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Alignment between Curriculum Content and 21st Century Skill Requirements: Perceptions of Social Sciences Graduates at Public Universities in Pakistan

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ABSTRACT

In the rapidly changing global environment, universities must equip graduates with both disciplinary knowledge and essential 21st-century skills. This study explores recent graduates' perceptions of curriculum skills alignment in the departments of Sociology, Psychology, and Education at public sector universities in Pakistan. Using a quantitative survey design, data were collected from 150 graduates through simple random sampling using the Curriculum–Skills Alignment Perception Scale (CSAPS), comprising 20 items across five competencies: critical thinking, communication, digital literacy, teamwork, and problem-solving. The findings reveal a moderate level of alignment between undergraduate curricula and workplace skill requirements. Communication skills were rated highest, indicating stronger curriculum support, whereas digital literacy and problem-solving showed comparatively weaker alignment. The study highlights the need for curriculum reforms that incorporate practical learning, digital competencies, critical thinking, and problem-solving activities. These findings offer valuable insights for curriculum developers, university administrators, policymakers, and the Higher Education Commission of Pakistan to enhance graduate employability and modernize higher education.

Keywords: Curriculum Alignment, 21st-Century Skills, Graduate Perceptions, Higher Education, Public Universities, Social Sciences, Digital Literacy, Critical Thinking, Communication Skills, Pakistan.

1. Introduction

The rapid pace of globalization, technological innovation, and socioeconomic transformation has significantly changed the expectations placed on higher education institutions. Universities are no longer expected to provide students solely with disciplinary knowledge; they are also responsible for developing a broad range of competencies that enable graduates to succeed in professional, social, and civic life. Consequently, the cultivation of 21st-century skills has become a fundamental objective of higher education systems around the world. International frameworks, including those developed by the Partnership for 21st Century Learning (P21), the OECD Learning Compass 2030, and UNESCO's Education for Sustainable Development initiative, emphasize that university curricula should integrate

essential competencies such as critical thinking, communication, collaboration, digital literacy, and problem-solving alongside subject-specific knowledge.

Although there is widespread international agreement regarding the importance of these competencies, evidence suggests that many higher education institutions continue to experience challenges in effectively embedding them within their curricula. Numerous employer surveys, graduate tracer studies, and institutional evaluations indicate that while graduates often possess adequate theoretical knowledge, they frequently lack the practical skills needed to perform successfully in modern workplaces. Critical thinking, digital literacy, and problem-solving are consistently identified among the competencies that require greater attention within university education (Fadel et al., 2015; Griffin et al., 2012). This disconnect between curriculum outcomes and labour market expectations has become a major concern for educational institutions across both developed and developing countries.

The issue is particularly significant in Pakistan, where higher education plays an essential role in preparing a rapidly expanding youth population for an increasingly competitive labour market. Despite continuous efforts to improve educational quality, many university programs remain heavily dependent on traditional teaching approaches that prioritize content coverage, examination performance, and memorization over competency development. As a result, graduates often encounter challenges when transitioning into professional environments that require innovation, adaptability, teamwork, and technological proficiency. This situation has important implications not only for graduate employability but also for the country's broader economic and social development.

Public sector universities occupy a central position within Pakistan's higher education system because they serve a large and diverse student population, including many first-generation university students. For these learners, formal academic programs frequently represent the primary opportunity to acquire the transferable skills needed for professional success. Limited access to internships, extracurricular learning opportunities, and professional development activities further increases the responsibility of university curricula to prepare students for contemporary workplace demands. Therefore, evaluating whether these institutions effectively cultivate essential 21st-century competencies is both an educational and policy priority.

Within this context, the social sciences hold particular importance because graduates from disciplines such as Sociology, Psychology, and Education are expected to possess a combination of theoretical understanding and practical skills that enable them to address complex social issues. In addition to subject knowledge, these graduates require effective communication, critical analysis, teamwork, ethical reasoning, and digital competence to perform successfully in diverse professional settings. As Barnett (2000) argues, higher education should not merely transmit knowledge but should also develop learners' capacity to think critically, engage with complexity, and adapt to changing circumstances. Similarly, Trilling and Fadel (2009) emphasize that universities must balance disciplinary learning with the development of transferable competencies that remain relevant across different careers and professional environments.

