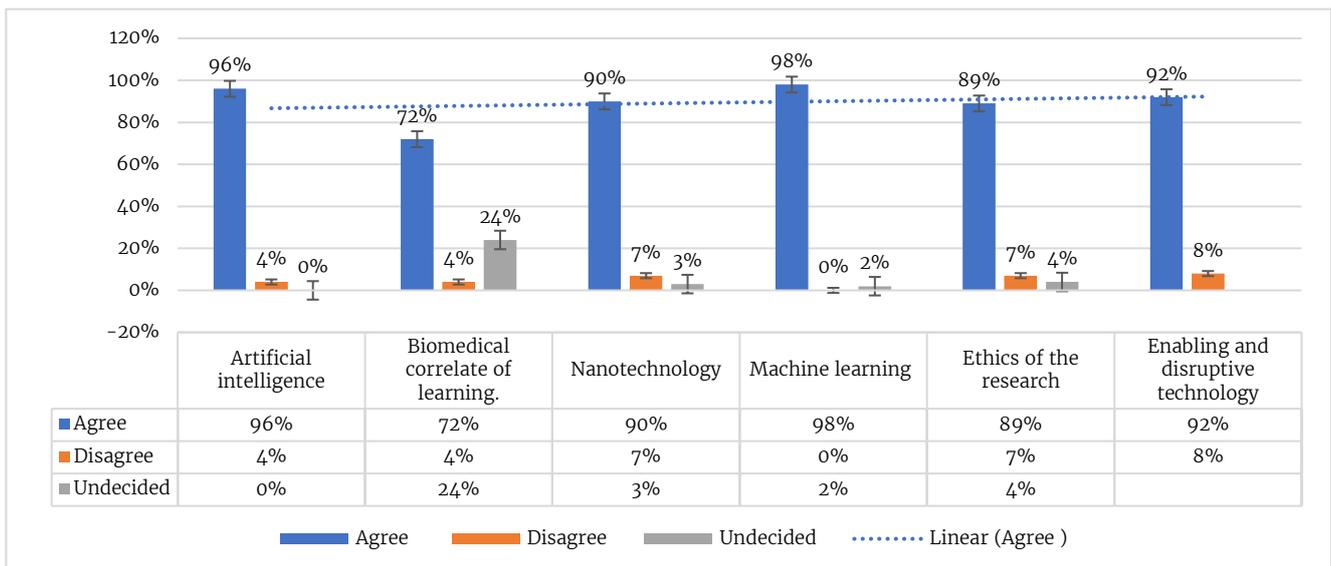


Figure 3

Emerging trends



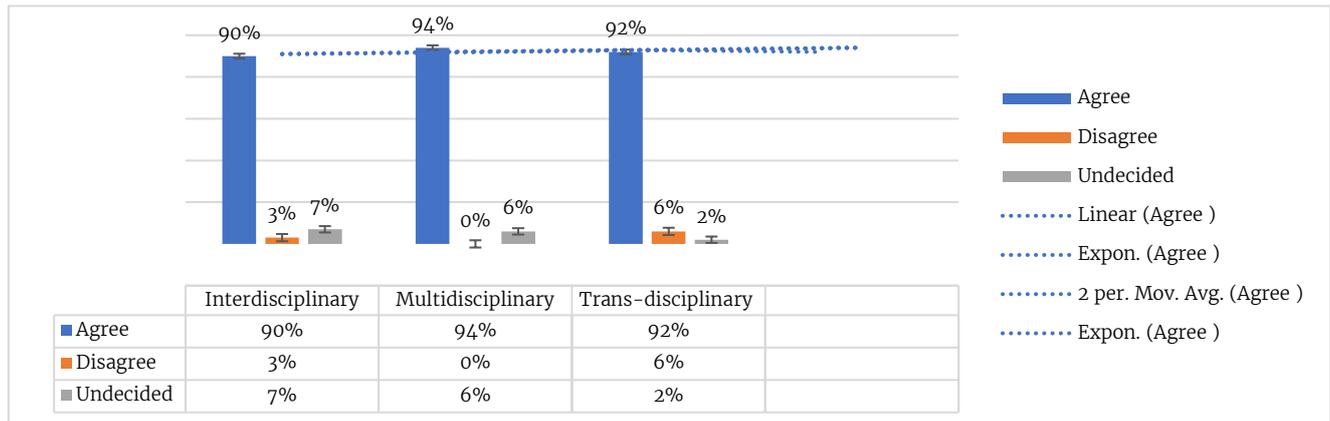
Factor-Three-Research Communication

A significant consensus was evident among the respondents regarding key aspects of curriculum development. For multidisciplinary studies, 94% of participants agreed with their importance in the future curriculum, reflecting the trend toward integrating diverse fields of study, while 6% remained undecided. On the matter of Definitions, 95% of the respondents agreed on their clarity and relevance, with only 2% disagreeing and 3% undecided. Similarly, Fundamental concepts were widely accepted, with 90% agreement on their significance in educational frameworks, 8% undecided, and a mere 2% having no definitive opinion. These figures underscore the strong support for enhancing curriculum content with well-defined, fundamental, and interdisciplinary studies.



Figure 4

Research Communication



Factor-Four-Research Trend-Based Curriculum Development:

Starting the discussion with a focus on events, it's evident that a significant portion (45%) of the content revolves around specific incidents or occurrences. This indicates that a crucial aspect of research and curriculum development is influenced by real-world events or contextual factors. However, it's worth noting that a substantial proportion (39%) is not directly related to events, suggesting a diversity of content beyond immediate contextual influences.

