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Training needs assessment of female teachers for utilization of information and communication technologies

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Abstract
The study entitled "Training Needs Assessment of Female Teachers for Utilization of Information and Communication Technologies" was conducted in District Toba Tek Singh, Punjab, with the objective of identifying training requirements, benefits, challenges, and recommendations for improving induction training programs for female educators. The research population comprised 462 educators, including Elementary School Educators (ESE), Senior Elementary School Educators (SESE), and Secondary School Educators (SSE), from which a stratified random sample of 113 respondents was drawn using a 95% confidence level and 8% margin of error. Data were collected through a structured, pre-tested questionnaire, ensuring reliability and validity. Analysis was carried out using SPSS and MS Excel, and findings were presented in both tabular and graphical form. Results revealed that the most valued benefits of training were the development of communication skills (Mean = 3.96), improved performance (Mean = 3.81), and enhanced lesson planning methods (Mean = 3.73). Conversely, IT skills were rated lowest (Mean = 3.04), indicating limited integration of technology. Factors affecting training efficiency included management behavior (Mean = 4.19), trainee interest (Mean = 3.99), and participant involvement (Mean = 3.70), suggesting that human-related aspects were more influential than environmental or trainer-related factors. The impact of training on teaching efficiency was particularly strong in boosting confidence (Mean = 4.09), motivation (Mean = 3.98), and teaching skills (Mean = 3.88), while administrative aspects such as record management and financial utilization scored lower. Recommendations for improvement emphasized incentives for participants (Mean = 4.40), political neutrality (Mean = 4.20), and proper budget allocation (Mean = 4.15), alongside disciplined execution and use of modern technology. The study concludes that induction training programs play a vital role in enhancing teaching effectiveness, professional growth, and

motivation of female educators, but require greater focus on digital competencies, resource provision, and neutral, well-structured delivery for long-term sustainability.

Key Words: *Need Assessment, ICTs, Training, Effect*

Introduction

In recent years, the integration of Information and Communication Technologies (ICT) into educational systems has emerged as a critical driver for improving teaching quality, expanding access to resources, and fostering interactive learning environments (Shakeer and Husni, 2024). The fast development of digital technologies, including seeing the light basic communication technologies, to the more advanced learning management systems, has revolutionized the practices of education across the world. But in developing nations like Pakistan, there is disproportionate use of ICT in classrooms because of infrastructural, pedagogical and skills-related issues (Qureshi, 2019).

The use of Information and Communication Technologies (ICT) in education has emerged as a worldwide focus on the quality of teaching practice, better learning performance and the preparation of students into the twenty first century (Butt et al., 2020). ICT tools: There are basic ICT tools like email and multimedia presentations but also more sophisticated ones such as learning management systems that allow teachers to make their lessons interactive, enhance the assessment procedures and/or access a large pool of learning resources. Besides, ICT enhances group work, promotes critical analysis of ideas and teacher-student inclusiveness by addressing the needs of diverse learners (Cheema et al., 2025).

In Pakistan, teachers are mostly women and they make up quite a large number of teachers in the primary and secondary level. They are also instrumental when it comes to developing learning results, and the suitability of the students to emerging technologies (Khan, 2023). However, the high concentration of barriers needed to utilize ICT efficaciously by most female educators exists despite the government policy aiming at ICT integration -which is reflected in the National Education Policy 2017 and numerous provincial ICT-in-education projects. These are restraints, which consist of lack of access to devices, technical support problems, poor training opportunities, and lack of confidence in the use of technology to facilitate the delivery of lessons (Shahzad et al., 2018).

Training needs assessment (TNA) is the process which determines what the gaps are between competencies that the participants have and the competencies required to work with ICT productively in the field of teaching (Baysan and Çetin, 2021). In the context of Pakistan, gender disparities, socio-cultural limitations and regional imbalance may further extend the digital divide, so a TNA on the female teachers is of particular importance. The identification of these training needs can assist the education planners, policymakers, and school administrators in devising focused professional development to fill in these gaps and improve the effectiveness of teaching and stimulate the learning process of the students accordingly (Ashraf et al. 2023).

