Policy Research Journal
ISSN (E): 3006-7030 ISSN (P) : 3006-7022 Volume 4, Issue 3, 2026

EXPLORING BUSINESS SCHOOLS' READINESS FOR SMART HRM 4.0: CURRICULUM TRANSFORMATION AND PEDAGOGICAL INNOVATION

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DOI: http://doi.org/10.5281/zenodo.18884956

Keywords
Smart HRM4.0, Business School Readiness, Smart HRM Curriculum, Smart HRM Teaching Competencies, HR Analytics

Article History
Received: 06 January 2026
Accepted: 19 February 2026
Published: 06 March 2026

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Abstract

The Age of Cyber-Physical or the Smart Industry eras are some other names for the Fourth Industrial Revolution. It has a significant impact on every aspect of life, particularly organizational management processes and practices. Smart technologies such as Big Data, the Internet of Things, Cloud Computing, and Artificial Intelligence-based automation have reshaped processes and practices of supply chain management, contributing to the emergence of the Fourth Industrial Revolution. Human Resources Management's traditional functions are going through a significant transformation. This cyber-physical revolution has enabled HRM functions and practices to be digitally integrated through smart technologies to collectively achieve organizational objectives. HRM professionals must be equipped with new skills sets in the era of Smart Industry. Universities have a responsibility to skill up the proposed professionals to fulfil the workforce market demands of the fourth industrial revolution. This study explores universities Readiness for offering Smart HRM 4.0 courses and their teaching in Khyber Pakhtunkhwa, Pakistan. The study unpacks the current status of university curriculum, and teaching-learning practices in light of Smart HRM4.0 course teaching and learning requirements. The findings and reflections highlighted the different universities' initiatives, making changes in the Business Curriculum by integrating smart technology embedded HRM courses, in addition to identifying various gaps in the curriculum to incorporate smart technology integration. The study also reveals gaps in teaching staff skills and competencies, besides strong enthusiasm for technology adoption. This study adopts a qualitative approach, grounded in relativist ontology and a subjectivist epistemology within a constructivist paradigm. Guided by a phenomenological methodology, this study sought to understand the lived experiences of university HRM teachers through in-depth interviews. The interviews data were analyzed using Braun and Clarke's reflective thematic analysis, with themes developed through the researcher's reflexive interpretation of participants' accounts at a latent level of meaning. This study contributes to the existing literature by sharing in-depth contextual readiness level of Business Schools' Curriculum for Smart HRM 4.0 students' preparedness. These findings will inform the development of strategies for universities to upgrade curricula, teaching staff competencies, and teaching practices to support modern technology-based teaching and learning environments.

1. Introduction

The emergence of the Fourth Industrial Revolution, driven by smart technologies, has widened the gap between employees' skills and market demands. These challenges have implications for both personal and organizational skills requirements. Employees need to foster new abilities and capacities, from technical skills to social and emotional abilities, just as inventive abilities (Colbert *et al.*, 2016; Imperatori *et al.*, 2020). Technical competencies—such as cloud computing, big data, and analytics—combined with the aforementioned personal and emotional skills, are required for both current and future employees (Sharma & Sakpal, 2019). It is required to strategically manage the competencies to respond to the emerging challenges of Industry 4.0 (Shaw & Varghese, 2018).

In the current scenario, where IR 4.0 has intensified competition, HR practices play a pivotal role; strategic HR initiatives are essential for effectively achieving the core objectives of digital transformation (Gan & Yusof, 2019; Shamim et al., 2016). The HR professionals, experts, and academicians should craft fresh training modules for HR personnel, with blended content based on detailed traditional professional knowledge with digital skills (Imperatori *et al.*, 2020). Moreover, higher education should integrate information technology in business study courses and course delivery (Piccarozzi *et al.*, 2018). Keeping in view the mentioned problems, universities have to develop programs and activities to develop such skills on this level as the graduates shortly after join workforce.

1.1 Problem Statement

There is a critical need to evaluate current curriculum objectives and teaching practices in light of Smart HRM requirements; previous studies have insufficiently explored how business curricula and pedagogical methods align with the demands of Smart HRM 4.0. This study explores the curriculum and teachers' competence readiness in Khyber Pakhtunkhwa, Pakistan. Universities' efforts to improve course adaptability and flexibility require critical examination, particularly regarding curriculum design, instructional strategies, and faculty training for Smart HRM competency development. Along with administrative processes and the timeframe required for introducing, designing, developing, and delivering new courses in an IR 4.0-driven, rapidly changing environment.

1.2 Research Questions

Drawing upon the gaps identified in the literature, this study seeks to address the following research questions.

Research Question#1: How do academic stakeholders interpret and experience the alignment between existing HRM curricula and emerging Smart HRM competencies?

Research Question#2: How do teachers perceive and experience their competencies in aligning with the requirements of Smart HRM course content and delivery?

1.3 Significance of the study

The study is highly significant for education policymakers, curriculum designers, and university leadership and management. It is also valuable for researchers conducting contextual studies to identify indigenous similarities and differences in comparison with other countries and educational environments.

2. Review of Literature

The literature review shows that the modern wave of technological advancement has revolutionized work processes and social life. The current revolution is called Industrial Revolution 4.0. At the dawn of this cyber-physical revolution, management—and specifically Human Resource Management functions—are undergoing tremendous change through the integration of smart technologies. With the advancement in these tools and techniques, HRM professionals need a new set of skills. This is the duty of a higher education institution to instill these skills in future professionals.

