QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

EXPLORING AI-POWERED SUSTAINABLE TEACHER EDUCATION IN PAKISTAN: EVIDENCE FROM B.ED. (HONS.) CURRICULUM ANALYSIS

Dr. Abida Nasreen
Assistant Professor, Higher Education Department (HED), Punjab, Pakistan,
Email: abidanasreen125@gmail.com
Dr. Tanzeela Urooj
Assistant Professor, Department of Education, University of Loralai, Balochistan, Pakistan.
Email: tanzila.arooj@uoli.edu.pk
Muhammad Aslam
PhD Scholar Department of Educational Training, The Islamia University Bahawalpur. Email: maslam3419@gmail.com
Dr. Amna Ramzan
Lecturer, Higher Education Department (HED), Punjab, Pakistan
Email: amnaramzan171@gmail.com

Abstract
This study examined how well the B.Ed. (Hons.) curriculum in Pakistan prepares teachers for AI-powered and sustainable education. The core aim of the study was to determine whether the curriculum includes skills and knowledge related to artificial intelligence. It includes digital teaching methods, ethical use of technology, sustainability, inclusion, peace education, and future-ready teacher competencies. Within the interpretivist research paradigm, a qualitative approach was used through content analysis. Curriculum documents were evaluated using a content analysis checklist. Each checklist item evaluating the curriculum's respective elements was coded as fully present, partially present, or absent. The analysis showed that the curriculum does provide some foundational support for digital and sustainable teacher education. The evaluated areas, such as ICT in education, computer literacy, teaching methods, classroom assessment, inclusive education, professional development, and teaching practice, are present. The study found that the curriculum largely lacks direct coverage of AI, including AI literacy, AI-supported assessment, learning analytics, ethical AI use, data privacy, algorithmic bias, and the responsible use of AI tools. Sustainability-related topics such as inclusion, equity, peace, social tolerance, environmental awareness, and lifelong learning were only partially addressed and inconsistently integrated across the curriculum.
Keywords: *Artificial Intelligence, Sustainable Teacher Education, B.Ed. (Hons.), Content Analysis.*

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

Introduction

Teacher education plays a central role in improving the quality of education in Pakistan. The B.Ed. (Hons.) program prepares future teachers with professional knowledge, teaching skills, classroom management abilities, and practical experience. However, in the present digital age, teacher education cannot remain limited to traditional teaching methods. Artificial intelligence (AI) is now influencing lesson planning, assessment, feedback, personalized learning, and classroom decision-making. Therefore, it has become important to explore how far the B.Ed. (Hons.) curriculum in Pakistan prepares prospective teachers for AI-powered, sustainable teaching practices.

Sustainable teacher education means preparing teachers who can support quality education, inclusion, equity, peace, environmental awareness, and lifelong learning. Research shows that sustainability has not been fully integrated into Pakistan's teacher education curriculum. It has been found that only a small portion of the B.Ed. curriculum addresses sustainability, showing a need to mainstream Education for Sustainable Development in teacher education (Kalsoom et al., 2022). Similarly, it is reported that most B.Ed. courses were not properly aligned with the social, economic, and environmental components of sustainable development (Ahmed & Kazmi, 2020)

The B.Ed. (Hons.) curriculum in Pakistan has also been criticized for needing revision in line with national and professional standards. It was found that the existing B.Ed. curriculum was not fully aligned with outcome-based education and the National Professional Standards for Teachers, and a recommended curriculum revision was proposed to improve teacher preparation (Parveen, 2022). This is important because AI integration requires clear learning outcomes, digital competencies, ethical awareness, and practical training.

AI-based teacher education may equip potential teachers with the technology-related skills needed for effective teaching, assessment, and learner support due to importance of AI in teacher education (Jamil et al., 2026). According to research, ICT-related courses, such as computer literacy and ICT in education, have already been incorporated into the teacher education curricula; however, teacher educators require practical knowledge and institutional resources to utilize technologies effectively (Ahmed & Kazmi, 2020). This implies that, in addition to being an important technological aspect, AI should be introduced as a pedagogical approach to ensure sustainability, inclusiveness, and ethical teaching practices.

Thus, the current study seeks to evaluate the level at which AI, sustainability, digital pedagogy, ethical technology use, and future-oriented competencies of teachers are addressed in the B.Ed. (Hons.) curriculum. The significance of the current study lies in the potential to apply its findings to revise the teacher education program in line with contemporary requirements. It is hoped that an AI-based and sustainable curriculum will help develop better teachers in Pakistan.

Research Objectives

1. To explore the extent to which the B.Ed. (Hons.) curriculum incorporates artificial intelligence (AI) skills in making future teachers.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

2. To identify gaps in the B.Ed. (Hons) curriculum regarding AI literacy, responsible use of AI tools, and integration of sustainability and inclusive education practices.

