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AI Literacy Among Journalism Students in Khyber Pakhtunkhwa: An Analysis of Influencing Factors Through the Knowledge Gap Hypothesis

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Abstract

This study investigates the level of Artificial Intelligence (AI) literacy among journalism and mass communication students in Khyber Pakhtunkhwa (KP), Pakistan. Grounded in the Knowledge Gap Hypothesis, the research explores how socioeconomic status, geographic background (urban/rural), academic standing (junior/senior), and institutional resources influence students' understanding, use, evaluation, and critical thinking regarding AI tools, websites, software, and applications. Employing a quantitative survey methodology, data were collected from 141 students across multiple universities in KP. The results reveal significant disparities in AI literacy linked to demographic and institutional variables. While a majority of students demonstrate strong understanding of AI in print, television, and online media, their competence in using AI tools for academic and professional journalism varies widely. Socioeconomic barriers, limited exposure, and infrastructural constraints contribute to lower AI literacy in rural and underfunded institutions. The study concludes that enhanced training, curriculum integration, and policy-level reforms are crucial to equipping future journalists with the necessary AI skills to thrive in a rapidly evolving media environment. Recommendations are offered for students, faculty, higher education authorities, and policymakers to bridge the digital knowledge divide and promote responsible and effective AI usage in journalism education.

Keywords: Assessment, AI Literacy, Journalism Students, Knowledge Gap, Khyber Pakhtunkhwa

Introduction

The research is being conducted to find out the artificial intelligence (AI) literacy among the journalism students of Khyber Pakhtunkhwa (KP), because with the emergence of AI it changed the almost every aspect of life over the globe. Additionally,many industries are using AI to produce more product in minimum time. It has been observed that majority of the students of journalism have little knowledge about AI tools and applications over the country. Accroding to the a online website named Kurdshop (Feb,23,2025) defines an educated person is someone who can utilize their knowledge and learning to bring positive change in their own life. Munarriz (Feb,23,2025) define AI media literact as the ability to describe understand and use language effectively in various forms. According to National Literacy Trust (Feb,23,2025) the capacity to

read,write,speak and listen in a way that enables effective communication and assists us to understand the world. Additionally, UNESCO (Feb, 23, 2025) defines literacy as the capability to know, understand, interpret, create, coordinate and compute, while, utilizing printed and written materials linked with different contexts. Literacy involves a continuum of learning in enabling particular to achieve their aims, to develop their knowledge and potential, and to attend fully in their community and wider society. Generally, literacy also encompasses numerical, the capability to make simple arithmetic calculations. The idea of literacy can be different from measures to quantify it, such as the literacy rate and functional literacy.

Artificial intelligence (AI)

According to Google Cloud (Feb, 27, 2025) Artificial intelligence (AI) is a set of new advanced technologies that enable computers to do different and variety of advanced functions, including the ability to see, understand and translate spoken and written language, analyze data, make suggestions, and more. Artificial intelligence (AI) is advancements that empower computers and machines to motivate human learning, understanding, solution finding, decision making, creativity and autonomy (Cole Stryker and Eda Kavlakoglu, August, 09, 2024). Online Cambridge Dictionary (Feb,27,2025) defines Artificial intelligence (AI) as the use or study of computer systems or machines that have some characteristics that the human brain has, such as the ability to explain and create language in a way that looks human, detect or create images, solve problems, and learn from data supplied to them what is artificial intelligence. IGI an International Publisher (Feb,27,2025) defines as AI literacy involves skills and competencies for using AI technologies and applications as tools, viewing them critically, understanding their context and embedded principles, and questioning their design and implementation. Likewise International Business Machines (IBM) Corporation, is a multinational technology company (Feb,27,2025)defines AI litercay as AI literacy goals "can span a continuum" ranging from a basic understanding of AI concepts to more sophisticated abilities, such as the ability to evaluate AI risks in automated decision-making.

What is AI literacy?

According to Online Data Literact an websit working on data literact (Feb, 27, 2025) AI literact is the ability to recognize, relaie, use, and critically examin Atifical Intelligence technooies ad their impact. Furthermore, Online educause.com a non profit organization (feb,27,2025) AI literacy as involves knowing the basics of how AI works; critically evaluating the application of AI tools in teaching, scholarship, and the management of educational priorities; and preserving surveillance in analyzing tools and techniques to protect against bias, misuse, and misapplication of these powerful models. ALTL also demands a commitment to legal usage, ensuring that AI tools are applied openly and responsibly, with an awareness of their community effects. According to Online DigitalPromise is a global nonprofit organization for learners (Feb, 27, 2025), AI literacy is the education, knowledge, skills that able human to critically apply and utilize AI syestem and tools safetly and ethically.