2.1 Smart HRM 4.0

The traditional skills with digital skills could help to demand more efficient information and IT

tools for the HR function. It also facilitate to infer the information provided, and works as an expert user of digital technologies (Hecklau et al., 2016). In Industry 4.0, the role of Human Resources will again be vested in line managers and the Human Resources department. The HR department could never have a more prominent role in current and coming digital transformation, without the ongoing learning of the skills for design and implementation of emerging smart HRM practices(Imperatori *et al.*, 2020). `The Industry 4.0 challenges can be addressed if HR play major role, for this HR department will need to design a new mix of skills. In addition, with program planning for new skills training in the organizations (Imperatori *et al.*, 2020). A study (Umar & Baseer, 2016) reveals that students in Peshawar-based universities have low awareness about cloud computing, due to the lack of knowledge, and usage is very selective. HRM research in Pakistan necessitates a resolute track and plan to address local concerns and problems (Afiouni *et al.*, 2014; Khilji & Matthews, 2012; Ali & Brandl, 2017). Only a fraction of studies discussed the HRM theories and practices gap in Pakistan; this claim is supported by a study (Adil, 2015), conducted to find significance between Strategic HRM and firm performance.

2.2 University Readiness

In a study by (Abdullah *et al.*, 2020), the focus is on graduates' readiness, whereas our study focuses on university readiness. Most of the previous studies have focused on engineering universities. The demands of engineering universities for readiness are different from those of business schools. The resources needed to transform engineering universities for IR 4.0 are costlier than those of business schools. Other studies have identified skills and competencies needed for IR 4.0 environment. In this study, the concentration will be on exploring the impact of IR 4.0 as a whole on HR practices in Khyber Pakhtunkhwa. In light of these findings, strategies and policies will be sought out to align our professional qualifications to meet the challenges posed by IR 4.0. Industry 4.0's real shapes are not yet clear; many aspects are unclear, and various possibilities of development are imminent. For this reason, Higher Education has to articulate multiple policies and strategies to bring about changes not only in courses, curricula, and the ecology of digitized universities, but also in research and innovation (Nurhasan *et al.*, 2020).

The availability of resources, in terms of infrastructure and monetary support, is a real issue across countries in the adoption of new technologies. Administrative and policy matters also create great problems. Prolonged and rigid administrative processes are a hurdle in developing quick and on-time course development to meet the industry need and to compete in skills mix with other countries of the world. Part of the curriculum is mandatory to equip students with the latest tools and techniques. The process of change in the curriculum takes too long in Pakistan, and the changes caused by the IR 4.0 are very rapid and abrupt. Therefore, a mechanism must be sought out to bring curriculum changes as early as possible. Secondly, the uncertainty of the changes, what would happen? What would it be? What would be its impacts on businesses? Consequently, a change will be needed in the curriculum and ecosystem to take advantage of this new revolution, to make it an opportunity rather than a threat to the whole business supply chain. The need for skilled employees for this specific environment is the cry of time. Thirdly, the changes brought by IR 4.0 are not yet final. But it is for sure that the nature of revolution is multifaceted and impacts every field of life. The business world is in real demand for multi-skills, which is only possible through the merger of multidisciplinary academic disciplines.

Many studies have been conducted on the skills and competencies needed for Smart HRM 4.0. The real issue that remains to be solved is how to make changes in the curriculum. And as the advancement in technologies is ongoing thus demands novel skills, in such circumstances, how to ensure the continual prompt changes in curriculum. New processes and regulations needed to be in place to ensure a timely response to the demand for a new mix of skills. Authorities and institutions should prioritize flexible

approaches that allow context and customization of courses for individual needs and interests (Goh & Abdul-Wahab, 2020).Finally, Higher Education could make sure the implementation of information technology in course design and implementation by crafting mechanisms and policies for human resources training and the implementation of taught concepts (Piccarozzi et al., 2018).

3. Methodology

This study adopts a qualitative approach, grounded in a relativist ontology and a subjectivist epistemology within a constructivist paradigm. Guided by a phenomenological methodology, this study sought to understand the lived experiences of university HRM teachers through in-depth interviews. A total of 20 in-depth interviews were conducted with the HRM teachers at Public and Private Universities in Khyber Pakhtunkhwa. The interview data were analyzed using Braun and Clarke's reflective thematic analysis, with themes developed through the researcher's reflexive interpretation of participants' accounts at a latent level of meaning.

4. Finding and Analysis

Themes were developed through a reflexive process of coding and interpretation of participants' interview narratives. Participants were anonymized using unique identifiers (e.g., P1, P2). Initial codes were generated inductively from the data and subsequently interpreted to construct secondary concepts reflecting shared patterns of meaning. These concepts were then synthesized into overarching themes that capture both semantic and latent dimensions of the data. To enhance transparency and analytical clarity, tables are presented to illustrate the progression from codes to secondary concepts and final themes.

4.1 University Readiness for HRM4.0

This theme, University Readiness for HRM 4.0, reflects participants' views on the integration of smart technologies such as AI, Big Data, Cloud Computing, IoT, and automation into HRM programs offered by universities to equip students to support innovation and Smart digital transformation.

Table 4.1 University Readiness for HRM 4.0

Secondary Concepts (from Codes)	Themes
Adaptability Over Abundance(P12)	University Readiness for HRM4.0
HR Major is not offered (P8)	
Absence of Interdisciplinary Opportunities(P7)	
interdisciplinary misalignment(P7)	
Centralized Teaching System(P8)	
Culture Change to Support adoption(P14)	

I have been teaching for 17 years on university level. I have observed that the public sector has funds and capacity, but they do not have readiness. They lack the required infrastructure and curriculum. It will need a long discussion. On the other hand, private universities have more adaptability. (P12)

Public universities, despite having abundant resources and capacity, are not ready for the Fourth Industrial Revolution to prepare future HR professionals for upcoming challenges. They remain ill-equipped in terms of infrastructure and curriculum for Smart HRM 4.0. In contrast, private universities, though operating with comparatively limited resources, demonstrate greater adaptability