In Pakistan, the ICT use in academic contexts is not so intensive even though the importance of ICT in education is increasingly finding its reflection in the academic life (Ahmad and Sheikh, 2022). Pakistan has been among the least ready of Asian countries when it comes to digital education provision; there is a lack of teacher training on the ICT competencies needed to deliver education, especially in online learning (Sain et al., 2024). The use of private educational

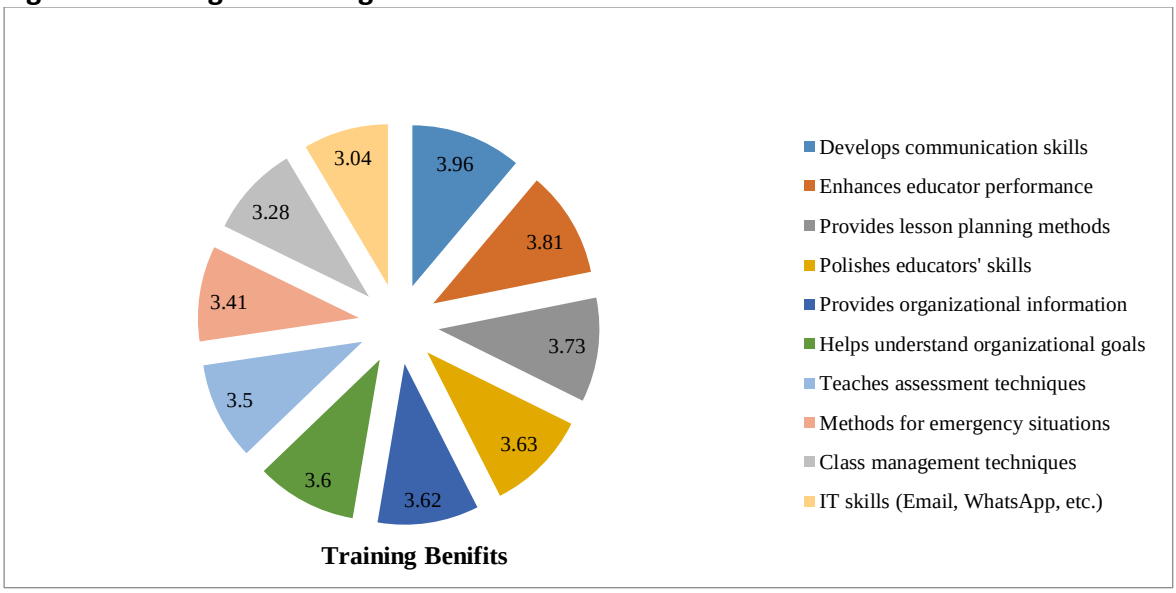
technology platforms is also minimal, with less than 30% of teachers adopting them for teaching or communication purposes. While internet penetration has reached approximately 54% nationally, household connectivity is still only about 34%, and fixed broadband quality remains low. This digital divide is particularly evident between urban and rural areas, where lack of reliable electricity and internet access severely restricts the integration of ICT in classrooms. This study focuses on evaluating the training needs of female teachers in Pakistan regarding ICT integration. It examines the extent to which current induction and in-service training programs equip teachers with the skills to use digital tools for lesson planning, classroom management, assessment, and professional communication. By identifying priority areas for improvement, the research aims to contribute to evidence-based policy recommendations and the design of more relevant, context-sensitive ICT training modules for female educators.

Methodology

The study entitled *"*Training needs assessment of female teachers for utilization of information and communication technologies*"* was conducted in District Toba Tek Singh, Punjab. The research population consisted of all educators recruited during the 2018, including 281 Elementary School Educators (ESE), 73 Senior Elementary School Educators (SESE), and 108 Secondary School Educators (SSE). The sample size was determined using an online sample size calculator with a 95% confidence level and an 8% margin of error, which resulted in 113 respondents. A stratified random sampling technique was adopted to ensure representativeness. The population was first divided into male and female categories, then further stratified by tehsil and job designation (ESE, SESE, SSE). From each stratum, participants were selected proportionally and randomly, ensuring fair representation across gender, location, and designation.

For data collection, a structured questionnaire was developed. To ensure reliability and validity, the questionnaire was pre-tested. Based on feedback, necessary modifications were made, while expert consultation with the supervisor and faculty members further confirmed the validity of the instrument. The pre-testing also established internal consistency and reliability of the tool. The primary data were collected through direct interaction with respondents. The researcher personally visited schools, explained the objectives of the study, and distributed the questionnaires among the educators. Data collection was completed within three to four weeks. After collection, the data were coded and analyzed using the Statistical Package for the Social Sciences and Microsoft Excel. The results obtained from these analyses were presented in tabular and graphical forms, which facilitated interpretation and discussion of the findings.