AI in Journalism

Informa Techtarget Editorial Network(Feb,27,2025)" what is AI in journalism" defines as In journalism, AI can simplify workflows by roboting routine tasks, such as data entry and editing. Inquiring journalists and data journalists also utilize AI to find and research stories by filtering through large data sets using machine learning models, thereby unblock trends and secret connections that would be time consuming to identify manually. For example, five finalists for the 2024 Pulitzer Prizes for journalism disclosed using AI in their reporting to perform tasks

such as examining massive volumes of police records. While the use of traditional AI tools is increasingly common, the use of generative AI to write journalistic content is open to question, as it raises concerns around reliability, accuracy and ethics. Nowadays AI is using in field of journalism,with the use of ai in journalism it has ease the work of jounalists,before this when journalists have no AI tools and application their work is much time consumed.now with the help of ai journalists gather news and produce news. According to online The radio television digital news assosiation(rtdna)(Feb,27,2025) AI programs have the capability to modify every element of content audio, video, still pictures, and words. In many cases, AI programs may enhance your media. However, AI programs may not offer the proper context, have facts misplaced or may be confusing to the end user without thoughtful guidelines. Moreever, Interantional Bussiness Machines(ibm) (Feb,27,2025)" AI is appling in journalism in newsgathering, like AP, Bloomberg and Reuters have been using automation to look for news all over the world. Additionally in News production such as there are a collection of AI tools that can assist journalists proofread, script headlines and come up with outlines. In a in october, the New York Times said that they never use AI to write articles. AI tools to detect deepfakes are being tested and developed. However experts warns that they should only serve as the initial point of a verification process.

Importance of the study

This research study will reveal the level of AI literacy among journalism students of Khyber Pakhtunkhwa,emphasizing the plaining of future journalists to untilize AI tecnologies into their practical and theoritical understanding. The level of understiang, usage & functions, skills,and attitude towards AI is essential for enhancing journalism practical and theortical education. The findings of this research study will to overcome the knowledge gap and will suggest to include IA Journalism literacy courses in journalism curricula.

Statement of the problem

Due to rapid changes brought by AI in every walk of life such as it effect the journalism and mass communication practical and theortical performance as well. This study focus on inspite of growing influence of artificial intelligence in the field of journalism,the level of AI literacy among journalism students of Khyber Pakhtunkhwa remain under consideration to sutdy. The gap of less AI literacy perhaps become obstacle to their ability to adopt the evolving media technologies and effectively use AI tools in their future for practical and theoritical understanding. The study try to find out the level of AI knowledge, use & function, evalaution and critical thinking among journalism students of Khyber Pakhtunkhwa.

Objectives of the Research

To assess the level of awarness and understanding of AI literacy among journalism students of KP in practical and theoritical journalism

To examine the Use and functions of AI software's, websites, tools and Apps literacy among journalism students of KP in practical and theoritical journalism.

To evaluate the AI software's, websites, tools and Apps literacy among journalism students of KP in practical and theoritical journalism.

To measure the critical level journalism students of KP about AI software's, websites, tools and Apps literacy among journalism students of KP in practical and theoritical journalism

Hypotheses of the Study

H1: Journalism students with higher socioeconomic levels have higher AI literacy than those with lower socioeconomic levels.

H2: Students in urban universities have higher AI literacy than those in rural universities.

H3: Senior students have higher AI literacy than junior students.

H4: Students with higher AI literacy show better theoretical/practical application skills.

H5: Departments with digital courses produce more AI-literate students.