Literature Review

Teacher education is one of the most significant bases for improving the quality of education. The B.Ed. (Hons.) program implemented in Pakistan is the main teacher training program. This is used to train prospective teachers through professional knowledge, pedagogical skills, classroom management, and practical teaching experience. Formal teacher education plays an essential role in enhancing teachers' self-confidence and improving their classroom practices. The researchers on B.Ed. programs assist teachers in developing practical pedagogical skills and professional confidence. The study suggested revising teacher training syllabi. By incorporating soft skills and providing practice opportunities (Memon et al., 2025).

The undergraduate teacher education curriculum was evaluated and found to be not entirely aligned with the outcome-based education indicators and the National Professional Standards for Teachers in Pakistan (Parveen, 2022). The curriculum lacked proper alignment with professional standards and proposals. The Higher Education Commission should revise the program and course learning outcomes in line with national standards (Parveen, 2022).

Research suggests that ESD has not been sufficiently integrated into teacher education curricula in Pakistan. A content analysis of teacher education documents, including the B.Ed. (Hons.) curriculum was conducted. It was found that sustainability was only partially addressed. They reported that only a small portion of the B.Ed. Curriculum focused on sustainability (Kalsoom et al., 2022). Similarly, most courses in the B.Ed. 4-year elementary program were not aligned with the social, economic, and environmental components. Although experts strongly supported the inclusion of ESD in the curriculum (Ahmed & Kazmi, 2020).

Teacher educators also recognize the importance of ESD in pre-service teacher education. The teacher educators supported the inclusion of ESD components. Such as education, society and culture, economy, and environment in the B.Ed. 4-year (Malik et al., 2026). It was also reported that B.Ed. students had positive views about including ESD in teacher education because it could help them promote environmental and social responsibility among their future students (Khan et al., 2019).

Sustainable teacher education is not limited to environmental education (Memon et al., 2025). It also includes peace, tolerance, inclusion, equity, and responsible citizenship. These areas are highly relevant because schools need teachers who can promote social harmony and respect for diversity in Pakistan (Waheed, 2026). It was explored that Education for Sustainable Development and social tolerance in Pakistani teacher education institutions are vital with focusing on ESD through textbook analysis and faculty perspectives (Jamil et al., 2024; Jamil et al., 2025. The study found that the existing teacher education structure and curricula were barely aligned with ESD content. The teaching strategies needed to promote tolerance and peace (Jamshaid, 2022). The research on peace education in the B.Ed. (Hons.) (Tahir et al., 2025) was also explored. The

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

curriculum revealed inadequate coverage of peace and suggested ways to improve it. In the curriculum, in favour of incorporating peace education themes (Jamal et al., 2025). It is observed that the inclusion of peace education in the B.Ed. curriculum would help enhance future teachers' knowledge, skills, and dispositions. However, greater emphasis on building peace-building skills was necessary (Parveen, 2022). These findings suggest that the curriculum for sustainable teacher education in Pakistan must be comprehensive, encompassing subject matter and pedagogy (Erum & Soomro, 2021; Jamil et al., 2025). The curriculum should focus on developing social responsibility, peace education, inclusiveness, ethical consciousness, and critical thinking (Iqbal et al., 2025).

It is essential to consider the concept of ICT before proceeding with AI in teacher education (Jamal et al., 2025). Artificial intelligence-based teaching and learning in Pakistan relies on teachers' effective use of ICT. The ICT has already been incorporated into teacher education through courses such as computer literacy and ICT in education. According to a study, Pakistani teacher educators in Karachi have a moderate positive attitude towards the pedagogical use of ICTs. They emphasized the importance of conducive conditions and training (Ahmed & Kazmi, 2020). The implementation studies on the B.Ed. (Hons.) programs have revealed improvements in the use of ICTs in some teacher education institutes. However, the sustainability of this use remains an issue due to resource scarcity, outdated materials, poor infrastructure, and the inadequacy of skilled personnel (Begum, 2017). Teacher educators faced issues during the implementation of B.Ed. (Hons.). This included a shortage of skilled human resources, limited participation in curricular decision-making, and limited application of modern pedagogical practices (Gopang et al., 2020). These results indicate that the successful incorporation of AI in B.Ed. (Hons.) is not possible without developing digital infrastructure and technology-based pedagogical practices (Jamal et al., 2025; Jamil et al., 2024).

The application of AI in education can be exemplified by personalized learning. It also includes automated feedback and grading, assessments, learning analytics, intelligent tutoring systems, and administrative tasks. AI can help teacher-trainees design their lessons, evaluate their students' performance, create digital teaching materials, and reflect on their practices. There are also concerns about AI, including privacy, bias, academic integrity, dependence on technological solutions, and ethics. Scholars explored sustainable curriculum planning for AI education and proposed four approaches to developing an AI curriculum: content, product, process, and praxis. It is essential to note that scholars highlighted the need to involve teachers actively in curricular design rather than treating them as mere recipients of AI-based innovations (Chiu & Chai, 2020). It is related to the analysis of the B.Ed. (Hons.) curriculum. It should teach students how AI works and how to use it effectively when working with their learners. It was found that the B.Ed. The level is low. teacher trainees' AI literacy, which suggests that teacher education in AI needs improvement.