1.1 Research Objective

The primary objective of this study is to examine the perceptions of recent graduates from the departments of Sociology, Psychology, and Education at a public sector university in Pakistan regarding the extent to which their undergraduate curriculum aligns with the competencies required for professional and civic life in the twenty-first century.

1.2 Research Question

To what extent do recent graduates from the selected social sciences departments at a public sector university in Pakistan perceive that their undergraduate curriculum has developed the essential 21st-century skills of critical thinking, communication, digital literacy, teamwork, and problem-solving?

2. Literature Review

2.1 Defining 21st-Century Skills in Higher Education

The growing complexity of today's workplace has made the development of 21st-century skills a major priority in higher education. These competencies include critical thinking, communication, collaboration, digital literacy, creativity, and problem-solving, all of which enable graduates to respond effectively to changing professional and social environments. The Partnership for 21st Century Learning (P21, 2019) classifies these competencies into learning and innovation skills, digital literacy skills, and life and career skills. Similarly, the OECD Learning Compass 2030 (OECD, 2019) highlights learner agency, adaptability, and lifelong learning as essential attributes for future graduates. Within higher education, universities are expected to integrate these transferable competencies alongside disciplinary knowledge. Trilling and Fadel (2009), argue that graduates must possess both academic expertise and practical skills to meet evolving workplace demands. Likewise, Barnett (2000), emphasizes that higher education should cultivate critical inquiry and intellectual flexibility through meaningful curriculum design rather than relying solely on content delivery.

2.2 Curriculum–Skills Alignment: International Evidence

Research consistently reports a gap between graduates' competencies and employers' expectations. Hart Research Associates (2015) found that although students believed they were well prepared for employment, employers expressed concerns regarding graduates' critical thinking, communication, and ability to apply knowledge in practical settings. Similar findings have been reported in the United Kingdom (CBI/Pearson, 2016), Australia (Precision Consultancy, 2007), and Southeast Asia (Tran, 2015), suggesting that curriculum–skills misalignment is a global challenge. According to Biggs and Tang (2011), effective curriculum alignment requires coherence between learning outcomes, teaching strategies, and assessment methods. However, many universities continue to emphasize theoretical knowledge and examination performance, limiting opportunities for developing higher-order skills. Supporting this view, Shivoro et al., (2018) reported that graduates perceived limited exposure to collaborative learning, real-world problem-solving, and practical applications during their university education.

2.3 Curriculum Alignment in Pakistani Higher Education

In Pakistan, curriculum alignment remains a significant concern because university programs often prioritize content knowledge over competency development. Amin et al., (2020), reported inconsistencies between intended learning outcomes and actual instructional practices in public universities. Similarly, Saeed and Mughal (2019), found that graduates rated communication skills more positively than digital literacy and problem-solving, indicating uneven development of essential competencies. Several institutional factors contribute to this gap, including limited technological resources, traditional teaching approaches, and insufficient opportunities for competency-based learning. Despite increasing attention to curriculum reform, empirical evidence examining graduates' perceptions of

curriculum alignment in Pakistani public universities remains limited, highlighting the need for further investigation.

2.4 Graduate Perceptions and Curriculum Evaluation

Graduate perceptions provide valuable evidence for evaluating curriculum effectiveness because graduates can assess their university experiences in relation to workplace expectations. Schomburg (2016), identifies graduate surveys as an important source of information for quality assurance and curriculum improvement. Similarly, Teichler (2011), argues that graduates' experiences offer meaningful evidence of whether university programs successfully develop the competencies required in professional practice. Therefore, examining graduates' perceptions can help universities identify curriculum strengths, address existing gaps, and improve the alignment between academic programs and labour market needs.

3. Research Methodology

3.1 Research Design

This study adopted a quantitative survey design to examine graduates' perceptions of the alignment between undergraduate curricula and 21st-century skills. The survey approach was selected because it enables the systematic collection and analysis of data from a large group of respondents at a single point in time.

3.2 Population and Sample

The study population comprised recent graduates from the Departments of Sociology, Psychology, and Education at a public sector university in Pakistan. Using simple random sampling, 150 graduates (50 from each department) were selected. Graduate records maintained by the university served as the sampling frame.