Literature review

AI is implementing in pakistani universities but little bit slowly.while it has been observed that AI could assist their libraries to present more creative services and good meet user needs,participants suggests that more capital need to invest,it also need time and employees (Ali, Naeem, Bhatti, & Richardson, 2024). Insufficent AI applications in the university libraries .there is an a capability to enhance it.first government officials should need to change the libraries from traditional in to revolutionized AI.it should need to defeat the resouces limitation (Asim, M., Arif, M., Rafiq, M., & Ahmad, R. (2023). AI provides innovative opportunities systematic function,customer service skills through whole week automated assistants and promote avaliability different users in bangladeshi libraries.the obstacles that faces are insufficent technology infrastructure,amount restrictions ,lack of AI skilled employees,must be solved.for successful implementation of AI planing and development must need to address the issue (Mahmud, 2024). It could be deduced from the study that AI would continue to serve as a panacea to future library services irrespective of its geographical context. Due to the evolving nature of knowledge growth, AI having its roots in the field of engineering has been found useful to support future library services. The support accrued from library service delivery in the library profession has made librarians continue to interact with other intelligent machines that can demonstrate human behaviour even though they are not real human beings. The behaviour of machines and AI where human beings play a significant role has brought many renovations in the management of complex tasks of processing, communication, knowledge representation, decision making and suggestions, on potentials of diverse work operations (Enakrire, & Oladokun,2024). The adoption of AI technology in academic libraries is setting a new level of efficient and effective library services delivery. Also, the adoption affords libraries the opportunity to render improved and dynamic services to library patrons. Self-service function, pattern recognition and natural language processing are among the benefits derived from the adoption AI in libraries. However, despite the benefits associated with the adoption of AI in libraries, some challenges such as human errors when coding, lack of human touch, malfunctioning of any part of the technology, lack of adequate infrastructure and erratic power supply still hinder the smooth adoption of AI in many academic libraries in Africa (Echedom, & Okuonghae, 2021). The integration of AI in academic libraries is a revolutionary change that is redefining the landscape of library services with unprecedented levels of efficiency. This adoption holds immense potential to improve accessibility, accuracy, and personalized user experience. However, the realization of these promising prospects faces significant challenges, especially in underdeveloped countries where infrastructure, financial resources, expertise, and constant power supply are limited, posing major obstacles to the implementation of AI. Future research could deepen the librarians' perspective on AI implementation while expanding the scope of studies to different developing countries. Currently, much of the research on AI in academic libraries focuses on a few developing countries. There is therefore a need to explore other geographical contexts to gain a comprehensive understanding of the challenges and

opportunities in different settings. There is also a need to comprehensively explore the various AI services required by libraries so that future research directions aim to empirically investigate these services (Zondi, Epizitone, Nkomo, Mthalane,, Moyane, Luthuli, & Phokoye, 2024). The review reveals that the prospects of implementing AI in library services in developing countries are significant, with potential benefits including improved access to information, increased efficiency and productivity and enhanced user experience. However, the review also identifies several challenges, including the lack of infrastructure and resources, the shortage of skilled personnel, the absence of data privacy regulations, digital divide and the high cost of implementing AI-based solutions (Barsha, and Munshi, 2023).

This study provides insights into university students' general attitudes toward AI as well as their attitudes toward AI ethics. The findings reveal predominantly positive but moderate general attitudes. Ethical concerns, particularly around accountability, are prominent, with women showing a stronger preference for transparency in AI. Digital and media literacy emerged as important predictors, with digital literacy associated with positive attitudes and media literacy with negative ones. These findings underscore the need for targeted technology and educational initiatives that address both AI's potential and ethical complexities (Saklaki, & Gardikiotis, 2024). There are similarities and differences between the two groups in terms of familiarity with AI, perceived AI efficiency, concerns about AI, AI self-efficacy, intention to learn about AI, and career optimism. For example, our research showed that students with higher levels of familiarity with AI and perceived efficiency demonstrated higher levels of AI self-efficacy. These college students are optimistic about potential benefits of AI, while at the same time exhibiting concern about its negative consequences (Seo, da Silva, Jona, Iqbal, Burkett, Khan, & Urbina Carreno, 2025). The study findings indicated that AI integration in education can provide personalized and adaptive learning and teaching experiences by bridging the educational divide through easy access to quality education. Participants also highlighted the anxieties related to the digital divide as a great challenge for Pakistan. The integration of AI and automation in education is also raising concerns about job displacement for educators (Khurshid, Khurshid, & Toor, H2024). Lack of policies and guidelines at the university level (an organizational challenge), lack of reliability of the information provided by ChatGPT (a technological challenge), too much reliance on the model by learners (a personal challenge), lack of understanding and expertise on ChatGPT by academics (an organizational challenge) and resistance to adopting technology (a personal challenge) are the top five most prominent challenges that currently exist for the adoption of AI in higher education in Sri Lanka (Henadirage, & Gunarathne, 2024).