AI education in Pakistan is a relatively new concept. Research on AI adoption in Sindh province found interest in using AI in education due to its potential benefits, including personalized learning, equitable access, and more efficient administration. The authors highlighted that, despite growing interest, several obstacles to AI adoption remain, including confusion about AI, poor infrastructure, inadequate digital literacy, ethical issues, and a lack of policy frameworks (Sahito et al., 2024). The findings are particularly significant for teacher education, as teachers

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

require appropriate training to adopt AI technology. As such, if B.Ed. (Hons.) programs fail to incorporate AI competencies into their curriculum, new teachers will become part of educational institutions lacking the necessary expertise in AI technology.

Curriculum analysis is one of the important ways to investigate whether a program includes the necessary knowledge, skills, and values that society requires. The role of curriculum analysis in the case of B.Ed. (Hons.) would be to find out whether the curriculum includes AI literacy, digital pedagogy, sustainability, ethics, inclusion, and readiness for future teaching. Content analysis and alignment matrices have been applied in previous research on the B.Ed. curriculum. (Hons.) in Pakistan. For instance, in the study of the alignment of compulsory B.Ed. courses. (Hons.) with the "knowledge" component of the National Qualification Framework, different levels of alignment were identified. Also, in studies on ESD and peace education, content analysis was conducted to identify gaps in the B.Ed. (Hons.) curriculum (Jamal et al., 2025; Kalsoom et al., 2022).

The literature review shows that several studies have been conducted on teacher education reforms, ESD implementation, peace education, the use of ICT, and curriculum alignment in Pakistan. Several studies have also been conducted about AI in education and AI-based curriculum planning. However, very few studies have been conducted about the B.Ed. (Hons.) curriculum of Pakistan from the perspective of both AI-based education and sustainable teacher education. The current trend of research in Pakistan is focused on sustainability, peace education, ICT, and professional standards individually. It is important to evaluate whether the B.Ed. (Hons.) curriculum of Pakistan integrates AI literacy, ethical use of AI, digital pedagogy, sustainability skills, inclusive pedagogy, and future-ready teachers' skills.

Overall, the literature suggests that Pakistan’s B.Ed. (Hons.) curriculum has made important contributions to teacher preparation, but it still needs improvement in sustainability, professional standards, digital competence, and future-oriented pedagogy. AI can contribute to sustainable teacher education. It is if there is curriculum reform, teacher educator training, proper infrastructure, ethical guidance, and appropriate policy measures. Thus, this research is significant because it seeks to determine whether the current B.Ed. (Hons.) curriculum meets the requirements of AI-based sustainable education in the country.

Research Methodology

The present study was conducted within an interpretivist research paradigm. It was aimed at understanding and interpreting the existing curriculum content in relation to AI-powered sustainable teacher education. A qualitative methodology was adopted. The study employed a descriptive-analytical research design. The main method of inquiry was document analysis. It was supported by qualitative content analysis. The sample consisted of selected B.Ed. (Hons.) curriculum documents in Pakistan with HEC-recommended curriculum frameworks, course outlines, learning outcomes, course contents, teaching strategies, assessment methods, and practicum guidelines. A purposive sampling technique was used. The only documents directly related to teacher education, AI integration, digital pedagogy, and sustainable education were selected. The study used secondary data.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

The B.Ed. (Hons.) curriculum documents used in Pakistan, particularly those approved or recommended by the Higher Education Commission of Pakistan, were used. The sample included selected B.Ed. (Hons.) Elementary ADE (Associate Degree in Education) revised in 2012, curriculum documents, course outlines, program learning outcomes, course learning outcomes, course contents, teaching methods, and assessment criteria. A purposive sampling technique was used because the study required documents directly related to teacher education: the AI integration, digital pedagogy, and sustainable education. The study used secondary data. The main source of data was the official B.Ed. (Hons.) curriculum documents by HEC. These documents included curriculum frameworks, course outlines, learning outcomes, course contents, teaching strategies, assessment methods, practicum guidelines, ICT-related courses, and contemporary issues in education courses.

The collected documents from the official curriculum were the HEC BS Education curriculum documents. A content analysis checklist was developed as the main research instrument to examine themes such as AI literacy, digital pedagogy, AI-based assessment, ethical use of AI, sustainability, inclusion, equity, peace education, professional competence, and future-oriented skills. The curriculum content was coded into three levels. The fully present, partially present, and not present. The coded data were then categorized and interpreted to identify the strengths and gaps in the B.Ed. (Hons.) curriculum regarding AI-powered sustainable teacher education. Since the study relied solely on document analysis, no direct human participants were involved, and ethical considerations were maintained through proper citation, objective interpretation, and honest reporting of findings.

The collected documents from the official curriculum included the HEC BS Education. For thematic analysis, a checklist for content analysis was developed. This focused on topics such as AI literacy, digital pedagogy, AI-based assessments, ethics of using AI, sustainability, inclusion, equity, peace education, professional competence, and 21st-century skills. Coding of the curriculum content involved categorizing it into three categories: presence, partial presence, and absence. Coding results were then categorized and analyzed to uncover the strengths and weaknesses of the B.Ed. (Hons.) curriculum in terms of AI-powered sustainable teacher education. Because this study involved only document analysis and no human participants, there were no ethical issues.