3.3 Research Instrument

Data were collected using the Curriculum Skills Alignment Perception Scale (CSAPS), a researcher-developed questionnaire consisting of 20 items measuring five dimensions: critical thinking, communication, digital literacy, teamwork, and problem-solving. The instrument was adapted from previous studies (Shivoro et al., 2018; Tran, 2015) and based on the Partnership for 21st Century Learning (P21, 2019) framework. Responses were recorded on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The instrument demonstrated excellent reliability, with an overall Cronbach's alpha of .93.

3.4 Data Analysis

The data were analyzed using IBM SPSS Statistics (Version 28.0). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarize graduates' perceptions. Mean scores were interpreted as low (1.00–2.33), moderate (2.34–3.66), or high (3.67–5.00) levels of curriculum–skills alignment. Comparisons were also made across the three academic departments to identify differences in perceived curriculum alignment.

4. Results

Results are presented in three tables. Table 1 describes the demographic characteristics of the graduate sample. Table 2 presents item-level descriptive statistics for all 20 CSAPS items organized by skill dimension. Table 3 presents subscale-level descriptive statistics, alignment category distributions, and mean scores by department.

Table 1*Demographic Characteristics of the Graduate Sample (N = 150)*

Variable	Category	n	%
Department	Sociology	50	33.3
	Psychology	50	33.3
	Education	50	33.3
Gender	Male	71	47.3
	Female	79	52.7
Graduation Year	2020–2024	78	52.0
	2021–2025	72	48.0
Current Status	Employed (related field)	54	36.0
	Employed (unrelated field)	31	20.7
	Pursuing postgraduate study	38	25.3
	Seeking employment	27	18.0
GPA at Graduation	3.50–4.00 (Distinction)	38	25.3
	2.50–3.49 (Merit)	78	52.0
	Below 2.50 (Pass)	34	22.7

Sample was equally distributed across three departments by design (50 per department). Percentages may not sum to 100 due to rounding.

Table 2*Item-Level Descriptive Statistics: Curriculum-Skills Alignment Perception Scale (N = 150)*

Item	Item Statement	M	SD
DIMENSION 1: CRITICAL THINKING ($\alpha = .85$)			
1	My curriculum required me to analyze and evaluate information rather than simply memorize it.	3.42	0.91
2	Assignments and projects in my program encouraged me to question and challenge existing theories.	3.18	0.97
3	My courses developed my ability to construct logical, evidence-based arguments.	3.38	0.93
4	My program equipped me to think independently and form my own reasoned conclusions.	3.31	0.96
DIMENSION 2: COMMUNICATION SKILLS ($\alpha = .83$)			
5	My curriculum provided regular opportunities to develop oral communication and presentation skills.	3.72	0.84
6	Written assignments in my program helped me communicate complex ideas clearly and effectively.	3.81	0.80
7	My courses developed my ability to communicate with diverse audiences.	3.58	0.88
8	Group presentations and seminars were a meaningful part of my learning experience.	3.64	0.87

DIMENSION 3: DIGITAL LITERACY ($\alpha = .88$)			
9	My curriculum included instruction in the use of digital research tools and academic databases.	2.74	1.04
10	My program equipped me to use data analysis software or digital tools relevant to my field.	2.48	1.09
11	My courses helped me evaluate the credibility and reliability of online information sources.	2.83	1.01
12	I was required to produce digital outputs (e.g., presentations, reports, multimedia) as part of my coursework.	2.61	1.07
DIMENSION 4: TEAMWORK AND COLLABORATION ($\alpha = .82$)			
13	My program included regular group projects that required sustained collaboration with peers.	3.46	0.93
14	My curriculum helped me develop the skills to work effectively with people from different backgrounds.	3.29	0.97
15	I was taught how to manage disagreement and reach consensus in collaborative settings.	3.11	1.01
16	Group-based assessments were a significant component of my program's evaluation methods.	3.38	0.94
DIMENSION 5: PROBLEM-SOLVING ($\alpha = .86$)			
17	My curriculum included case studies or real-world scenarios that required me to develop practical solutions.	2.93	1.02
18	My courses trained me to identify the root causes of complex social problems systematically.	3.04	0.99
19	My program equipped me with structured frameworks or models for approaching unfamiliar problems.	2.87	1.05
20	I was regularly required to propose and justify evidence-based solutions as part of my coursework.	2.96	1.01

Items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Higher scores indicate greater perceived curriculum-skills alignment. *M* = Mean; *SD* = Standard Deviation. Item 6 (Written communication, *M* = 3.81) recorded the highest mean; Item 10 (Digital tools, *M* = 2.48) recorded the lowest mean across the entire scale.