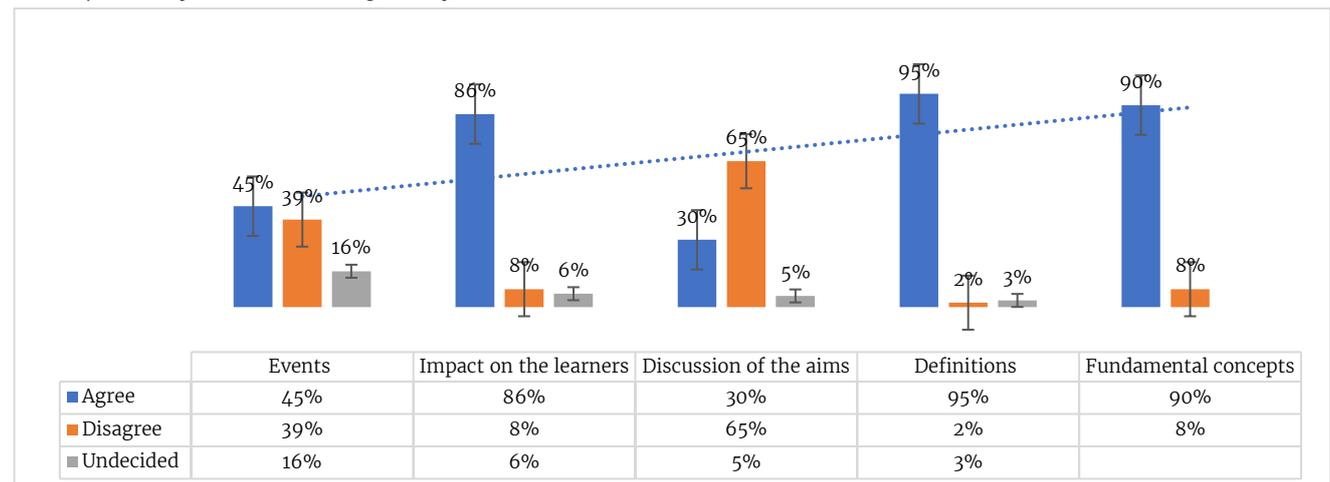
As we move towards the impact on learners, a substantial majority (86%) of the content emphasizes the importance of understanding how research and curriculum development initiatives affect students. This highlights the significance of a student-centric perspective and the desire to enhance learning outcomes. Nevertheless, the relatively low percentages for direct discussion (8%) and indirect consideration (6%) of the impact suggest potential areas for further exploration or clarification.

In terms of discussing aims, the data reflects a diverse distribution, with a notable emphasis (65%) on delineating the objectives or goals of research and curriculum endeavors. This underscores a strong commitment to clarity and alignment with overarching aims. However, it's interesting to note that a smaller proportion (30%) of the content focuses on this aspect, which may imply differences in emphasis or priorities across different contexts or research projects.

Definitions play a crucial role in academic discourse, and the data underscores their significance within the examined content. A vast majority (95%) of the content includes definitions, indicating a strong emphasis on clarity and precision in explaining terms or concepts. This highlights the importance of establishing common understanding and terminology within the discourse, which is essential for effective communication and knowledge dissemination.