Data Analysis

Qualitative content analysis was used to analyze the data obtained from the research study. As the study involved analyzing curricula, the chosen B.Ed. (Hons.) curricula were analyzed. Thoroughly for the existence of themes regarding AI-enabled sustainable teacher education. This analysis examined the course titles, objectives, expected learning outcomes, content, instructional strategies, assessment techniques, practice guidelines, and suggested reading materials in this program. At first, the curricula were read multiple times to understand their content and structure. At this stage, key points regarding digital pedagogy, information and communication technology, sustainability, inclusion, ethics, peace education, professionalism, and futuristic skills were noted.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

A content analysis checklist was used on the selected curriculum documents. Some of the important categories that were included in the checklist. These were AI literacy, digital pedagogy, AI-based assessment, ethical use of AI, sustainable development, inclusiveness and equity, peace and social tolerance, professional competence, and future-oriented skills. These categories were used to analyze each course. Its purpose was to determine whether the curriculum had covered the necessary competencies. Thirdly, the selected themes were categorized into three levels. It includes fully present, partially present, and not present. If a theme was fully present in the curriculum, it was coded as fully present. Suppose a theme was mentioned but not in detail. It was categorized as partially present.

Fourth, the codes were categorized based on overarching themes. Similar codes were grouped into themes, including AI literacy competencies, sustainability competencies, digital teaching competencies, ethical considerations, inclusive education, and professional development. This helped clarify the strengths and weaknesses of the B.Ed. (Hons.) curriculum regarding AI-powered sustainable teacher education. According to the results, topics such as ICT in education, computer literacy, teaching methods, classroom assessment, inclusive education, and professional development are present. However, these are in the curriculum to an extent. These areas made up the foundation of digital and sustainable teacher education. There were topics relating to artificial intelligence, AI literacy, AI-assisted assessment, learning analytics, ethical considerations, data privacy, and algorithmic biases. That did not have a strong presence in the curriculum.

The analysis also indicated that sustainability-related concepts such as inclusion, equity, peace, Sustainability includes inclusion, equity, peace, social tolerance, and environmental consciousness. In this lifelong learning, some aspects were found in the analyzed courses. There was no consistent integration of these issues into the curriculum. Sustainability-related topics were frequently present, albeit indirectly. It explicitly specified the course objectives and content areas. The data were discussed in the context of the research questions and the reviewed literature. In this case, the literature review suggested that the B.Ed. (Hons.) The curriculum in Pakistan requires further revision regarding sustainability. The data analysis confirmed the need to modify the curriculum in AI literacy, ethical use of AI, sustainable development, and digital pedagogical competencies in teacher education. The data analysis proved that the B.Ed. (Hons.) The curriculum already lays the groundwork for AI-driven sustainability. The ICT-based and professional education courses in the curriculum may provide such grounds. The curriculum does not fully address the challenges of using AI in education.

Table No 1: Codes Description with Explanation and Curriculum Quotes

Code	Theme	Description	Explanation	Curriculum Quote
AI-LIT	AI Literacy	Knowledge of artificial intelligence and its educational use	This code was used when the curriculum mentioned AI, smart tools, intelligent systems, or technology-based learning.	“No direct quote found in provided curriculum text.”

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

Code	Theme	Description	Explanation	Curriculum Quote
DIG-PED	Digital Pedagogy	Use of digital tools for teaching and learning	This code was applied to cases that included ICT, computer literacy, online learning, multimedia, or digital teaching methods.	“ICT in education” / “computer literacy”
AI-ASSESS	AI-Based Assessment	Use of AI or digital tools for assessment and feedback	This code referred to automated assessment, learning analytics, digital feedback, or data-based student evaluation.	“No direct quote found in provided curriculum text.”
ETH-AI	Ethical Use of AI	Responsible and fair use of AI and technology	This code was used to ensure privacy, avoid bias, promote fairness, uphold academic honesty, protect data, and support ethical use of technology.	“No direct quote found in provided curriculum text.”
SUST-DEV	Sustainable Development	Content related to environmental, social, and economic sustainability	This code was used when the curriculum included sustainability, environmental awareness, social responsibility, or sustainable development.	“sustainability concepts” / “environmental awareness”
INC-EQ	Inclusion and Equity	Equal learning opportunities for all students	This code was applied to settings that prioritize inclusive education, gender equality, diversity, access, and support for all learners.	“inclusion, equity”
PEACE-TOL	Peace and Social Tolerance	Promotion of peace, respect, tolerance, and citizenship	This code was used when the curriculum included peace education, social harmony, citizenship, tolerance, or respect for diversity.	“peace, social tolerance.”
PROF-COMP	Professional Competence	Development of professional teaching knowledge and skills	This code referred to teacher standards, classroom management, reflective practice, lesson planning, and teaching skills.	“professional knowledge, teaching skills, classroom management abilities, and practical experience”
FUT-SKILLS	Future-Oriented Skills	Skills needed for 21st-century teaching	This code was applied to critical thinking, creativity, collaboration, problem-solving, lifelong learning, and innovation.	“future-oriented teacher competencies”

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

Code	Theme	Description	Explanation	Curriculum Quote
CURR-GAP	Curriculum Gap	Missing or weakly represented content	This code was used when important areas such as AI literacy, AI ethics, or sustainable digital pedagogy were absent or only briefly mentioned.	"specific concepts related to artificial intelligence… were either weakly represented or absent."

