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Digital Learning Initiatives by Punjab Education Foundation; Online Lesson Planning and Teachers Performance in Rural Areas of Punjab

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The purpose of the study was to determine the usefulness of Online Lesson Planning (OLP) in the schools with the Punjab Education Foundation (PEF) assistance. Online Lesson Planning is an online program that is meant to assist teachers in structuring and organizing their lessons in a systematic manner. The study population was a group of all teachers in PEF programs, including all partner schools. Of the 180 teachers, stratified sampling method was used to select them in order to represent them appropriately. The research instrument was a self-developed and validated questionnaire that was used to collect data among teachers. Pilot testing- This was done to ensure that the instrument was clear and effective. A panel of experts established the validity of the instrument and the reliability was evaluated by the use of Cronbach alpha reliability index, which had a value of 0.843 which implied that the instrument had acceptable internal consistency. The SPSS was used to analyze the data. The inferential statistical methods such as the Independent Sample t-test and One-Way ANOVA were used to compare the differences in the responses given by the teachers. The study results showed that Online Lesson Planning assists the teachers plan the lessons better, enhances the instruction process, and contributes to the improved classroom management. The findings also did not have significant difference in the perceptions that teachers had in gender and qualification. Based on the findings of the research it is suggested to conduct ongoing teacher education and make sure that digital materials are offered to improve the successful adoption of Online Lesson Planning in PEF schools.

1. Introduction & Literature Review

Online Lesson Planning (OLP) has emerged as a part of digital education programs in Pakistan, especially in rural and underserved settings whereby traditional teaching materials are scarce. Introduction of OLP enables teachers to plan, structure and deliver lessons in an organized and interactive way so that they are more aligned with the curriculum standards and encourage consistent instructional delivery. Through online platforms, educators will be able to access pre-made lesson templates, teaching resources and assessment tools that in addition to decreasing the amount of administrative work, will also improve the quality of classroom instruction (Frontiers in Education, 2022; Khan & Bhatti, 2024; Dilshad, Shah, & Ahmad, 2023). One of the major initiatives taken to support OLP includes the Punjab Education Foundation (PEF) as part of its overall digital transformation plan, focusing on partner schools as Foundation Assisted Schools (FAS), Education Voucher Scheme (EVS) and New School Program (NSP). Teachers of rural and low-resource schools can get exposure to standardized digital materials and instructions through these platforms, which are relevant in ensuring the quality of teaching remains consistent across the schooling environments (PEF Annual Report, 2018; IRM & Minute Mirror, 2025; Kolachi et al., 2024).

Various factors such as gender, the kind of school, and teacher qualification affect the adoption of OLP in rural Punjab. The interest and use of digital lesson planning tools have shown gender difference. Women teachers tend to be more compliant to the structured planning and more likely to use interactive activities and multimedia resources in their lessons (Faheem, Gulab, & Ahmad, 2025). This will have the propensity to enhance student involvement and attendance, particularly in other areas like English and Urdu where creative approaches are essential in understanding. Male educators, in their turn, can be more inclined to content coverage and efficiency, which can lead to less interactive learning experiences in the classroom (Ahmad, Sewani & Channa, 2025; Fatima et al., 2023; Haider, Ahmad, & Ali, 2024). Such gender-related distinctions reveal the necessity of making the process of professional development gender-specific so that both male and female educators can derive the maximum out of the digital lesson planning.

The school type is also a major factor in the successful application of OLP. Digital infrastructure of the schools of the partners of PEF and private schools is generally in better condition regarding the stable internet, power, and technical support. The resources come in handy in the effective use of the OLP platforms, which would allow the teachers to design, implement and assess the lessons efficiently. On the other hand, government schools, especially those in the rural setting have many problems and they include poor power distribution, poor internet connectivity and poor digital equipment. These organizational constraints do not permit the educators to present OLP in their teaching experience holistically and affect the durability of lessons delivery ((Khan, 2023; Ali & Bano, 2022; Aslam, Iqbal & Ahmed, 2022). These disparities indicate the historical digital gap between urban and rural education systems in Pakistan and imply that certain operations should be used to bridge the gap. The success and uptake of OLP also depends on the qualifications of teachers (Ahmad, Sewani & Ali, 2024).

The better qualified teachers (bachelors or master's degrees in education or subject specialization) are in a better position to navigate through the online lesson planning tools and provide pedagogically sound lessons. Such teachers are more aligned in terms of curriculum, assessment, and differentiation of instruction (Pirzada, Tabassum & Ahmad, 2024). On the other hand, teachers with a less advanced level of preparation or who had minimal experience with digital pedagogy are unlikely to be able to apply OLP to their work in the classroom (Ahmad, Noorani, & Channa, 2025). The gap impacts the general quality of education and learning outcomes among students, especially in a rural school where the available teachers are less qualified (Ahmed, 2021; Frontiers in Education, 2022). As a result, the digital literacy and instructional design professional development programs are critical towards enhancing teacher competence and confidence at various levels of qualification.