The evolution of technology towards increased user-friendliness and intuitiveness marks a significant shift from an era requiring substantial training for technological proficiency to one in which such extensive preparation is largely unnecessary. This leap in the usability of technology, from the intensive training once necessary for PC mastery to the intuitive engagement with advanced devices and generative AI, shifts the focus of literacy related to that technology, in this study, AI. In other words, what matters is not the use of AI but the integration of AI into work and life. Therefore, AI education should progress from teaching how to use AI to teaching how to integrate it critically, strategically, responsibly, and ethically into our lives and professions, underpinned by a deeper understanding of the technology and underlying algorithms and their broader societal impacts and implications. This study demonstrates that AI and AI education exemplify this transition. We hope that this study not only contributes to educational practices and research but also inspires a proactive approach to embracing AI, ensuring that it serves as a beneficial and sustainable extension of human capability (Chee, H., Ahn, & Lee, 2024).

The obstacles to activating the joint scientific research role between students and university teachers in health and humanities sciences in Saudi universities is a significant positive predictor of the obstacles to activating the role of university teachers in joint scientific research (Albasalah, Alshawwa,, & Alarnous, 2022). With the generation of the AI literacy item set, we responded to the call for ways to assess AI literacy, which was expressed by several researchers. The purpose of this study was to generate a set of potential items for assessing AI literacy and to test its representativeness for the AI literacy construct. Future research will examine the further psychometric properties of the item set. This concerns both an additional evaluation of validity by distributing the questionnaire to a sample population, as well as the testing of reliability and objectivity. We therefore want to encourage other research teams to use the item set as an preliminary assessment tool to further evaluate the questionnaire in an iterative manner (Laupichler, Aster, & Raupach, 2023). Assessing the status quo of AI literacy is key to designing effective AI courses for all university students. We developed and validated a multiple-choice test on AI based on the competencies proposed by Long and Magerko (2020). This AI literacy test was shown to measure the ability of university students in Germany in a reliable and valid manner. It can be used by researchers and practitioners in higher education settings. In addition, the analysis of the present data provides initial insight into the current state of AI literacy in students, which might be a starting point for more research (Hornberger, Bewersdorff, & Nerdel, 2023). This review contributes to mapping the research design, tools, research methods, intervention programs, and research findings ascribed to the existing studies on early AI curriculum. It also explains the challenges and opportunities of AI literacy in early childhood education. The results of this literature survey can inform future research in terms of advancing tools, pedagogical methods, research design, research methods, intervention, and assessment for early AI curricula and provide researchers and practitioners a guide for the design, implementation, and evaluation of age-appropriate AI curricula for young children. This review would provide valuable directions for early AI education and serve as a reference for future ECE research in the digital society (Su, Ng, & Chu, 2023).

Knowledge gap theory an overview

The question of how people gain knowledge through mass media has long intrigued both researchers and policymakers. Earlier assumptions held that simply making more information accessible would naturally result in greater public understanding. However, studies have since shown that individuals from higher socioeconomic groups tend to absorb information more effectively than those from lower-income backgrounds. This led to the formal introduction of the knowledge gap hypothesis in 1970, which argues that societal inequalities contribute to unequal distribution of knowledge. Given its substantial impact on both theoretical discussions and policy development, this hypothesis has been widely studied and continues to generate scholarly interest around the world. This chapter critically examines how the hypothesis has evolved over the last 25 years. It reviews a broad array of studies and critiques to analyze the factors that contribute to knowledge gaps, the conditions under which they grow or shrink, and the gaps in current research. The chapter also evaluates the hypothesis as a scientific theory using a rigorous method grounded in falsifiability (Viswanath, K., & Finnegan, J. R. (2012). A 1983 analysis of fifty-eight knowledge gap studies, adding thirty-nine studies and pointing out innovative ways to improve research in the area. The persistence of knowledge inequalities across topics and research settings has serious consequences. Gaps in public affairs and health knowledge have an especially severe impact on those groups most negatively affected by socioeconomic changes, who also tend to be information poor. Rapid growth of socioeconomic divisions between “haves”

and “have-nots” in the last two decades suggests that knowledge gaps deserve increased research attention because they are related and potentially affected phenomena. (Gaziano, C. (1997).
On the bases of the details, Knowledge Gap hypothesis theory is applied in this research becauses the students in Khyber Pakhtukhwa have Artificial Intelligence (AI) gap due to socioeconomic, urban and rural, senior and junior position in the department of journalism and mass communication. This study will contribute to the theory in the context of new emerging technologies literacy and knoweldge gap factors that effecting the knowledge differences.