The curriculum analysis reveals a lack of AI Literacy (AI-LIT), as no references are made to artificial intelligence, smart technologies, intelligent systems, or technology-enhanced learning. There is also no mention of AI-Based Assessment (AI-ASSESS) and Ethical Use of AI (ETH-AI). This means that students are not taught how to use AI in assessments, learning analytics, digital feedback, or use technology ethically.

Digital Pedagogy (DIG-PED) appears to be present in the curriculum through the inclusion of courses on ICT, computer literacy, online learning, and multimedia instruction, ensuring that future teachers will have knowledge of digital technologies. Professional Competence (PROF-COMP) is also present in the curriculum, with the focus on classroom management, lesson planning, reflection, teaching skills, and practice.

The following codes are partially developed within the curriculum. Sustainable Development (SUST-DEV) is expressed through environmental awareness and sustainability, thereby encouraging social and ecological responsibility. Inclusion and Equity (INC-EQ) is promoted in certain sections of the curriculum focused on inclusive education, gender equality, and students with special needs. Additionally, Peace and Social Tolerance (PEACE-TOL) can be seen in lessons involving civic responsibility, social cohesion, tolerance, and respect for diversity. Finally, Future-Oriented Skills (FUT-SKILLS), such as critical thinking, creativity, collaboration, problem solving, and lifelong learning, are partially included to prepare teachers for 21st-century classrooms.

The Curriculum Gap (CURR-GAP) code highlights gaps in the curriculum where essential concepts such as AI literacy, AI ethics, and sustainable digital pedagogy are not covered or underdeveloped. In general, the curriculum effectively covers the development of professional and digital skills in teaching, but it lacks comprehensive coverage of AI-related concepts, ethical AI use, and future-oriented skills.

Table No 2: Three Levels of Curriculum Content

Level	Explanation
Fully Present	The theme was clearly and directly included in the course objectives, contents, or learning outcomes.
Partially Present	The theme was indirectly mentioned or appeared in a limited form.
Not Present	The theme was missing from the curriculum.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

The analysis showed that digital pedagogy was partially present because the curriculum included ICT-related areas such as "ICT in education" and "computer literacy." However, AI literacy, AI-based assessment, and ethical AI use were not clearly found in the provided curriculum text. Sustainability-related themes such as inclusion, equity, peace, and environmental awareness were partially present, but they were not systematically integrated across the curriculum.

The curriculum shows that AI Literacy (AI-LIT-01) is not addressed, as there is no content on AI concepts, tools, or applications for prospective teachers, suggesting that AI knowledge is not currently integrated into the program. Similarly, AI-Based Assessment (AI-ASST-03) and Ethical AI Use (ETH-AI-04) are absent; the curriculum does not include AI-based assessment practices, learning analytics, or guidance on responsible and ethical AI use, leaving these critical areas unrepresented. In contrast, Digital Pedagogy (DIG-PED-02) and Professional Competence (PROF-08) are fully covered. Courses such as *"Instructional and Communication Technology (ICT) in Education"* and practical teaching components like *"Teaching Practice (Short Term)"* and *"Classroom Management (Foundation)"* provide prospective teachers with strong exposure to digital tools, teaching skills, and classroom management techniques.

Several areas are partially present, reflecting limited but existing coverage. Sustainability Competencies (SUST-05) are introduced through courses like *"General Science"* and *"Child Development"*, highlighting environmental awareness and social responsibility. Inclusion & Equity (INCL-06) is partially addressed in the *"Child Development"* course, which touches on inclusive classroom practices. Peace & Social Tolerance (PEACE-07) is included in the *"Teaching of Social Studies"* course, promoting civic responsibility and social awareness. Finally, Future-Oriented Skills (FUTURE-09), including critical thinking, digital literacy, and reflective practice, are partially integrated via *"Contemporary Issues and Trends in Education"*, preparing teachers for evolving classroom demands. Overall, the curriculum emphasizes traditional digital and professional competencies but lacks comprehensive integration of AI literacy, ethical AI, and AI-based assessment, while only partially addressing sustainability, inclusion, peace education, and future-ready skills.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