Online Lesson Planning does not just have a positive impact on the performance of individual teachers, but also on the overall objective of enhancing student learning and decreasing educational inequities. OLP allows teachers to present lessons, which are interesting, consistent, and in compliance with the national curriculum standards by offering structured lesson plans, digital resources, and tools of formative assessment (Ahmad, Sewani & Khoso, 2024). It also enables the rural and marginalized students to have access to high-quality educational content, thus reducing the gap between the urban and rural populations in terms of learning. Nevertheless, OLP is not only effective when digital tools are involved, but also the support systems, such as training, mentoring, and infrastructural assistance to teachers. In the absence of these supports, it is likely that the digital lesson planning will be underutilized or used inconsistently, which will restrict its possible effects on the quality of education (PEF Annual Report, 2018; Khan & Bhatti, 2024; Akram, Fatima & Ahmad, 2024).

The application of OLP within the rural Punjab is an important move towards the digitalization of education. It also focuses on several issues at once such as a lack of instructional tools, inconsistent lesson delivery, and limited teacher capacity, and an improved culture of accountability and performance-based improvement (Ahmad, Noorani, & Sewani, 2025). The differences in genders and the type of school and the qualification of the teacher also affect the use and effectiveness of OLP, which explains the importance of having context-sensitive interventions. Through programs like OLPs by PEF, offering continuous professional development, equal access to technology, and technical support may help enhance both access and quality of education in the rural Punjab, to provide sustainable and inclusive learning opportunities to every student ((Frontiers in Education, 2022; Fatima et al., 2023; Ahmad, Sewani & Channa, 2025).

To conclude, Online Lesson Planning is a revolutionary method of teaching in rural Pakistan, and it can be used to improve the quality of teaching, standardization of lesson delivery, and increase student engagement. To be successfully implemented, it will be necessary to focus on the characteristics of teachers, the infrastructural limitations, and the differences based on gender and school (Ahmad, Noorani, & Ali, 2024). By considering them, the OLP initiatives of PEF will be able to offer equal opportunities in accessing high-quality education, which can help reduce the digital divide and provide the overall educational and socio-economic growth of the region (Naeem, Ali, & Ahmed, 2022).

The importance of this study on the Online Lesson Planning (OLP) is as follows: even though the use of online lesson planning has the potential to enhance the teaching and learning process in rural Punjab, very limited research on the actual application, challenges and effects of the practice are conducted. The gender of the teacher, type of school and qualification of the teacher are some factors which may affect the adoption of OLP but no systematic study has been done to look at these factors. This study bridges this gap and offers information to policymakers and educators to develop effective and inclusive digital learning strategies (Frontiers in Education, 2022; Khan & Bhatti, 2024; Ahmad, Sewani & Channa, 2025; Fatima et al., 2023).

1.1 Objectives of the Study

The objectives of the study were to achieve the following:

1.To investigate the applicability of Online Lesson Planning (OLP) by teachers in rural schools of Punjab.

2.To determine the impact of OLP on the quality of teaching and delivery of lessons.

3.To identify the effects of OLP on learning outcomes among students.

4.To compare how OLP is used according to the gender of teachers, the nature of schools, and teachers qualifications.

5.To determine the issues that teachers encounter when using OLP successfully.

2. Research Methodology

The research is based on positivist research paradigm that emphasizes on objective measurement, measurable data and statistical analysis to examine real life phenomena. It was also quantitative since the objective of the study was to measure the effect of Online Lesson Planning (OLP) on teaching practice and student learning in rural Punjab. The study employed structured questions and statistical tools such as descriptive statistics, Independent Sample t-tests and One-Way ANOVA since the positivist approach of objective measurement of educational outcomes and systematic analysis is valid. The study employed the quantitative descriptive survey research design to examine the use of Online Lesson Planning (OLP), its efficacy and hurdles in the rural schools in Punjab. A formulated questionnaire was administered to teachers where they answered questions on their experience with the use of OLP including effectiveness of lesson planning, alignment with the curriculum and the effect on student learning. The experts have validated the questionnaire and Cronbach Alpha (0.843) has been utilized to determine the reliability of the questionnaire that implies that the internal consistency of the questionnaire is high. The study population was comprised of all teachers in schools of Punjab Education Foundation (PEF) that are in rural districts of Punjab and in schemes such as Foundation Assisted Schools (FAS), Education Voucher Scheme (EVS), New School Program (NSP) and Public-School Reorganization Program (PSRP-1) in rural areas. These schools are a dissimilar collection of school models that are oriented towards the growth of access and decent education in the country regions.