Research Methodology

The quality of research topic is assessing the AI literacy among journalism students of KP. It requires measurable, numerical data to identify trends, which can be evaluated through surveys questionnaire. This research aim to understand the overall AI literacy level in journalism students across KP, this method allows us to collect data easily and comprehensively. The research design decides how the stakeholders are selected, what variables are included and how they are controlled, how data are gathered and analyzed, and how unnecessary variability is controlled so that the overall research problem can be addressed. Regardless of the elegance of the statistical analysis, the researcher’s results may be worthless if an unsuitable research design has been used. Thus, design decisions both constrain and support the ultimate results (Dannels, 2018). There are different desing for data collection but the researcher in this study applied survey design for data collection, because it is suitable for data collection and to find out opinion and level of understanding about AI usage, functions, evaluation and critical thinking.
According to online Researchgate.com (Feb,27,2025) Population refers to the set or group of all the units on which the uncovering of the research are to be applied. In this research, the population were journalism and mass communication students across the province of KP. Online Merriam-Webster an Encylopedia an online Dictionary (Feb,27,2025) the act, process, or technique of selecting a part of a population for the purpose of determining limit or characteristics of the whole population. There are two kinds of sampling i.e. probability and nonprobability sampling methods. On the bases of above definitions and kinds & types, the researchers collected data by random sampling method. A questionnaire was distributed online among journalists students of university of Malakand, Swat, Hazara, Mardan, Peshawar, Kohat, Karak, swabi and Gomal university. In this study the unit of analysis is each individual student of journalism & mass communication of KP to gage the level of understanding about AI websites etc in the academic and practical learning. The data was collected by Google form from the Khyber Pakhtunkhwa journalism department students through a structured questionnaire. The questionnaire was based on five sections including demographics, understanding of AI, uses & functions of AI, evaluation of AI and critical thinking about AI. The researcher applied SPSS for data analysis. Descriptive and inferential statistics were applied. Data presented in from of tables, charts and graphs for easy understanding.

Table 1. Scale Reliability statistics

		N	%
Cases	Valid	136	96.5
	Excluded[a]	5	3.5
	Total	141	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.791	40

The internal consistency reliability of the scale was assessed using Cronbach's alpha. A total of 141 cases were included in the analysis, with 136 (96.5%) valid cases and 5 (3.5%) excluded due to listwise deletion. The scale demonstrated good internal consistency, with a Cronbach's alpha of .791 for the 40 items. According to conventional criteria (George & Mallery, 2016), an alpha value above .70 is considered acceptable, indicating that the scale has adequate reliability for research purposes.

Results and Discussion

This section is based on the the following sections;

1. **Demographics analysis**
2. **Hypotheses results**

Descriptive Analysis

In this section, the researcher explain the data about respondents demographic characteristics like, university, age, income, education, location, marital status etc. to find the relationship with dependent variables.

Table 2. University wise distribution of the respondents

University

	Frequency	Percent	Valid Percent	Cumulative Percent
Abdul Wali Khan university	2	1.4	1.4	1.4
Gomal University	1	.7	.7	2.1
Hazara University	20	14.2	14.2	16.3
Khushal Khan Khattak University Karak	11	7.8	7.8	24.1
Kohat University	7	5.0	5.0	29.1
Swabi Women University	1	.7	.7	29.8
University of Malakand	54	38.3	38.3	68.1
University of Peshawar	8	5.7	5.7	73.8
University of Swat	37	26.2	26.2	100.0
Total	141	100.0	100.0	

Table 2 shows the distribution of respondents on the bases of universities from where the data collection. Among them 1.4% fill the questionnaire from Abdul Wali Khan, .7% from Goaml university, 14.2% from Hazara university, 7.8% Khushal Khan Khattak university Karak, 5.0% Kohat university, 38.3% from university of Malakand, 5.7% from university of Peshawar and 26.2% from university of Swat.

Table 3 location wise distribution of the respondents

Location

	Frequency	Percent	Valid Percent	Cumulative Percent
Urban	71	50.4	50.4	50.4
Rural	70	49.6	49.6	100.0
Total	141	100.0	100.0	

Table 3 indicates the location of the respondents university location that 50.4% from urban have filled the questionnaire,while 49.6% from rural have filled the questionnaire.