Table No 3: Analyzed data

Code	Theme	Description	Explanation	Curriculum Quote / Evidence	Page	Level
AI-LIT-01	AI Literacy	Knowledge and understanding of AI and its use in education	Evaluates whether AI concepts, tools, or applications are included for prospective teachers.	No AI content found; AI not integrated in courses.	N/A	Not Present
DIG-PED-02	Digital Pedagogy	Use of ICT and digital tools for teaching and learning	Assesses the presence of digital methods, computer literacy, and ICT in Education.	"Instructional and Communication Technology (ICT) in Education (Professional)"	p. 31	Fully Present
AI-ASST-03	AI-Based Assessment	Integration of AI for assessment, learning analytics, and feedback	Checks whether AI is used to enhance assessment practices.	No AI-based assessment content found	N/A	Not Present
ETH-AI-04	Ethical AI Use	Teaching ethical, responsible, and safe use of AI	Assesses whether ethical AI and data privacy are part of curriculum	Not explicitly mentioned	N/A	Not Present
SUST-05	Sustainability Competencies	Awareness of environmental, social, and economic sustainability	Includes courses promoting ESD, environmental education, social responsibility	"General Science" course covers environmental awareness; "Child Development" mentions social responsibility	p. 30–32	Partially Present
INCL-06	Inclusion & Equity	Preparation for inclusive classrooms, gender equity, and social diversity	Evaluates attention to equity, diversity, and inclusive pedagogy	"Child Development" course addresses inclusive classroom practices	p. 30	Partially Present
PEACE-07	Peace & Social Tolerance	Skills to promote peace, social harmony, tolerance	Checks whether teacher prep addresses peace education and tolerance	"Teaching of Social Studies" mentions social awareness and civic responsibility	p. 32–33	Partially Present
PROF-08	Professional Competence	Teaching practice, classroom management, and professional skills	Evaluates development of practical teaching skills	"Teaching Practice (Short Term)", "Classroom Management (Foundation)"	p. 31	Fully Present

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

Code	Theme	Description	Explanation	Curriculum Quote / Evidence	Page	Level
FUTURE-09	Future-Oriented Skills	Preparing teachers for future-ready classrooms	Includes critical thinking, digital literacy, reflective practice	"Contemporary Issues and Trends in Education"	p. 32	Partially Present

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

Discussion

The current study examined the B.Ed. (Hons.) curriculum. The program curriculum in Pakistan explores the degree to which it integrates the idea of AI-driven sustainable teacher education. The program curriculum comprised components that enabled digital and sustainable teacher preparation in ICT, professional education, assessment, classroom management, inclusive education, and teaching practice. However, the program curriculum was unable to cover areas such as AI, AI literacy, AI-based assessment, ethical use of AI, data privacy, algorithmic bias, and the proper use of emerging technologies.

The first major finding was that AI literacy was either absent or very weakly represented in the B.Ed. (Hons.) curriculum. Although the curriculum included ICT-related areas such as computer literacy and ICT in education, these areas mainly focused on general technology use rather than artificial intelligence. This finding is supported by Ahmed and Kazmi (2020), who reported that computer literacy and ICT in education had been introduced in teacher education programs in Pakistan. However, teacher educators still needed supportive conditions and hands-on training to effectively use technology in pedagogy (Ahmed & Kazmi, 2020). Similarly, research on ICT integration in pre-service teacher training found that teacher education programs were not sufficiently preparing prospective teachers with the competencies and practical experience needed to use ICT effectively in their future profession (Integration of ICT, 2022). Therefore, the limited presence of AI in the curriculum was not surprising, as ICT integration still appears incomplete in many teacher education contexts.

Secondly, digital pedagogy was partially covered in the curriculum. The subjects, such as ICT, instructional methods, classroom assessment, and practicum, provided trainees with opportunities—those who were used to being exposed to digital pedagogy. However, the digital pedagogy was not linked to AI tools such as intelligent tutoring systems, automated feedback, adaptive learning, learning analytics, and AI-assisted lesson plans. This result supports the findings of Iqbal et al., (2025), who discussed the coverage of technology integration in teaching and learning in a B.Ed program using the TPACK framework. According to their study, the integration of technology in teaching and learning was lower in the B.Ed program. Technology-related subjects were optional subjects in the B.Ed program (Iqbal et al., 2025).

The third finding is that although sustainability themes were partially included in the curriculum, they were not consistently integrated across all courses. Themes such as inclusion, equity, peace, social tolerance, environment, and lifelong learning were partially incorporated across various areas. However, they were not always explicitly mentioned as learning outcomes or course objectives. This finding is consistent with the results of Kalsoom eta al., (2022), who found that Education for Sustainable Development was partially included in Pakistan's teacher education policies and curricula, and only a part of the B.Ed. curriculum focused on sustainability (Kalsoom et al., 2022). This is further supported by the results of Durraniet al., (2025), which show that most B.Ed. Courses were found to be poorly aligned with the social, economic, and environmental aspects of sustainable development (Ahmed & Kazmi, 2020). Thus, the current study also confirms the need for greater inclusion of sustainability in the B.Ed. (Hons.) curriculum.