In our university HR major is not being offered due to the minimum required enrollments are 11. Less than 11 students are not offered the HRM major. Students take an interest in enrolling, but due to workload, it is not being offered. Workload due to teacher engagement in other depts to teach entrepreneurship. Due to the centralized teaching system, entrepreneurship has been

offered in 29 classes. Not only entrepreneurship, but also organizational behavior as well. Only the principal of HRM is being offered to marketing and finance students. Let alone smart HRM, even fundamental HRM students are not prepared. (P8)

In one of the universities, the HRM course is not being offered. The workload of Entrepreneurship, which is offered to almost all disciplines, is shared by HRM lecturers. The second reason is the policy cap; if 11 students' enrollment is not met, the program will not be offered. Student enrollment in the HRM major often falls short of the required target. Teaching hours are the same for everybody, but HRM lecturers are engaged in teaching Entrepreneurship in other departments. This reflection of P8 indicates students' low interest and academia's marginal value for the HRM major at both undergraduate and graduate levels. The participant expressed deep frustration that only fundamental HRM courses are taught to students of other majors. In such a situation, without deep knowledge of Strategic HRM and Smart HRM, the department will not be able to play a prime role or hold a strategic position in organizations.

Indeed, in the world there has been a trend for 15 years, and in Pakistan, too, there is a trend. But here, HEC is the regulatory authority, and it creates a problem for itself. There is no such flexibility to complete a degree in parts; for instance, you read some course of HR and some in statistics and management, and you will be awarded a degree. Now they have designed a combination of two plus two model in which you study for two years, and you get a degree. This is an associate degree concept. But the selection of subjects from different courses is still not available in Pakistan. (P7) Answering a question on customization of courses, participant (7) highlighted an issue in this regard. HEC has recently introduced a framework called "two by two," which means that in the first two years, students will study mandatory courses covering Social Studies, Sciences, Mathematics, Humanities, and Languages. At this stage, they will either receive an Associate Diploma or opt for a specific discipline major such as Business, Computing, Accounting, Islamiat, Literature, or Pakistan Studies. Students have no choice but to select courses from different disciplines to combine into a diverse degree on their own. In developing countries, this trend of customization is increasing day by day to fill the gap of demanded skills and diverse competencies.

I mean, transformation require the change in the whole culture. It needs a supportive culture. It needs awareness seminars to apprise the faculty on how to use it. (P14)

The participant emphasizes to train teachers first to use and know the benefits of digital technologies, then there will be a possibility to get success in preparing students for Smart technologies. The above discussion outlines the areas of interest in students' preparation for Smart HRM 4.0, including curriculum, teaching knowledge and skills required, and supportive infrastructure for smart technologies. It also highlights the role of HEC in developing the higher education degree framework and its implications for introducing innovative approaches, such as course customization for individual students to meet market needs. These points will be discussed in greater detail under various themes to understand the current readiness level of Business Schools in Khyber Pakhtunkhwa.

4.2 Curriculum Management in Higher Education

HEC ensures quality and continuous improvement in higher education by designing, implementing, and reviewing academic programs that align with industry and market trends, while maintaining consistency with national and institutional goals. This theme reflects the perceptions and insights of study participants regarding Smart HRM 4.0 courses offered at the degree level, as well as the processes and practices involved in updating curricula to address the rapid technological changes brought about by Industry 4.0. This theme includes sub-themes that explore the roles of all bodies involved in implementing new changes, along with the steps in curriculum management. It also examines processes at different levels and the authority of the respective

bodies, as viewed through the perspectives of the study participants.

4.2.1 Curriculum Management in Higher Education

Participants' viewpoints and observations were integrated into the theme to provide insights into the Smart HRM 4.0 courses offered by business schools.

Table 4.2 Curriculum Management in Higher Education

Secondary Concepts (from Codes)	Sub-Theme	Theme
Future Plan to offer HR Analytics(P6)	**Curriculum Management in Higher Education**	**University Readiness for HRM4.0**
Policy Flexibility in Curriculum Implementation (P3)		
Academic Ownership in Advancing Smart HRM Education(P3)		
HR Analytics Course Launch Plan(P18)		
Business Analytics with HR Analytics Pending (P7)		
Inconsistent Practices(P3)		
HR Analytics Course Launch Plan(P5)		
Benchmarking Prestigious Universities in Digital Business Education(P7)		
Initiated HR Analytics Program(P20)		

Gradually, in universities, the trend is starting to take tech-driven initiatives, as this interviewee has revealed, *"We are going to start HR analytics" (P18).* Some other participants have also mentioned the start of courses in the domain of analytics, powered by modern technologies like AI, BD, and machine learning.

Theoretically, the readiness is there. For example, in our University we started an Honour Programme in business analytics. Our statistics dept started the Data Science Programme, which relates to the use of technology, especially so that students understand its use in business. (P7)

A Business Analytics course has been introduced, and the nature of these courses will be general. Students opting for this department can help bridge the gap in technology-driven practices within organizations. Although these courses are not directly offered to HR majors, they will at least prepare individuals with a combination of technology and business knowledge to work in future tech-driven organizations.

There is no specific course in HR analytics. However, it is included as a topic. However, recently they have decided to start a new programme in Data analytics. That would possibly start from next semester. That would be a complete course, and it would have a full scheme of studies. It would be a degree program in the name of BS Analytics. I hope it will have content of Business Analytics, but they will definitely consider the subject of HR analytics too. If not, we will advise including it because people should have an idea of it. (P5)

HR Analytics has been introduced as a topic, even if not as a full course. Respondents also highlighted that the university is planning to launch a Data Analytics course, which will include content on both Business Analytics and HR Analytics. This statement reflects universities' awareness of the growing demand and need for data analytics skills among contemporary and future professionals.