Table 4 shows semester wise distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
2	15	10.6	10.6	10.6
3	6	4.3	4.3	14.9
4	41	29.1	29.1	44.0
5	1	.7	.7	44.7
6	18	12.8	12.8	57.4
7	3	2.1	2.1	59.6
8	57	40.4	40.4	100.0
Total	141	100.0	100.0	

Table 4 indicates that semester wise distribution of the respondents.among them 40.4% fill the questionnaire from 8th semester students,2.1% from 7th semester,12.8% from 6th semester,7% from 5th semester,29.1% from 4th semester,4.3% from 3rd semester while10.6% from 2nd semester have fill the questionnaire.

Table 5 Shows distribution on the basis of Program

	Frequency	Percent	Valid Percent	Cumulative Percent
BS	130	92.2	92.2	92.2
Masters	1	.7	.7	92.9
Mphil/MS	10	7.1	7.1	100.0
Total	141	100.0	100.0	

Table 5 indicates that 92.2% from Bs have fill the questionnaire,7%from masters,while 7.1%from Mphil have fill the questionnaire.most universities have bs program and the number of students are more in bs program.

Table 6 divided on the basis of Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	116	82.3	82.3	82.3
female	25	17.7	17.7	100.0
Total	141	100.0	100.0	

Table 6 Demonstrates that 82.3% male have fill the questionnaire,while 17.7% female have fill the questionnaire.The Questionnaire Fill By Most Males The Reason Behind Is Cultural Issue,its An a Patriarcal Society.

Table 7 on the basis of age

	Frequency	Percent	Valid Percent	Cumulative Percent
18	1	.7	.7	.7
19	6	4.3	4.3	5.0
20	20	14.2	14.2	19.1
21	21	14.9	14.9	34.0
22	26	18.4	18.4	52.5
23	28	19.9	19.9	72.3
24	14	9.9	9.9	82.3
25	11	7.8	7.8	90.1

26	6	4.3	4.3	94.3
27	3	2.1	2.1	96.5
28	2	1.4	1.4	97.9
29	1	.7	.7	98.6
32	1	.7	.7	99.3
40	1	.7	.7	100.0
Total	141	100.0	100.0	

Table 7 sugests us that 7% questionnaire fill by 18th age students,4.3%from 19 age,14.2% from 20,14,9%from 21 age,18.4%from 22age,19.9% from 23 age,9.9% from 24 age,7.8% from 25 age,4.3% from 26 age,2.1% from 27 age,1.4% from 28 age,7% from 29 age,7% from 32 age,7%from 40 age .The Questionnaire Fill By most Of The Below 24 Age The Reason is Universities Bylaws Where only That Students Are To Be Select Who Age is Less Than 26.

Table 8 on the basis of Income

	Frequency	Percent	Valid Percent	Cumulative Percent
10000-15	90	63.8	63.8	63.8
16000-20	5	3.5	3.5	67.4
21000-25	9	6.4	6.4	73.8
26000-30	3	2.1	2.1	75.9
30000-35	10	7.1	7.1	83.0
36000-40	9	6.4	6.4	89.4
above	15	10.6	10.6	100.0
Total	141	100.0	100.0	

Table 8 Highlights that 63.8% have fill the questionnaire with monthly income 10 to 15 Thousand,3.5%with monthly income 16 to 20 Thousand,6.4% with monthly income 21 to 25 Thousand,2.1% from 26 to 30 Thousand,7.1% from 30 to 35 Thousand,6.4% from 36 to 40 Thousand,10.6% have fill the questionnaire with monthly income above Fifty Thousand.Majority of The Students Have Less Income,They are Poor.

Table 9 shows that I am more social than the other department students

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	33	23.4	23.4	23.4
Agree	55	39.0	39.0	62.4
Neutral	33	23.4	23.4	85.8
Disagree	7	5.0	5.0	90.8
strongly disagree	13	9.2	9.2	100.0
Total	141	100.0	100.0	

Table 9 Denotes that 23.4% have fill the questionnaire strongly agree,39% agree,23.4%are neutral,5%are disagree,9.2%are strongly disagree.Most of The Students are Agree Because They are Social Sciences Students and also The Students of Journalism.

Table 10 on the basis of meeting with friends

	Frequency	Percent	Valid Percent	Cumulative Percent
Never	7	5.0	5.0	5.0
Rarely	23	16.3	16.3	21.3
sometimes	46	32.6	32.6	53.9
frequently	34	24.1	24.1	78.0
Always	31	22.0	22.0	100.0
Total	141	100.0	100.0	

Table 10 Demonstrates that 5% have from never,16.3% from rarely,32.6% from some times,24.1% from frequently,22% from always section have fill the questionnaire.The Students Fill That They are Meet With Friends Sometimes and Frequently,Here Majority of The Students are Poor and They do Remote Jobs.