Table 3

Subscale Descriptive Statistics, Alignment Category Distributions, and Mean Scores by Department (N = 150)

Skill Dimension	M	SD	Min	Max	Low Align. %	Mod. Align. %	High Align. %	Socio. M	Psych. M	Educ. M	α
Critical Thinking	3.32	0.84	1.25	5.00	18.7	52.0	29.3	3.28	3.19	3.49	.85
Communication Skills	3.69	0.76	1.50	5.00	8.0	38.0	54.0	3.61	3.72	3.73	.83
Digital Literacy	2.67	0.91	1.00	5.00	41.3	48.7	10.0	2.58	2.71	2.71	.88
Teamwork & Collaboration	3.31	0.84	1.25	5.00	17.3	55.3	27.3	3.28	3.24	3.40	.82

Problem-Solving	2.95	0.89	1.00	5.00	32.0	54.7	13.3	2.87	2.92	3.06	.86
Overall CSAPS Score	3.19	0.73	1.30	4.90	16.7	58.0	25.3	3.12	3.16	3.28	.93

Low = mean 1.00–2.33; Moderate = 2.34–3.66; High = 3.67–5.00.

Communication Skills is the only dimension reaching the High Alignment threshold ($M = 3.69$). Digital Literacy ($M = 2.67$) and Problem-Solving ($M = 2.95$) fall within the Moderate range but are the closest to the Low Alignment threshold. Education department graduates reported consistently higher alignment scores than Sociology and Psychology graduates across all dimensions. α = Cronbach's alpha; M = Mean; SD = Standard Deviation.

5. Discussion

This study examined graduates' perceptions of the alignment between undergraduate curricula and the development of essential 21st-century skills in a public sector university in Pakistan. The findings indicate that graduates perceived the overall curriculum as moderately aligned with these competencies, suggesting that while existing programs support certain transferable skills, important gaps remain. This finding is consistent with previous studies conducted in Pakistan, which reported that university curricula continue to emphasize content acquisition more than competency development (Amin et al., 2020; Saeed & Mughal, 2019). Similar concerns have also been highlighted in international research (Hart Research Associates, 2015; CBI/Pearson, 2016).

Among the five competency areas, communication skills received the highest ratings, indicating that graduates believed their academic programs effectively enhanced written and oral communication. This may be attributed to the frequent use of presentations, seminars, and written assignments in social science disciplines. The finding supports earlier studies suggesting that communication skills are more effectively integrated into university curricula than other transferable competencies (Saeed & Mughal, 2019).

In contrast, digital literacy and problem-solving emerged as the weakest dimensions of curriculum alignment. Graduates reported limited opportunities to develop practical digital competencies and apply knowledge to authentic problems. These findings are consistent with Biggs and Tang (2011), who argued that meaningful skill development depends on constructive alignment between learning outcomes, teaching strategies, and assessment practices. Similarly, Shivor et al. (2018) emphasized that the absence of experiential learning and real-world applications reduces graduates' professional preparedness.

The study also revealed differences in perceptions across academic departments, with graduates from the Department of Education reporting comparatively higher levels of curriculum alignment than those from Sociology and Psychology. This variation may reflect differences in instructional approaches, curriculum design, and the use of learner-centered teaching strategies across departments. The finding highlights the importance of reviewing curricula at both departmental and institutional levels.

6. Conclusion

This study investigated the perceptions of 150 recent social sciences graduates of a public sector university in Pakistan regarding the alignment between their undergraduate curriculum and five cores 21st century skill requirements. The findings demonstrate that graduates perceive their curriculum as only partially and unevenly aligned with these requirements, with

communication skills representing the clearest area of perceived strength and digital literacy and problem-solving constituting the most significant and urgent alignment gaps. The overall perception of moderate rather than high curriculum-skills alignment across all five dimensions constitutes a meaningful signal that the social sciences curriculum at public universities in Pakistan requires systematic review and reform if it is to adequately prepare its graduates for the demands of professional life in the twenty-first century.

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