There was a time when an Oracle course was taught to MBA students. They were told that it would be of use to them. But why it was excluded is still unknown to me. But now again we are on that track. (P3)

The given statement reflects an awareness of the need to integrate technology into courses. The interviewee expressed concern about previous efforts where IT tools were introduced but later

discontinued, while also acknowledging that the current trend is once again moving in the same direction.

There are private universities like LUMS, IBA, and FAST, which are already IT-oriented. So people saw them and realized, and thus students were attracted towards them. Thus, other private and public universities looked at them and followed them. They held a board of governors meeting to start such courses. They copied them or designed their own courses. So they also started such courses as Business Analytics or Big Data. For curricula, we formed a board of study to benchmark from developed and the organizations that have already started such programmes, and then customized a curriculum according to our needs. (P7)

The experiences and insights shared portray the evolving tendency to learn from each other's practices for a digital shift. Institutions that have already implemented changes serve as benchmarks for other organizations. The progression expressed by participant P7 is promising for the future, ensuring a sustained digital and smart transformation of courses to make professionals market-ready. The participant's own university has also formed a body for benchmarking and designing a customized curriculum.

Yes, of course. You mentioned Analytical. So we have started BS Analytics. So we have adopted them. We motivate students to opt for it. Our Department name is now the Human Resources and Information Management Department. So we try to link our HR slot with IT and Information. So we have started such courses. Recently, we have got admission in such courses in BS. It has started on our main campus. Department of Management Science is divided into three wings– Accounting and Finance, Marketing and Solutions, and HR & Information Management. So we have started HR Analytics and have started admissions in it. (P20)

The university mentioned above has taken further moves to introduce an Information Management degree in HRM. The department name has also been changed to reflect the integration of technologies into HR courses. The university is forward-looking, leading the progression movement. Consequently, the HR major will be enriched by teaching technology-oriented courses.

Universities follow the directions of HEC. HEC updates the curriculum under the umbrella of NBEAC. Then, accordingly, universities make their semester-wise syllabus. If we want to start a new degree consisting of subjects. For example, for business and IT courses, we just have to inform HEC. The HR analytics course is not yet offered, but in the future, it is in our plan. (P6)

The participant discussed future plans for introducing an HR Analytics course. In addition, highlighted the role of different bodies in the curriculum management and approval process for introducing new courses within the institution. Universities, HEC, and NBEAC are the key bodies involved in curriculum suggestion, review, design, implementation, and monitoring. The views expressed by different participants regarding Smart Technologies are promising. Some universities have already introduced degrees in Data Analytics, albeit generally through departments other than business, which still indicates the perceived need for such courses. One university is offering a Business Analytics course, while another is taking the lead by introducing a degree in HR Information Management. The following themes will discuss the processes and concerned bodies involved in ensuring a smooth transition of courses toward digital transformation in the relevant field.

4.3 Perceived Preparedness for Teaching Smart HRM 4.0

Perceived Preparedness for Teaching Smart HRM 4.0" is a sub-theme of "University Readiness for HRM 4.0." This theme encompasses interviewees' perceptions regarding their skills and competency levels in relation to the required knowledge and skills set for teaching Smart HRM. At the end of the findings and researcher analyses, a table summarizing the themes generated from participants' reflections is provided to support the Recommendations section.

"Faculty is not bad. They have the basic IT skills". (P18)

Faculty members have the skills to use digital tools and gadgets for their routine work. In this digital era, the usage of such tools and technologies are very common. The instruction of Smart HRM required more sophisticated and advanced skills. The interviewee's reflection on skills level will be further clarified by other participants' views in more detail to conclude.

Table 4.3 Perceived Preparedness for Teaching Smart HRM 4.0

Secondary Concepts (from Codes)	Sub-Theme	Main Theme
Technology Knowledge Over HRM Understanding (P.20)	**Perceived Preparedness for Teaching Smart HRM 4.0**	**University Readiness for HRM4.0**
Partial Digital Preparedness for HRM Tech(P18)		
Challenges in Cross-Disciplinary HRM and IT Instruction (P8)		
Informal Digital Learning in Absence of Institutional E-Learning (P13)		
Generation Gap Create Challenges in Delivery (12)		
Fulfilling Tech-HRM Skills Requirements via Faculty Global Exposure (P7)		
Insufficient Digital Skills Among HRM Faculty (12)		
Theoretical growth with practical gaps (P7)		

"So when there is mention of technologies, facilities are needed. So in organization do not have facilities to provide us. But in terms of skills and awareness or theoretically, our business schools are moving towards that direction". (P7)

The interviewee linked the skills development to the lack of resources to have hand on experience on these sophisticated tools. The participant perceived the level of knowledge is growing in a positive direction of modern technologies understanding.

"So in our faculty, new people are doing PhD and they learn new skills and awareness and the interaction of IT is increased. So up to the extent of skill level, we have the readiness". (P7)

Here an important point is highlighted about the skills learned while doing PhD. The skills set developed while doing a Doctorate or Research degree are mostly related to the analysis of data through different tools, which could be used in HR analytics too. The question remains for other than analytics skills and competencies. Those skills are looked upon in relation to research and not specifically in the HRM context.

Yes, the teaching faculty is ready to teach such courses. But your next question is important. In our universities, teachers are not given any training on how to teach courses. It depends upon teachers own skills and competency in teaching. If there is a specialized course, like if we want to link HR and IT together, then we outsource it. We hire someone from the market, obviously. We hire him as a visitor or on contract. As we are in the initial stages, so we teach basic courses in the first two or three semesters. (P20)

The interviews claim the preparedness level is good, yet at the same time accept that IT-integrated skills are missing. In such situations, staff will be outsourced, which raises the question: Are the required skills available in the market? Availability will be very rare if most of the universities don't teach digitally driven HRM courses; the professional graduates may have learned through self-initiative or graduated from those rare universities offering tech-based HRM courses.