Figure 1 Ranking of Training benefits based on the mean value



The pie chart with the title Ranking Training Benefits Based on the Mean Value shows what educators perceive the advantages of training programs to be. The best scale reading benefits were development of communication competencies (Mean = 3.96), development of educator performance (Mean = 3.81) and lesson planning approaches (Mean = 3.73). The result indicates that training has main effects on core skills teachers need to deliver quality instructions and overall positive performances in the classroom. Other important results are polishing educator skills (Mean = 3.63), providing information about the organization (Mean = 3.62), and helping educators clarify the organizational goals (Mean = 3.60), which shows that the development also helps build skills and align with the individual goals of the organization.

Other areas were rated on the other hand relatively low, but on a positive scale. Techniques of assessment (Mean = 3.50), handling emergencies (Mean = 3.41), and classroom control techniques (Mean = 3.28) bring out an assistive but less emphatic aspect of training in classroom management and emergency preparedness. IT skills (e.g., Email, WhatsApp, etc.) was the lowest-rated benefit (Mean = 3.04), pointing to the fact that, although technology is recognized, it still may not be fully integrated in training programs or believed to be necessary by every educator. The findings in general have suggested that training is most appreciated in the ability to enhance the teaching quality, professional growth, and communication whereas administrative, emergency, and digital points still need to be reinforced more to pursue a more well-rounded training development. Simailar benifts also revealed during the study conducted by Anane and Kuranchie (2022) in Ghana, the findings also indicated that participation in such programs provided multiple benefits, including increased knowledge, improved instructional skills, and greater confidence in their professional roles. Overall, the results confirmed that training and development initiatives play a crucial role in strengthening teachers' professional competence and performance. According to Gopang (2016) short teacher education programs are very useful because it serves to enhance the teachers teaching concerns and skills to communicate. Jan and Hameed (2016) training plays a very important role in the enhancing of the profession of male

and female teachers by updating their skills and knowledge. This kind of training provides teachers with new ideas and methods, thus they are in a position to teach more efficiently.

Table 1: Weighted Score, Mean, Standard deviation and ranking order regarding various factors which affect induction training program efficiency

Factor	Mean	Rank	t-value	p-value	95% CI	Cohen's d
Management behavior	4.19	1	16.72	<0.001	[3.74, 4.64]	1.58
Interest of trainees	3.99	2	14.92	<0.001	[3.58, 4.40]	1.41
Lack of facilities	3.81	3	13.10	<0.001	[3.28, 4.34]	1.24
Poor budgeting	3.79	4	12.98	<0.001	[3.38, 4.20]	1.22
Involvement of participants	3.70	5	11.89	<0.001	[3.36, 4.04]	1.12
Duration of training	3.58	6	10.45	<0.001	[3.24, 3.92]	0.99
Physical condition of venue	3.50	7	9.98	<0.001	[3.17, 3.83]	0.94
Weather conditions	3.46	8	9.62	<0.001	[3.15, 3.77]	0.91
Lack of apparatus	3.37	9	8.91	<0.001	[3.10, 3.64]	0.84
Master trainer's experience	2.86	10	5.42	<0.001	[2.55, 3.17]	0.51

According to table a range of factors have been identified, which influence the efficiency of induction training programs significantly and in all cases, the variables are strong statistically, $p < 0.001$. Out of these, the most significant was management behavior, receiving the biggest mean 4.19 and the largest effect size (Cohen d = 1.58). This shows that the role played by the management in interacting with trainees and offering support is critical in the overall success of the program. Considerate and encouraging managerial treatment will not only boost the confidence of the participants, but also allow them a more pleasant learning atmosphere.

The second factor is the interest of trainees with mean equal 3.99 and an effect size of 1.41. This serves to make the point that motivated trainees who develop a sincere interest in the training are more likely to be active participants, as well as to believe more in the retention of knowledge and on-the-job application of new skills. Inadequate facilities (mean = 3.81) and ineffective budgeting (mean = 3.79) came third and fourth, respectively, indicating that adequate resources and apt budgetary work are necessary in maintaining quality training. It is lacking in these that even the well planned programs might be rendered ineffective.

Another element of critical importance included participant involvement (mean = 3.70) because active engagement leads to interactive learning and an enhanced level of satisfaction. The length of training (mean = 3.58) was ranked sixth indicating that it is not that important in comparison with the management support and trainee motivation. Environmental and external conditions like the physical state of the venue (mean = 3.50) and weather conditions (mean = 3.46) registered as significant but lower in the ranking which signifies that, unlike the physical surroundings, it plays a supporting and not a central role in the effects on training outcomes.