Figure 5

Development of research through the future curriculum

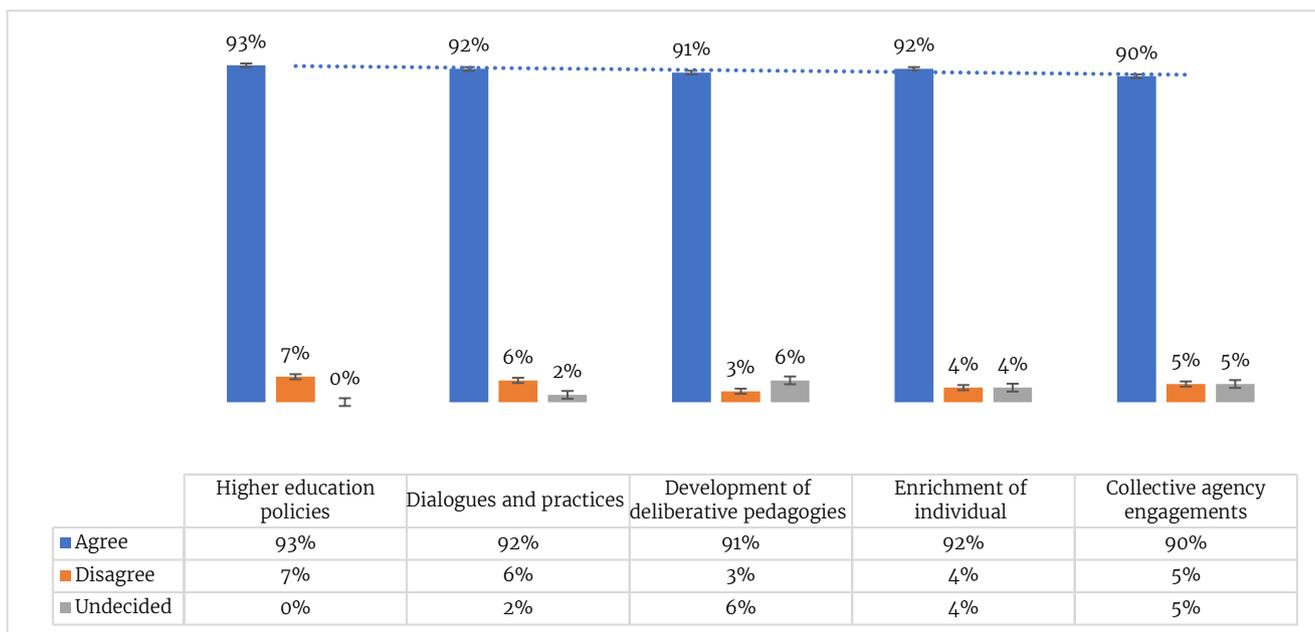


Factor-Five-Cross-cultural challenges:

A strong majority of respondents demonstrated agreement on several key educational topics. Regarding higher education policies, 93% of those surveyed supported their importance, with only 7% disagreeing, indicating a robust consensus on the influence of policies. In the area of dialogues and practices essential for integrating science, technology, and skills into future curricula, 92% agreed they were crucial, with 6% undecided and a small fraction of 2% without a definitive stance. Web-based learning also saw substantial approval, with 90% agreement on its significance, complemented by 6% undecided and 4% withholding judgment, underscoring the value placed on digital educational approaches. Additionally, the concept of learning outside a formal environment was widely embraced, with 94% of respondents affirming its value, and 6% remaining undecided, strongly endorsing diverse and flexible learning environments.

Figure 6

Cross-cultural challenges



Factor- Six-Science, Technology, and Skills

The presented data underscores the significant emphasis on incorporating science and technology-related skills into the future curriculum. The discussion highlights three key areas: making the curriculum transferable and adjustable, implementing web-based learning, and promoting learning outside formal environments.

Firstly, a significant majority of the data (90%) emphasizes the importance of developing a curriculum that is transferable and adjustable. This suggests a need for curricular frameworks that can adapt to changing educational landscapes and evolving demands.