The fourth issue was the presence of peace, tolerance, and social responsibility, though their practical integration remained inadequate. Teacher education should be sustainable, meaning it should go beyond environmental awareness to include peacebuilding, respect for diversity, citizenship, and social harmony. These values were partly reflected in the curriculum, though their content was not sufficiently systematized. This issue was also highlighted by Jamshaid (2022), who found that teacher education curricula in Pakistan were not well aligned

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

with ESD content and strategies necessary for fostering social tolerance and peace. Jamal et al., (2025) made similar observations regarding the B.Ed. curriculum in relation to peace education content, which, in turn, was not enough and required revision. Parveen (2022) argued that peace education in the B.Ed. Curriculum could help develop knowledge, skills, and attitudes among prospective teachers, yet skills and attitudes required particular attention (Parveen, 2022). The fifth issue identified in the reviewed literature was the lack of ethical use of AI and related technologies. The B.Ed. curriculum contained some elements of professional and ethical values, yet there was no explicit discussion of such AI-related issues as data privacy, fairness, algorithmic bias, academic dishonesty, transparency, and responsible

Sixthly, the study revealed that the curriculum had to be aligned with professional standards and outcome-based education. For AI-powered sustainable teacher education, it is important to have clear program learning outcomes, course learning outcomes, practical competencies, and assessment criteria. However, neither AI nor sustainability appeared to be sufficiently integrated into the curriculum as measurable competencies. It is similar to Parveen's study, which found that the B.Ed. (Hons.) curriculum was not fully aligned with outcome-based education indicators and National Professional Standards for Teachers in Pakistan (Parveen, 2022). Therefore, the revision of the curriculum cannot be limited to adding new topics related to AI; it also implies the development of learning outcomes related to AI literacy, digital citizenship, sustainable pedagogy, inclusive teaching, and other necessary skills.

Seventhly, implementation challenges may hinder the success of AI-powered sustainable teacher education. Even if AI and sustainability are introduced into the curriculum, their implementation will depend on various factors, including teacher educator training, availability of digital infrastructure, up-to-date educational resources, institutional readiness, and other aspects of curriculum implementation. Gopang et al., (2020) found that the implementation of B.Ed. (Hons.) faced multiple challenges, including a lack of trained human resources, insufficient involvement of faculty in curriculum decision-making, and a lack of

Conclusion

It can be stated that the current B.Ed. (Hons.) program offered by Pakistani universities is valuable and helpful for preparing future teachers. Nevertheless, this program does not meet the requirements of AI-powered sustainable teacher education. It includes such important topics as ICT in education, computer literacy, teaching methods, classroom assessment, inclusive education, professional development, and teaching practice. All these subjects aim to develop the pedagogical and technological skills of future teachers. At the same time, the analysis shows that the studied curriculum does not cover artificial intelligence, AI literacy, AI-powered assessment, learning analytics, ethical AI use, data privacy, algorithmic bias, or the proper use of AI technologies. It should also be noted that sustainability issues have been considered only partially in the studied curriculum. Thus, notions such as inclusion, equity, peace, social tolerance, environmental issues, lifelong learning, and social responsibility have been included in some courses. One more important finding is that there should be alignment between the curriculum and professional standards, outcome-based education, and future-oriented competencies of teachers. AI-assisted sustainable teacher education calls for clearly stated learning outcomes, activities, assessment criteria, and teacher competencies. Nevertheless, the curriculum did not include any explicit learning outcomes for AI literacy, ethical use of technology, sustainable pedagogy, or inclusion in AI-assisted education. To sum up, one can conclude that the curriculum of the B.Ed. (Hons.) A program in Pakistan included

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 03 Issue No: 02 (2026)

some prerequisites for digital and sustainable teacher education; however, it needed to be revised to address 21st-century challenges. Specifically, the curriculum should be revised to incorporate AI literacy, ethical use of technology, digital pedagogy, sustainability competencies, peace education, inclusion, and future readiness.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. The B.Ed. (Hons.) curriculum should include basic concepts of artificial intelligence, AI tools, AI applications in education, and the role of AI in teaching and learning.
2. The program learning outcomes and course learning outcomes of B.Ed. (Hons.) should be revised to include AI-related and sustainability-related competencies.
3. Teacher educators should be provided professional development and hands-on training in AI tools, digital pedagogy, sustainable education, and ethical technology use.
4. Teacher education institutions should be provided with proper digital infrastructure, including internet access, computer labs, smart classrooms, learning management systems, and access to educational AI tools.
5. AI-supported and sustainability-based teaching strategies should be included in teaching practice and practicum.
6. The curriculum should emphasize that AI and digital tools must be used in ways that support all learners, including students from rural areas, low-income backgrounds, girls, students with disabilities, and learners with different educational needs. AI-powered education should reduce learning gaps rather than increase inequality.
7. Peace education, social tolerance, respect for diversity, responsible citizenship, and ethical decision-making should be more clearly integrated into the curriculum.
8. Assessment methods for B.Ed. (Hons.) curriculum should be amended to include assessment methods for evaluating AI competency, digital pedagogy, sustainability, and inclusive teacher education.
9. Future researchers should explore the perceptions of teacher educators and prospective teachers about AI in teacher education institutes.