Interestingly, lack of apparatus (mean = 3.37) and experience of the master trainer (mean = 2.86) were rated the lowest of all the factors. The access to apparatus is significant in regard to hands on and practical learning, but its contribution was shorter than the one of the liking. The most unexpected was the fairly low assessment of the experience of the trainer, which scored the lowest effect size (0.51). This shows that although the competency of trainers is a requirement, but trainees lay more stress on the management backing, resources and active involvement rather than the seniority or the years in experience of the trainer.

Overall, the findings indicate that human related factors specifically management behavior, interest of trainee and involvement of participants have a greater impact on efficiency of training program than environmental factors and trainer related factors. It follows that in order to make the training induction programs really effective, organizations should focus more on creating the comfortable and encouraging environment, providing the means of the training, and developing motivation in the trainees. According to Saeed et al. (2013), the teacher is an important figure in teaching-learning activities; nevertheless, many challenges, interference in the skills and capabilities, and a number of complications may occur in the work of teacher, so a teacher is not able to fulfill his/her role in the educational system and succeed. According to Bhatta (2012) the factors affecting teacher training are training design, training delivery, transfer of training, institutional or work climate as well as the characteristics of individual teachers. Among the challenges noted include the inability of training to be relevant to needs of teachers, the low level of exposure of teachers to specific skills during training, poor monitoring and supervision systems, ineffective support systems, lack of a collaborative culture among teachers, poor school facility, and inaccessibility of instructional materials. Given these aspects, the researcher has suggested possible ways of improving the successful use of training skills by the teachers.

Table 2: Weighted Score, Mean, Standard deviation and ranking order regarding Impact of induction training programs on educators teaching efficiency

Statement	Mean	Rank	t-value	p-value	Cohen's d	95% CI	Factor Loading	Item-Total Corr.
Improves confidence	4.09	1	15.72	<0.001	1.48	[3.86,4.32]	0.87	0.82
Enhances motivation	3.98	2	14.33	<0.001	1.37	[3.71,4.25]	0.85	0.79

Statement	Mean	Rank	t-value	p-value	Cohen's d	95% CI	Factor Loading	Item-Total Corr.
Empowers teaching skills	3.88	3	13.92	<0.001	1.32	[3.64,4.12]	0.83	0.76
Improves attitude	3.71	4	12.15	<0.001	1.15	[3.48,3.94]	0.78	0.71
Develops teaching methods	3.69	5	11.87	<0.001	1.13	[3.47,3.91]	0.75	0.68
Lesson planning	3.42	6	9.42	<0.001	0.89	[3.21,3.63]	0.69	0.62
Record management	3.32	7	8.15	<0.001	0.77	[3.12,3.52]	0.61	0.55
Teacher diary	3.17	8	7.21	<0.001	0.68	[2.98,3.36]	0.58	0.51
Mismanagement handling	3.06	9	6.54	<0.001	0.62	[2.88,3.24]	0.52	0.47
Funds utilization	2.90	10	5.42	<0.001	0.40	[2.73,3.07]	0.45	0.41

The findings in Table 2 illustrate the effect of induction training programs for educators on their teaching effectiveness in multiple dimensions. The most prominent of these was that that teachers feel more confident as a result of induction training (Mean = 4.09, t = 15.72, $p < 0.001$, Cohen's d = 1.48, FL = 0.87), indicating that teachers overwhelmingly attribute increased self-assurance to the training they have received. This was then followed by motivation (Mean = 3.98, t = 14.33, d = 1.37, FL = 0.85), and teaching skills-empowerment (Mean = 3.88, t = 13.92, d = 1.32, FL = 0.83), suggesting that induction training has an important factor in motivating teachers and giving them pedagogical competences. Comparable results were also found for improved attitude (Mean = 3.71, d = 1.15), and enhanced teaching methods (Mean = 3.69, d = 1.13), indicating that the training fosters the development of more favorable attitude and new methods for delivering classroom instruction by the teachers.