"There are no such practices here, but universities do share things like Coursera from time to time." (P13)

Many universities currently face challenges in offering robust digital and online course platforms. Fortunately, Massive Open Online

Courses (MOOCs) and Virtual Learning Environments (VLEs) (Animashaun et al., 2024) like Coursera provide valuable alternatives. Participant feedback indicates that these platforms are often informally recommended for skill development.

In business courses for such subjects, mostly the IT dept. Personal is invited to teach, which is totally in contrast to the business students' required skills and competencies. We run the affairs using an improvised system. There are a few, but more personnel for the purpose to be developed through training and certification. Who can teach subjects like AI in HRM or the use of big data in HRM. (P8)

The IT-embedded courses are mostly taught by teachers from the Computer Science Dept. These teachers are typically requested for those special courses. For example, if the Business School is going to offer a course on Human Resource Information Systems (HRIS), a teacher will be requested from the Computer Science Dept. The issue with such practices is the resulting gap in subject knowledge. Computer experts understand IT but are lacking in HRM foundational and strategic knowledge. Consequently, the subject is not well-blended, but instead is more IT-driven. The participant has highlighted a major issue that is practiced across universities, with no conformity to the subject's needs.

The skills that are required, like AI in HR, Internet of Things in HR, and Big Data in HR, are not well-known. I will tell you that I have a training to attend to these things within this month. And this is my third training in the last three months. I will tell you that I came across several HR colleagues from the universities of KPK, and I did not find a single person with whom I could talk about AI. If you mention AI, they just think of ChatGPT. They have no idea of data science. They do not know how Python, HR Analytics, Excel, and other things are used in HR. So there is no skill level. (P12)

The live experiences shared by participants regarding the recent training provide valuable insights into the current capacity of university faculty. Taking these reflections at face value reveals a lack of comprehensive mastery in Smart Technologies. While a basic understanding of AI exists, it has not yet reached an advanced level. Other Smart Technologies appear to be underdeveloped among academicians. The participant's feedback highlights a gap in both understanding and knowledge. These insights emphasize the need not only for enhanced knowledge but also for addressing the P7 concerns related to skill deficiencies. Findings from the reflections of participants shown in the above table guide the recommendations section for solution suggestions. The discussion highlights partial preparedness in the form of theoretical knowledge, but reveals a significant deficiency in practical skills and applied understanding. Educators are not adequately prepared to teach digitally integrated HRM. Additionally, cross-disciplinary faculty from the Computer Science department are struggling with the delivery of HRM subject matter due to limited expertise in the field. The practical exposure of digital tools is causally linked to the unavailability of HRM specialized software.

4.4 Student-Teacher-University Initiatives

This sub-theme captures participants' reflections on initiatives taken independently by students, teachers, and universities. These efforts are not driven by formal system requirements but are motivated by a desire to improve and stay current with ongoing changes in the academic and professional landscape. The theme also encompasses the teaching method and other techniques to improve students' skills otherwise not a requirement of the syllabus.

Table 4.4 Teacher-Student-University Initiatives

Secondary Concepts (from Codes)	Sub-Theme	Main Theme
Legacy System (P3)	**Teacher-Student-University Initiatives**	**University Readiness for HRM4.0**
Variation in curriculum delivery (P18)		
Blended teaching without cubic classes (P3)		
Technology Usage in Teaching and Learning to skill up (P16)		
Tech-Driven Organizations Survey and Visit (P9)		
Strategic Vision (P7)		
Teaching Through Assignments and Tools (P3)		
University-driven tech initiatives (P7)		
Dominant Instructional Practices (P18)		
Skill Bridging Seminars (P5)		
Digitally Native (P18)		
Skill Sprint Student Tech Drive (P18)		

Students are actively learning new skills beyond the prescribed syllabus to align with market demands. Similarly, teachers and universities are introducing content and practices that, while not mandatory, aim to provide students with up-to-date knowledge and relevant competencies. These self-driven actions reflect a proactive approach to teaching, learning, and curriculum development in response to evolving educational needs.

"One is curriculum, and the other is the delivery of curriculum". (P3)

The participant highlights that instructional strategies to be practiced for helping students develop specific skills. Even though smart skills are not formally included in the curriculum, they can still be instilled through effective teaching approaches.

Changing the methodology and staff is difficult. I will be happy with such a change. I will be happy to teach a class from my home if the internet and other facilities are available. But it will be a blended learning and a cubicle classroom, which is noise-proof. It should be totally online. Preparing students for smart HRM is easier. But changing the system and educators for smart HRM is difficult. (P18)

The respondent states to be happily changing teaching from complete physical to hybrid and blended methods. It shows that the interviewee is ready for change, in case the resources are made available. Yet, the respondent also shows discontent that others will not be ready for this change. The teacher is very optimistic about the students' learning tendencies, but at the same moment feels it is difficult to change other educators and the system for Smart HRM.

Now we come to teaching, where different methods are used, not just in class but also through assignments. Through those assignments, skills can be given even if they are not included in the curriculum, and the system does not forbid it. It depends on the teacher and institution what kind of know-how about tools and technology they give students in class and outside at home. These are not mandatory from the system. However, this one thing is mandatory. And has been mandatory for the last ten years, so far as I know. These are being taught to BBA and MBA students in ICT. These are too basic. One is know-how, and the other is making someone sit in front of the system. (P3)

The skills offered in the curriculum are limited to the basics of ICT. However, educators can still develop students' Smart Skills through assignments, projects, and other pedagogical practices. Thus, within the given timeframe, new skills could be developed beyond the mandatory syllabus.