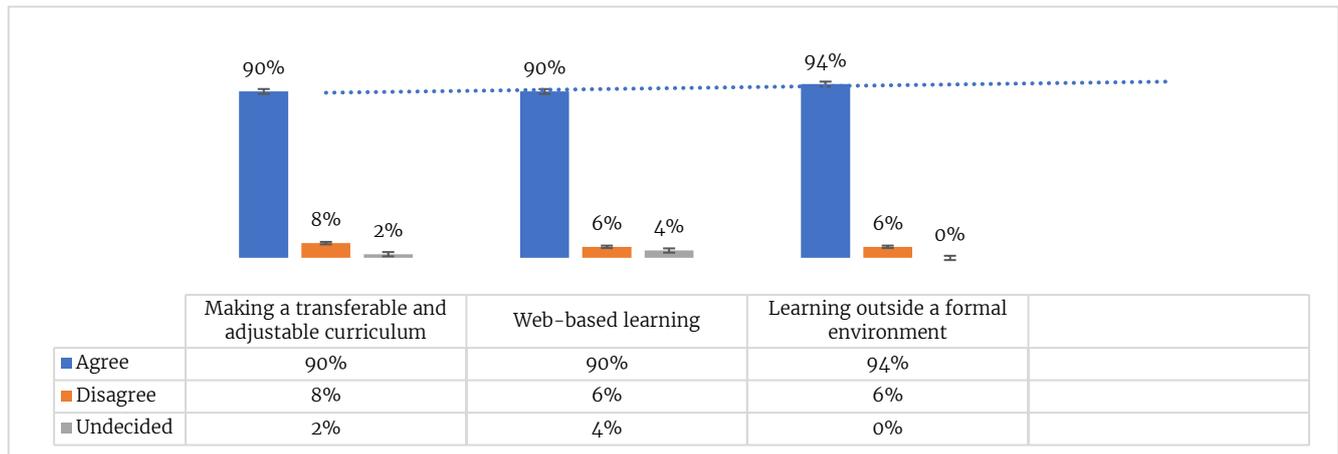
Secondly, the data indicates strong support (90%) for implementing web-based learning as a critical component of future curricula. This underscores the growing importance of digital technologies in educational settings and the potential of online platforms to enhance learning experiences. Web-based learning offers opportunities for personalized and interactive learning experiences, catering to diverse learner needs and preferences.

Lastly, the data highlights a significant emphasis (94%) on promoting learning outside formal environments. This signifies a shift towards recognizing the value of informal and experiential learning opportunities in complementing formal education. Learning outside formal settings encourages learners to engage with real-world contexts, apply theoretical knowledge in practical scenarios, and develop essential skills such as critical thinking, problem-solving, and collaboration. By acknowledging the importance of learning beyond classroom confines, educational institutions can better prepare learners for the complexities and challenges of the modern world.



Figure 7

Science and technology and skills in future curriculum



Findings of the Study

Based on the findings of the study, the following points emerge:

1. Ensuring the alignment of the curriculum with the societal needs.
2. Enhancing the skills of teachers and students in utilizing new learning methods, materials, search databases, and search engines.
3. Maintaining the quality of the curriculum in line with international trends at the university level.
4. Incorporating reality-based transformational knowledge into content, methods, instruction, assessment, and research.
5. Promoting creative knowledge acquisition.
6. Defining the domain of knowledge within specific subjects and exercises.
7. Ensuring that teachers stay abreast of current research trends in other universities.
8. Ensuring policymakers are informed about various disciplinary trends in other universities.
9. Prioritizing information communication knowledge and equipping students and teachers with relevant skills for future curriculum development at the university level.
10. Fostering research-based knowledge as the cornerstone of future curriculum.
11. Raising awareness about research databases among stakeholders.
12. Integrating artificial intelligence into competency-based curriculum and knowledge assessment.
13. Exploring bio-medical correlations in knowledge acquisition.
14. Promoting national and international awareness of current knowledge trends and disciplinary domains.

Figure 8

Word clouds of future curriculum development at the university level



Conclusion

This review underscores the need to focus on the educational system within universities and concludes that practices and research conducted by various scholars in the past should be utilized in higher education institutions in Pakistan to assess current practices and standards. Special attention should be paid to the internationalization standards, their implementation, and the mode of delivery. The roles of management, teachers, and students, as well as the interdependence of tuition fees and the educational economy, should be critically evaluated. The future curriculum should encompass dimensions of knowledge based on socialization, globalization, national, and the needs of the social economy of the states. The development of the nation should be grounded in the advantages of skills-based knowledge, encompassing current and emerging trends in knowledge at the international level. All universities in the global village should ensure that students and teachers are equipped with information communication knowledge skills. Future curriculum experts should develop strategies for forecasting economic-based knowledge.

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