Table 11 on the basis of meeting with relatives

	Frequency	Percent	Valid Percent	Cumulative Percent
Never	9	6.4	6.4	6.4
Rarely	43	30.5	30.5	36.9
Sometimes	46	32.6	32.6	69.5
Frequently	28	19.9	19.9	89.4
Always	15	10.6	10.6	100.0
Total	141	100.0	100.0	

Table 11 Point outs that 6.4%have fill the questionnaire from never section,30.5% from rarely,32.6% from sometimes,19.9% from frequently,10,6% from always section have fill the questionnaire. Most of The Students are From Remote Areas and They Meet Up With Relatives.

Table 12 shows on the basis of meeting with teachers

	Frequency	Percent	Valid Percent	Cumulative Percent
Never	3	2.1	2.1	2.1
Rarely	33	23.4	23.4	25.5
Sometimes	54	38.3	38.3	63.8
Frequently	30	21.3	21.3	85.1
Always	21	14.9	14.9	100.0
Total	141	100.0	100.0	

Table 12 demostrates that 2.1%have fill the questionnaire from never section,23.4% from rarely section,38.3% from sometimes,21.3%from frequently,14.9%from always.Majority of The Students are Meet Up With Mentors To Get Knowledge.

Table 13 on the basis of meeting with classmates

	Frequency	Percent	Valid Percent	Cumulative Percent
Never	4	2.8	2.8	2.8
Rarely	26	18.4	18.4	21.3
Sometimes	46	32.6	32.6	53.9
Frequently	34	24.1	24.1	78.0
Always	31	22.0	22.0	100.0
Total	141	100.0	100.0	

Table 13 Point Outs that 2.8% have fill the questionnaire from section never,18.4% from rarely section,32.6%fromsometimes,24.1% from frequently,22% from always. On the bases of finding it has been inferred that majority of the students are from villages and they meet with cooleagues sometime and frequently.

Hypotheses results

In this section, the researcher explained the results of the hypotheses with the help of statistics to find out the relationship between dependent and independent variables.

H1: Journalism students with higher socioeconomic levels have higher AI literacy than those with lower socioeconomic levels.

Income Group	M (AI Literacy)	SD	t	df	p
High Income	3.45	0.87	2.76*	134	0.007
Low Income	2.89	0.92			

To find out relationship between socioeconomic (High vs. Low Income) level and AI literacy among journalist students an Independent Samples t-test was applied. There was a statistically significant difference in AI literacy between high-income (M = 3.45, SD = 0.87) and low-income students (M = 2.89, SD = 0.92), t (134) = 2.76, p = .007. Higher socioeconomic status was associated with greater AI tool literacy, supporting H1.

H2: Students in urban universities have higher AI literacy than those in rural universities.

Location	M (AI Literacy)	SD	t	df	p
Urban	3.32	0.85	3.12**	134	0.002
Rural	2.78	0.94			

Locality is also effecting learning, therefore the researcher checked the association between urban abd rural residents with AI literacy. An Independent Samples t-test was applied for results. Students in urban universities (M = 3.32, SD = 0.85) scored significantly higher in AI literacy than those in rural universities (M = 2.78, SD = 0.94), t (134) = 3.12, p = .002, supporting H2.

H3: Senior students have higher AI literacy than junior students.

Academic Level	M (AI Literacy)	SD	t	df	p
Senior (5-8)	3.56	0.79	4.05***	134	< .001

Academic Level	M (AI Literacy)	SD	t	df	p
Junior (1-4)	2.91	0.88			

An Independent Samples t-test was also applied to find out relationship between seniority (Junior vs. Senior) and AI literacy. The findings explored that senior students (M = 3.56, SD = 0.79) had significantly higher AI literacy than junior students (M = 2.91, SD = 0.88), t (134) = 4.05, p < .001, supporting H3.

H4: Students with higher AI literacy show better theoretical/practical application skills.

Variable	r	p
AI Literacy → Application	0.68***	< .001

A Pearson Correlation test was applied for the relationship between Al literacy and application scores. A strong positive correlation was found between AI literacy and theoretical/practical application skills, r = .68, p < .001, supporting H4.

H5: Departments with digital courses produce more AI-literate students.