Just before I mentioned that we should make our courses effective through the integration of AI and enhance learning through it with AI technology in class. The

teacher and the students will as well as manage real-time performance. One of our teachers uses such things. We request that he teach us as well. He delivers training and teaches us as well. The day he learns some new tool, he comes to us that this is the tool that is used for such a thing. For example, we use software for quizzes. A spot quiz is given, and the students are graded based on who is doing better. So this also creates a competitive environment in the class. It is impossible keep students devoid of such gadgets. You have observed that students or teachers complain that students sit with mobile in their hands in class. It is difficult to get their attention. So, isn't it better to use that time to let them use those gadgets which they want to, but just change their use a bit. So basically, we should not try to snatch mobiles from students as we do in schools. Because the university environment is different. In school, mobile is forbidden for children, and parents can also control them. But in universities impossible. So we try to involve students in this way in which they like to be involved. (P16)

The participant, through a detailed discussion, pointed out important points for consideration. Students are using mobile technologies and are used to them. The teacher mentioned in the case study also uses technology for real-time assessment during the class. Online assessment gives students the opportunity to have hands-on experience to learn smart tool usage and utilization. Different technologies have enabled real-time quizzes and assessments, allowing students to learn within their tech ecosystem, even if the tools are not part of their syllabus.

We assign students to visit organizations like PIA, when launched a new Performance Management System, a tour has been arranged for students to study the system. Next example is World Vision NGO, we came to know that latest technology and tools are in use for HR, we assigned our students to visit and write a report on findings. (P9)

This is another way to develop students in informal way. Students are given visits to different enterprises with digitally operated. Visit for HRM students are arranged to organizations with good technology integration reputation in HR functions and processes.

"But so far as these IT related courses are concerned which every university started on its own. These are the individual efforts of their own. They look at the market trend and act accordingly". (P7)

Universities through their selves-initiative have started digital integrated courses. The curriculum developed has given the choices to be made but does not have compulsory recommendation for the implementation.

"They just work on the technical side. My own experience in MIS is that teachers just attend the class, teach them definitions, and there is not much practical work." (P3)

The participant shares his observed experiences of MIS teaching and learning. The teaching is limited to the theory and definitions of the terms, and not much practical work. It shows the respondent's discontent of skills imparted to the students of IT.

"Sometimes we arrange seminars on that. So we solve the problem directly or indirectly. Of the suggestions, 5 or 10% are implemented, or it remains like that." (P5)

A seminar is also an informal method to impart skills that are not part of the regular syllabus. The participants, though not happy with the low percentage of implementation of knowledge and skills shared, still saw it as a way of inculcating them.

They have to get used to it. It is a must. Where is no IT, it will be included everywhere. The students learn and adapt quickly. Some students are already acquainted with such tools and use them. So it is easy for students. (P18)

The student must develop an attitude to adapt to modern technologies. it is the requirement of today's professional and personal life. Participants appreciate that the attitude is already developed by students for the adaptation and utilization of new technologies. Another participant (P20) also discussed the market demands of the digitally powered HRM by saying, "*They leave from here and go to an institution to work as an HR employee, and they have software for work. So there is no such thing".*

While also complaining about the lack of such resources in universities.

I have seen while visiting the Karakoram International. They are not bad. There is not much signal. Just one particular kind of SIM works there. Other SIMs do not work. Students often go to hilltops to catch a signal. So this is the one problem with the countryside. Well, every student has a mobile set but the right use is nonexistent. (P12)

The students trudge the hill tops to catch signals, which reflects that digital gadgets is common among the youth. The journey made for study or assignments is quite appreciable. The participant statement indicates that students in urban areas have opportunities of resources and tools; they only need to be put on track for useful learning.

If something were to be added in our present curriculum, which I don't see so far, is Career Planning and Development. Career Planning & Development is an important course that I hardly see in our universities. (P20)

Students must understand their career paths and what awaits them in their future careers. The students must know that the usage of modern technologies will be demanded in their professional lives. Career planning has a significant role in preparing students for future jobs. Through the awareness of their career path and planning, students will be able to skill up for the tasks they will carry out in a practical job environment. In a nutshell, students have an inclination for adaptation to modern technologies. The participants unanimously agreed that students are quick to learn and have tendencies for Smart Technologies. Teachers and the University, through self-initiative, could do a lot within their area of authority for student development. Teachers and Universities have to adapt instructional strategies and informal methods to improve students' skills, even if they are not required by the curriculum.

5. Discussion and Conclusions

Research Question#1: How do academic stakeholders interpret and experience the alignment between existing HRM curricula and emerging Smart HRM competencies?

To address the research questions specified above and gain clarity on this study, respondents were asked several questions. These directions covered the curriculum currently offered, the modifications required, and the influence of governing bodies in developing a modified curriculum. Findings revealed that the HR major is not offered (P8) in certain institutions due to heavy workloads on teachers and limited student strength, which is an obstacle in meeting the criteria for offering the major. Another problem is the centralized teaching system (P8), where faculty from the business school are required to teach courses such as entrepreneurship across multiple departments. This results in a scarcity of resources and places an additional burden on already engaged faculty. In universities, degree programs are highly restricted and structured, leaving little or no space for students to combine two different disciplines into a single degree. The absence of interdisciplinary opportunities (P7) is largely due to limited institutional capacity. Although the HEC has allowed students to pursue postgraduate studies in any discipline regardless of previous qualifications, this interdisciplinary approach often leads to a mismatch (P7). When a major has not been studied previously, students must follow a different stream, which requires resources that are not available.

For an effective integration of technologies in the curriculum, there is also a need for culture change (P14). For this, there is the need to have qualified teachers to teach technology-related subjects, enabling business schools to be able to adapt to the latest HRM and management practices (Kezar *et al.*, 2025; Meng, 2025; Susanto *et al.*, 2024).The curriculum management in the higher education system operates under the overall direction of the HEC. Although it has overall guidelines from the HEC, universities have flexibility regarding credit hours and corresponding degrees in numerous disciplines (HEC, 2023) Even in the application of curriculum, it appears the HEC has flexibility in

its policies (P3, giving institutions the freedom to have choices in specific courses with flexibility in revised edition(Higher Education Commission, 2025). It is the responsibility of the university's business school to have academic ownership over promoting "Smart HRM" education. "Smart HRM eases labor restrictions and allows more flexibility in working hours and job flexibility" – P3.