References

Ahmed, S., & Kazmi, H. H. (2020). Teacher educators' attitude towards the pedagogical use of ICTs: A study from Karachi, Pakistan. *Journal of Education and Educational Development, 7*(2), 369–386. https://doi.org/10.22555/joeed.v7i2.67

Chiu, T. K. F., & Chai, C. S. (2020). Sustainable curriculum planning for artificial intelligence education: A self-determination theory perspective. *Sustainability, 12*(14), Article 5568. https://doi.org/10.3390/su12145568

Erum, S., & Soomro, N. H. (2021). ICT integration for teaching English literature at tertiary level: Teachers' perspectives. *Pakistan Languages and Humanities Review, 5*(2), 231–248.

Gopang, A. S., Parveen, S., & Kamran, M. (2020). Investigating the challenges faced by the teacher educators after implementation of pre-service B.Ed. (Hons.) elementary four-year program in Sindh. *International Journal of Innovation in Teaching and Learning, 6*(2), 146–159. https://doi.org/10.35993/ijitl.v6i2.1334

Iqbal, M., Razi, S. K. A., & Cheema, I. U. (2025). Implementation of the B.Ed. (Hons.) program curriculum at post graduate levels: Problems and prospects. *Harf-o-Sukhan, 6*(2), 113–124.

Jamal, B., ul-Ain, Q., & Farooque, S. (2025). Peace education in curriculum of child development in teacher education in Pakistan. *Research Journal for Social Advancement, 3*(3), 49–56.

Jamil, M., & Rafique, M., & Iqbal, J. (2025). Education for sustainable development: Faculty perspectives, curricular integration, and institutional challenges in higher education. *Journal for Current Sign*, *3*(4), 724-733. https://doi.org/10.55737/qjss.v-iv.24587

Jamil, M., Ahmad, F., & Muhammad. (2026). Generative AI in teacher education: Educators' perspectives, practices, and challenges in higher education. *Qualitative Research Journal for Social Studies*, *3*(1), 23-33. https://doi.org/10.63878/qrjs908

Jamil, M., Aslam, M., & Shahzad, A. (2024). Technology integration in teaching and learning: Exploring prospective teachers' perceptions, practices and challenges. *Indus Journal of Social Sciences*, *2*(2), 520-529. https://doi.org/10.59075/ijss.v2i2.346

Jamil, M., Anwar, M., & Ali, M. J. (2024). Developing critical thinking skills in English classrooms at secondary level: Teachers' perspective. *Journal of Social Sciences Development*, *3*(1), 76–85.

Jamil, M., Mehmood, W., & Aslam, A. (2024). Sustainability education in Pakistan: A qualitative content analysis of the 10th grade Pakistan Studies textbook. *Voyage Journal of Educational Studies (VJES), 4*(2), 80–95. https://doi.org/10.58622/vjes.v4i2.152

Jamil, M., Urooj, T., & Muhammad, N. (2025). Fostering critical thinking in teacher education programs: Perceptions, practices, and challenges of teacher educators. *ProScholar Insights, 4*(3), 13-22. https://doi.org/10.55737/psi.2025c-43098

Jamshaid, A. (2022). Education for sustainable development and social tolerance: Evidence from teacher education institutions in Pakistan. *NUST Journal of International Peace & Stability, 5*(1), 46–60. https://doi.org/10.37540/njips.v5i1.121

Kalsoom, Q., Khanam, A., & Qureshi, N. (2022). Collaborative reflection on environmental practices: A vehicle for environmental education in teacher education. *Journal of Research in Pedagogy, 23*(2), 162–176.

Khan, A. M., Jamshaid, A., & Ramzan, A. (2019). Educators as agents of sustainable development in Pakistan. *Journal of Educational Research, 22*(2), 1–14.

Malik, S. S., Majid, S., Altaf, S., & Shah, S. A. (2026). An analysis of the role of large language models in higher education: A review of published articles and papers. *Advances in Behavioral and Social Sciences, 1*, 239–261.

Memon, Naheed & Bhatti, Tarique. (2025). Exploring the challenges and issues in implementation of B.Ed. (Hons) elementary 4 years programme at government elementary program: A case study of GECES in Sindh. *Social Science Review Archives. 3*. 3416-3422. 10.70670/sra.v3i4.621.

Parveen, I. (2022). Integration of peace education in B.Ed. (Hons.) curriculum: A case study on teacher education institutions in Karachi. *Pakistan Journal of Educational Research, 5*(2), 1–24. https://doi.org/10.52337/pjer.v5i2.514

Sahito, Z. H., Khoso, F. J., & Alishba, U. (2024). Harnessing artificial intelligence for educational transformation in Sindh: Opportunities, challenges, and strategic implementation. *Voyage Journal of Educational Studies. 4*. 2790-7163. 10.58622/vjes.v4i4.222.

Tahir, M. S., Noor, A., & Raza, H. (2025). Explore the role of artificial intelligence to support teachers at higher education institutions in South Punjab. *The Critical Review of Social Sciences Studies, 3*(3), 2421–2433. https://doi.org/10.59075/c098vs88

Waheed, A. (2026). *Elevating sustainability literacy: Knowledge, attitudes, and behaviours and sustainable practices through a sustainability-focused intervention among pre-service teachers in Pakistan* [Doctoral dissertation, University of Padua].