Program	M (AI Literacy)	SD	t	df	p
MPhil/MS	3.75	0.72	3.89***	134	< .001
BS	2.95	0.91			

To find out association between AI and Program available digital courses (MPhil/MS vs. BS) and independent samples t-test was applied. The students in MPhil/MS programs (M = 3.75, SD = 0.72) had significantly higher AI literacy than BS students (M = 2.95, SD = 0.91), *t*(134) = 3.89, *p* < .001, supporting H5.

Conclusions and Recommendations

This study aims to evaluate the understating, usage, evaluation, and critical thinking regarding artificial intelligence (AI) tools, software, websites, and applications by the journalism, media, and mass communication students of universities in Khyber Pakhtunkhwa. The is research is based on Knowledge Gap Hypothesis theory to find out the similarities and differences among the journalism student of understating, usage, evaluation, and critical thinking of the social, economic, urban and rural, senior and junior, semester, program and demographic bases.

Demographic Analysis

The demographic analysis concluded that most of respondents belonged to remote areas, most were enrolled in BS programs, and dominantly male, single, and within the age of 18 to 25 years. The age is just because according to higher education commission of Pakistan a student can enroll in bs with low than 26 age that's why majority of the are less than 26. Most of the students came from low-income families, suggesting that financial limitations may influence access to and use of advanced technological tools, including AI. It is found that demographics influence the understating of the journalism students about AI) tools, software, websites, and applications.

Social Behavior with other Departments

Social behavior is the basic factor of the applied theory that the person who will more social will be more knowledgeable. It has been found that most students considered themselves more social than in other departments. This social behavior was evident in their regular interactions with

classmates, friends, and teachers. However, due to economic constraints and rural backgrounds, many students met with relatives and friends only sometimes or rarely, which may impact their exposure to diverse perspectives and AI & technological innovations. The students of the journalism are more social because it the requirement of the filed work (practical journalism). It is more important for the journalist to interact with everyone without any discrimination because sources for the acquiring information in every sector is mandatory. This study confirmed that social interaction can overcome the knowledge gap among the learners.

Use and function of AI Tools (operating of AI tools by students)

It is concluded that majority of the journalist students can use and functional AI tools, appa and websites for their academic and practical journalism. While, it is recommended that more access and training is required for the better understand of AI in their daily life.

Understanding of AI in Different Media Platforms

It is also found that the students have up to mark understanding in print, television ,and online media with a most rating their understanding as "excellent" or "very good." While, the understanding of radio and public relation and academic usage was slightly lower, perhaps due to less exposure or practical application opportunities in these areas.

Evaluation of AI in Different Media Platforms

This study explored that evaluation and critical reception regarding various media types, Print Media, Television (TV), Radio, Online Media, Public Relations (PR), Advertising, and Academic Media based on audience perceptions. Using AI tools, apps and website in the mentioned media and academic practices the journalism students can compare the both output of their daily works. The students are more compatible with AI usage in media practices as compare to traditional methods of working.

Critical thinking of AI in Different Media Platforms

It has been found that due to AI usage and operation the students are more critical thinker than those haven't access or using it, because AI not only explaining terms etc logically but also interpreting things with suitable examples. AI also modify text, video, audio and posts according to mentality of the users that's why students also using the same tactics with it like a friend to make it more attractive and creative.

Recommendations

Based on the findings of this research study, the following recommendations are proposed to enhance AI literacy among journalism students

For the Students

Students are needed to actively seek knowledge about Artificial Intelligence, as it is transforming the landscape of journalism. Developing AI-related skills will not only increase their professional competence but also prepare them for future challenges in the media industry. Self-initiated learning, participation in AI-related activities, and collaboration with cooleagues should be promoted at the student level.

For Faculty members

Monthly workshops needs should be arranged for teachers to enhance their understanding of AI and its application in journalism. Empowered faculty members can then effectively spread AI knowledge to students, by building a stronger academic foundation.

For Higher Education Commission

The HEC should lead the effort in revising journalism curricula across universities, emphasizing AI literacy and student competence. Competitive AI programs, and prize should be introduced to motivate students. more, institutions should organize monthly exposure visits to tech and media organizations, enabling students to interact with professionals from diverse backgrounds and deepen their understanding of real-world applications.

For Government and Policy Makers

There is a need for a strong policy-level intervention. The government should revise educational policies to bridge the knowledge gap in AI, particularly in journalism education. An updated Board of Studies with AI experts and educational strategists should be established to guide curriculum development. Implementing such major policy reforms will ensure that journalism graduates are well-equipped for the digital future.

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