However, HEC practices have revealed inconsistencies (P3) in enforcing smart(Fatima *et al.*, 2020) technology courses. For instance, once the emphasis on Oracle ERP training was ultimately abolished rather than expanded. Universities also seem to be inconsistent in practices, as the integration of technology is often not mandatory and is frequently ignored (Sharif *et al.*, 2025). Despite all these disparities, there is promising progress: one participant mentioned plans to launch an HR Analytics course (P18), while another university has already initiated a dedicated HR Analytics program (P20). In other cases, Business Analytics has been introduced as a general requirement for all business majors, yet specific HR Analytics modules remain pending (P7).

To fill these gaps, some of the universities are working on incorporating HR Analytics courses in the near future (P6; P5) and are taking benchmarks from some elite institutions that focus on digital business education (P7). This reveals that business schools are on the right path with respect to technology. Lots of efforts are required, but this is just a starting point, which reveals serious concerns about implementing smart technology in HRM. Business schools are not independent entities, but part of a network-centric arena of governance and management organizations in business education. The HEC plays a pivotal role in this as curriculum development, and the Higher Education Framework is exclusively its responsibility. Now, the HEC supports ICT-based curricula (O7; P5) in business studies (Higher Education Commission, 2025). In the last decade, the revised curriculum framework (Higher Education Commission, 2025) has made policy more flexible for implementation (P2; P3; P6). This move suggests that the HEC is moving to a phased devolution of curriculum approval (P16). As universities are empowered, the provincial HECs are also being advised to play their due role. However, there are worries over the promotion, but non-strict enforcement of innovation by HEC (P9). The HEC defines the degree, universities lay out how to learn within their walls; and delivery is left for institutions to decide, under an umbrella of voluntarism created by NBEAC.

Therefore, the duty now lies with universities to regain academic control over the development and furtherance of education related to "Smart HRM" (P3). However, many institutions are still focusing mainly on traditional, basic IT courses without integrating the Smart HRM concepts (P14). Although the HEC alleges to approve new technology-based courses on the condition that they meet minimal criteria (P2), some still contest this. Such opposition cites the existence of an "approval maze" that inhibits the timely introduction of new courses in this fast-paced era of technological advancement (P12). While flexibility regarding course choice, for example, is shown by the HEC, the essential gap still lies behind the phenomenon of monitoring and oversight, which is often indicated as inconsistent. All governance and management entities should work together to genuinely prepare students for Industry 4.0. A concerted effort should be made to advocate for technology integration within HRM.

Research Question#2: How do teachers perceive and experience their competencies in aligning with the requirements of the Smart HRM course content and delivery? The competency of teachers in various aspects is explored to satisfy the response to the second question in this study. The question demands to seek teachers' competence for subject command of Smart HRM4.0 and its effective delivery. Issues related to vision, as well as willingness to incorporate smart technologies, were emphasized as well. The preparedness for teaching Smart HRM 4.0 constituted a prime parameter for assessing the overall readiness of a business school (Howard & Tondeur, 2023). The

research, indeed, brings forth the challenges of providing cross-disciplinary instruction for HRM and IT (P8), a view that is also supported by other studies (Rafiq *et al.*, 2024). The lack of digital skills of the HRM faculty (P12) limits the scope for effectively delivering customized course offerings (Tang *et al.*, 2025). Whereas faculty who are experts in IT may demonstrate high levels of technological knowledge, the grasp of relevant HRM concepts on their part is, however, quite weak (P20).

However, while extremely proficient in their own area, HRM specialists know very little regarding IT and advanced smart technologies. In general, the teaching staff is only partially ready to embrace digital models and lacks any meaningful integration with HRM technology (P18). Furthermore, the faculty members are also sometimes outside the direct applicability of concepts, thus leading to growth in theory for which there is no corresponding development of skills in practice (Timming & Macneil, 2023; Yating & Mohamad Nasri, 2025; P7). The skills gap is most visible in the "older" generations, and thus results in a generational divide that further complicates the delivery of modern HRM blended courses with smart technologies (Jorge-Vázquez *et al.*, 2021; Laufer *et al.*, 2021). Besides teaching competency, the effective implementation and delivery of these courses also rely on the availability of the required infrastructure.

Despite these discrepancies, some universities are beginning to take remedial steps toward independence to prepare students for Smart HRM 4.0. By personal motivation, teachers and students are making promising efforts to upskill for IR4.0 requirements in workplaces. Here, I discuss the theme constructed from the participants' interviews, "Teacher-Student-University Initiatives," for this research to answer Q2, which demands to evaluate the readiness level of the Business School for Smart HRM4.0. Such initiatives that are personal and individualistic, which have no formal mandate from relevant authorities, are a clear indication of progress and zeal toward technology integration. Such initiatives have further increased demand for blended HRM courses. University-based Technology Initiatives (P7) refer to the introduction of digital subjects in the business studies programs. Universities also provide skill-bridging seminars (P5) to prepare their students with a finesse orientation towards emerging technology trends and developments. Most of these initiatives are purely driven by the strategic vision and leadership commitment (P7). However, with these efforts by institutions, challenges persist. The dominant instructional practices (P18) remain traditional and teacher-centered, where the students are engaged and developed with 21st-century skills top to bottom. Another absence is that of HRIS/HR software-based training for students (P20). Further factors that inhibit digital transformation include infrastructure issues, like slow internet access and system breakdown in remote areas (P12). Most transformation efforts are deterred by obsolete legacy systems (P3).