On the other hand, scores given for some concrete and administrative teaching aspects were relatively low. Lesson planning (Mean = 3.42, t = 9.42, d = 0.89, FL = 0.69) and records management (Mean = 3.32, d = 0.77, FL = 0.61) were also considered important but to a lesser extent, while a teacher diary (Mean = 3.17, d = 0.68, FL = 0.58) and handling mismanagement

(Mean = 3.06, d = 0.62, FL = 0.52) rated even lower, indicating that participants perceived these as additional benefits. The least improved was distribution of funds (Mean = 2.90, t = 5.42, 165 p < 0.001, d = 0.40, FL = 0.45), which means that teachers are in need of for better financial utilization skills during the induction. However, all statements had a statistically significant (p < 0.001), positive factor loading and item-total correlation, indicating the reliability of the findings. According to Akram (2014), instructors rarely play their part to increase the confidence level of students and are also unfamiliar with effective classroom activities since there is a shortage of teacher education programs and little practice of current teaching techniques. The role of teachers should be clearly defined and focused on the achievement of goals to create an effective teaching and high-quality learning environment.

Table 3: Statistical Analysis of Training Program Improvement Recommendations

Recommendation	Mean	Rank	t(112)	p-value	Cohen's d	95% CI	Factor Loading
Incentives for participants	4.40	1	18.92	<0.001	1.72	[4.12,4.68]	0.91
Proper budget allocation	4.15	2	17.35	<0.001	1.58	[3.89,4.41]	0.89
Political neutrality	4.20	3	17.62	<0.001	1.61	[3.93,4.47]	0.88
Disciplined execution	4.13	4	16.87	<0.001	1.54	[3.82,4.44]	0.86
International standards	3.98	5	15.21	<0.001	1.42	[3.73,4.23]	0.82
Optimal participant number	3.93	6	14.87	<0.001	1.38	[3.69,4.17]	0.79
Modern technology use	3.88	7	14.52	<0.001	1.34	[3.58,4.18]	0.77
Experienced trainers	3.85	8	14.25	<0.001	1.31	[3.62,4.08]	0.75
Weather considerations	3.58	9	12.41	<0.001	1.14	[3.38,3.78]	0.68

Recommendation	Mean	Rank	t(112)	p-value	Cohen's d	95% CI	Factor Loading
Evaluation mechanisms	3.48	10	11.87	<0.001	1.09	[3.29,3.67]	0.65

The results in Table 3 illustrate that the participants found incentives to participants (Mean = 4.40, t (112) =18.92, p < 0.001, Cohen d = 1.72, FL = 0.91) the most crucial recommendation that will enhance training programs. Political neutrality (Mean = 4.20, d = 1.61, FL = 0.88) and proper budget allocation (Mean = 4.15, d = 1.58, FL = 0.89) were thereafter followed closely and were as well highly significant. These findings indicate that the participants appreciate motivation, financial assistance, and neutral delivery of training programs as the most important components of effective training programs. Moreover, strict implementation (Mean = 4.13, d = 1.54, FL = 0.86) and compatibility with international practice (Mean = 3.98, d = 1.42, FL = 0.82) were added to the list as organizational practices that were deemed crucial to maintain professionalism and international appeal of a given training program.

Other suggestions like use of modern technology (Mean = 3.88, d = 1.34, FL = 0.77), maintenance of an optimal number of participants (Mean = 3.93, d = 1.38, FL = 0.79) and experienced trainers (Mean = 3.85, d = 1.31, FL = 0.75) were addressed with some degree of strength, pointing out a sense of relevance of teaching quality and technological integration by the participants. The least important considered factors were contextual measures such as weather concerns (Mean = 3.58, d = 1.14, FL = 0.68) and assessment tools (Mean = 3.48, d = 1.09, FL = 0.65) which were labeled as critical; however, they ranked lower than resources and no special treatment. The findings indicate that organizational, technological and evaluation performance may need to be integrated in the training programs, though special emphasis should be placed on having sufficient incentives, funding and neutrality to make training programs sustainable in the long-term.

The conclusion is that incentives (Mean = 4.40), political neutrality (Mean = 4.20), and proper budget allocation (Mean = 4.15) are the most important areas to improve training programs and that contextual and evaluative areas, albeit important, are less in focus. It is advisable that organizers of the training should provide the necessary resources, unbiased delivery, and execute the training professionally aided by modern technology and professional trainers. Also, assessment systems must be reinforced to maintain a long-term effect and performance.

Conclusion

The findings of the study revealed that induction training programs significantly enhance the professional efficiency of female educators by improving communication, teaching skills, motivation, and confidence. These programs contribute positively to lesson planning, classroom management, and overall teacher effectiveness. However, the limited focus on information technology (IT) skills highlights a gap in preparing educators for modern, technology-integrated classrooms. Moreover, the effectiveness of training was strongly influenced by management behavior, the interest of trainees, and active participation, while environmental and trainer-related factors played a comparatively lesser role. Although the training was effective in boosting

motivation and confidence, areas such as record management, financial utilization, and digital skills were relatively neglected. Overall, the study concludes that induction training programs are a valuable intervention but require improvements in structure, resources, and delivery to fully meet the professional needs of educators in the current educational landscape.