At the faculty level, teachers often take initiatives of their own when not required by the universities or the governing bodies. Technology use in teaching and learning (P16) is used with some instructors to aim at skill-building for the Industry 4.0 environment. The research further indicates that the use of technology has substantially improved students' digital skills. Additionally, faculty members organize surveys and visits to technology-oriented organizations (P9) to expand students' horizons and increase awareness of market readiness. Another path of student development involves assignment teaching and digital tools (P3), which requires students to work on mini-projects on platforms and applications regarding digital upskilling (Chan & Sung, 2025). Yet, despite various efforts, a disparity remains in the delivery of the curriculum (P18). As these are neither recommended nor monitored, the exercises will fall back into the traditional route of theoretical-lecture teachings (Abildinova *et al.*, 2024).

Thus, students mostly overcome the skill gaps through external certifications to enhance their competitiveness in the market. The bright side for the new generation is that they are digital natives (Yaacob *et al.*, 2024; P18) and demonstrate the

capacity to acquire skills rapidly through technology-enhanced learning (P18). Nevertheless, despite mobile learning opportunities, barriers arise due to misuse or lack of guidance in the use of technology (P12). Making matters worse, there is no structured or systematic career guidance (P20) regarding the useful utilization of technology for career planning.

6. Summary

Business school readiness for Smart HRM teaching and learning indicates that public-sector institutions possess relatively abundant resources but show low levels of adoption, whereas private-sector institutions, despite resource constraints, demonstrate higher adaptability. To meet modern educational requirements, interdisciplinary opportunities remain limited due to rigid degree structures designed in line with national higher education policy. Although HEC has allowed the removal of restrictions requiring the same prior major for MS and PhD programs, universities are still not prepared to offer such courses to non-major students. Since students entering from different academic streams require the development of foundational knowledge in the new discipline, resource limitations continue to hinder these efforts. Overall, universities must take the lead in a paradigm shift. Where every department, whether academic or administrative, has to be culturally shaped to facilitate the digital transformation initiative wholeheartedly.

The findings highlight that only a marginal proportion of business schools have introduced Business Analytics courses, while a few others are planning to offer such courses in the near future. It is praiseworthy that some institutions have taken this initiative. Some universities have also benchmarked highly prestigious universities when selecting courses. Despite these developments, HR Analytics courses remain largely absent. Only one university currently offers an HR Analytics course, while the rest provide general Business Analytics. Inconsistencies exist in the selection of elective courses. The majority of universities are still offering basic mandatory IT courses. However, many are still teaching the traditional HRM courses. Although HEC has made its policy flexible to give more room to universities for discretionary course choice. It has not been made mandatory for Business schools, which are often neglected. The finding shed light on the university's role given through discretionary courses. The university is provided the opportunity to take academic ownership in launching these courses.

HEC encourages digital inclusion in courses. Some flexibility is evident; however, the approval of new courses is often considered cumbersome. Bureaucratic procedures frequently lead to delays and loss of time. Teacher capacity for teaching Smart HRM 4.0 indicates that the required skills for integrated courses are largely missing. Teaching such courses demands cross-disciplinary subject knowledge; in most cases, teachers are experts in only one domain, with specialization in a single discipline. It is common practice in universities to request the computer science department for an IT teacher arrangement. Teachers with an IT background, due to their proficiency, tend to focus more on their area of specialization. Conversely, the HR specialist teacher's inclination is more toward their area of expertise. Smart HRM 4.0 needs an integrative approach to merge into a unified course framework. The current faculty is sufficiently competent, but still requires training for these integrated courses. In addition, the IT embedded courses require different andragogic approaches than pure HRM courses. HRM courses are taught theoretically, explaining concepts in the classroom. While IT-embedded courses need practice on digital tools and hands-on experience. The nature of the course totally changes the methodology of teaching and the andragogic skills required. The finding also highlights the generational gap as a reason for the lack of HRM4.0 courses and teaching competency. It is recommended to all Management and Governing bodies in Business Education to arrange Smart HRM4.0 content and teaching skills training for faculty.

Despite these challenges, universities, teachers, and students are taking progressive steps for upskilling. Universities are including courses and content in their own capacity, even though they are not mandated by HEC, to develop students for

market demand. Teachers in their own capacity are not behind in this race; some teachers are teaching more content than the subject requires, to ensure students' modern skills development. Findings also highlighted that when universities do not offer digital skills courses. Students are pursuing alternative pathways through other certifications to develop Smart technologies skills for their studies and job needs. These individual efforts of Universities, Teachers, and Students are strong evidence of the enthusiasm shown for digital technologies. These isolated yet significant efforts reflect the market-driven awareness of skills at different levels of academia. However, these efforts are neither uniform nor structured; many students still have no access to these opportunities for skills development.

7. Recommendation

Universities have to include Smart HRM4.0 courses in the curriculum. Develop faculty capacity for teaching tech-embedded HRM courses. The teacher has to be trained for experiential-based teaching. With opportunities for students to have hands-on job practical activities.

8. Limitations and Gaps for Further Research

Although this study has comprehensively explored key aspects relevant to the subject, certain limitations remain. Addressing these limitations will require further research. The geographical scope of the study was Khyber Pakhtunkhwa, and some of the respondents' claims that this province is trailing regarding HRM practices with Smart HRM inclusion. The same study has to be done in other provinces to have a clear picture of overall Pakistan's universities readiness for Smart HRM4.0. The organizations already using digital systems will undergo inductive studies to be conducted to know skills demands to include in curriculum. Comparative studies with other countries will be required to understand their drive for smart technologies. Europe and Malaysia can be benchmarked with other countries' inclusion. Particularly, national Policy for Education and the University's role for Smart HRM teaching and implementation to understand how they respond to this cross-disciplinary area of studies?

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