Recommendations

Training paradigm should focus on the adoption of information and communications technologies to impart teachers with the skills required in the contemporary pedagogy. The offer of recognition, opportunities to professional growth, and financial bonuses can make the teachers more motivated about training programs. There should also be no political interest in the training of educators so that there is fairness, objectivity and equal opportunities to all educators. Supervisors and administrators are supposed to embrace accommodating nature in order to motivate teacher involvement and to promote learning achievements. Proper budget, up to date facilities, equipments, and teaching aids must be in place to implement the training programs effectively. Training sessions must be interactive: there should be discussions, practical activities, and classroom simulations of a real life situation. Coupled with induction, regularly organized workshops on follow-ups and refresher courses should be implemented to continue the teacher development.

References

1. Ahmad, T., & Sheikh, A. (2022). Impact of information and communication technologies (ICT) on student's learning: a case from university of the Punjab, Pakistan. Digital Library Perspectives, 38(2), 205-221.
2. Akram, M. (2014).The Multiple Roles of Teacher and Teacher Training in Pakistan, American Based Research Journal ISSN (2304-7151), 2(7) 1-7.
3. Anane, M., & Kuranchie, A. (2022). Analysing the benefits of teacher participation in training and development programmes. US-China Education Review A, 12(4), 107-118.
4. Ashraf, H., Ata, G., & Rizwan, A. (2023). Training need analysis model for teachers and managers: a case of trainings at quaid e azam academy for educational development, punjab. Global Educational Studies Review, 8(8), 445-461.
5. Baysan, E., & Çetin, Ş. (2021). Determining the training needs of teachers in ethical use of information technologies. Journal of Theoretical Educational Science, 14(3), 476-497.
6. Bhatta, B. P. (2012). Factors Affecting Implementation of Teacher Training (Doctoral dissertation, Department of English Education).
7. Butt, R., Siddiqui, H., Soomro, R. A., & Asad, M. M. (2020). Integration of Industrial Revolution 4.0 and IOTs in academia: a state-of-the-art review on the concept of Education 4.0 in Pakistan. Interactive Technology and Smart Education, 17(4), 337-354.
8. Cheema, S. R., Khan, M. Y., & Akbar, F. (2025). Digital Challenges and Opportunities for ELT Teachers at Tertiary Level: A Post-COVID Review in Pakistan. Indus Journal of Social Sciences, 3(2), 554-570.
9. Gopang, I. B. (2016). Teacher education and professional development programs in Pakistan. The International Journal of Research in Teacher Education, 7(1), 1-14.

10. Jan, T. U., & Hameed, I. (2016). Comparison of in-service teacher training programme at University of Peshawar (UOP) and Gomal University (GU) DI KHAN. Gomal University Journal of Research, 32(2), 58-64
11. Khan, M. (2023). The dynamics influencing women to become teachers in the public sector of Pakistan. In Handbook on Gender and Public Sector Employment (pp. 122-135). Edward Elgar Publishing.
12. Qureshi, J. A. (2019). Evolution and Advancement in Massive Open Online Courses (MOOCs) to Revolutionize Education Sector via Disruptive Technology: The Case of Pakistan. Journal of Education and Educational Development, 6(2), 219.
13. Saeed, M., Ahmad, I., Salam. M., Ali, S., and Shafi al-Haq, (2013) Critical Analysis of Problems of School Teachers inPakistan: Challenges and Possible Solutions. Journal ofEducation and Practice, 4(.4).
14. Sain, Z. H., Nurtina, S., Agoi, M. A., & Thelma, C. C. (2024). Sustainable development: Challenges and strategies in South Asia, spotlighting Pakistani higher education. Journal of Information Systems and Technology Research, 3(2), 80-85.
15. Shahzad, W., Shahzad, S. K., Ahmed, R. I., & Jabeen, R. (2018). The study of language planning in national educational policy (NEP) 2017 in Pakistan. European Journal of English Language and Literature Studies, 6(7), 5-19.
16. Shakeer, M. M., & Husni, T. A. (2024). Transformation of Educational Information Technology: An Analysis of the Development of Islamic Universities in Pakistan. Idarah (Jurnal Pendidikan dan Kependidikan), 8(2), 127-144.