Stratified random sampling was used to select a sample of 180 schools. The stratification of the population was based on the nature of PEF initiative (FAS, EVS, NSP,

PSRP-1), and schools were randomly selected in each stratum in such a way that proportional representation would be achieved. Out of these schools, 191 teachers were surveyed, which gave information about the use, effectiveness and difficulties of Online Lesson Planning. The sampling technique will ensure that all types of PEF programs were reasonably represented and the possibility of sampling biasness was reduced.

The structured questionnaire is selected as the main form of data collection, and it was worked out on the basis of the literature analysis and the investigation of PEF projects and On-Lesson Planning, in particular. The questions in the questionnaire were put as closed ended statements that were rated using a 6 item Likert scale i.e. Strongly Disagree (1) to Strongly Agree (6). It was intended to quantify:

- Efficiency and lesson preparation teaching.
- Logicality and lesson delivery.
- Attitudes of teachers and OLP implementation difficulty.

The questionnaire was both expert reviewed, pilot-tested and reliability checked using Cronbach's Alpha (= 0.843) which shows that there is high internal consistency. Subscale reliabilities were found to be between 0.78 and 0.85 and this ensured that all the dimensions always measured the intended constructs. All the teachers were provided with the questionnaire through Google Forms. The purpose of the study, voluntary participation, and confidentiality of answers were discussed with the teachers. The survey captured the views of the teachers where they were asked about the usage, accessibility, difficulties, and the effectiveness of Online Lesson Planning. Descriptive (frequencies, percentages, means) and inferential statistics (Independent Sample t-tests and One-Way ANOVA) were then used to analyze the data and identify patterns, trends, and differences in usage and efficiency depending on variables (gender, school type, qualification, age, and device use).

Analysis of data was done on SPSS software. The descriptive statistics were used to summarize the responses of teachers and determine trends in the use and impact of OLP. Differences between groups and the impact of Online Lesson Planning on the teaching efficiency and lesson quality were found through inferential statistics (Independent Sample t-tests and One-Way ANOVA). The stratified sampling strategy was used to ensure that the differences between the various PEF initiatives were well represented. To test the clarity, relevance, and appropriateness of the items, the questionnaire was piloted on 30 teachers of rural schools. Feedback was also included in order to perfect the questionnaire. Cronbach Alpha (= 0.843) was found to be a high level of reliability. All subscales have a score above the threshold of 0.70 and this implies that all the dimensions were effective in measuring the intended construct.

3. Data Analysis

Table No 1: Descriptive statistics of statements

Online Lesson Planning	Mean	Std.Deviation
I ensure that my lessons plan follow the sample provided online.	4.96	.863
Due to pressure to cover large content it is difficult to exactly allocate 75% of lesson time for teaching, 15% for assessment, and 10% for reinforcement.	4.38	1.233
In the given time it is difficult to include engaging activities to keep students active during the lesson.	3.83	1.423
Shortage of online resources make it difficult to use available digital tools an d resources to make my lessons more effective.	4.67	1.223
I help students connect concepts to their daily lives by giving real-life examples.	5.14	.805
I encourage students to ask questions and think from different perspectives.	5.24	.634
Short time period makes it difficult to use worksheets and engaging activities to strengthen basic concepts.	4.21	1.298
Limited time/resources/space make it difficult to adopt various strategies to m ake my teaching more interactive and effective.	4.34	1.271
Because of limited resources/access, I cannot get essential subject-related material.	3.91	1.450

The results of table 1 Teachers stated that Online Lesson Planning (OLP) helps with lesson preparation and student engagement, and most agree that it helps to connect the concepts with real-life (M = 5.14, SD = 0.805) and asks questions and critical thinking (M = 5.24, SD = 0.634). They were also effective users of digital resources (M = 4.67, SD = 1.223) and regular adherents to online sample plans (M = 4.96, SD = 0.863).Nevertheless, time and resource pressures were also a challenge such as the need to allocate lesson time to teaching, assessment, and reinforcement (M = 4.38, SD = 1.233), the inclusion of engaging activities (M = 3.83, SD = 1.423), and accessing the necessary materials (M = 3.91, SD = 1.450). On the whole, OLP is an effective way of improving teaching practices, which should be improved in terms of resource and time management.

Table No 2: Independent sample T-Test for mean dirfference between Online Lesson Planning based on Gender

Section 1	Gender	N	M	Sd	Df.	T-value	Sig.
Online Lesson Planning	M	63	21.492	5.520	189	1.371	.172
	F	128	22.726	6.006			

The results of the online lesson planning that is compared with an Independent sample t-test to be found in Table 2 give the average data on the responses of the male and female owners. The mean scores of the male (N = 63, M = 21.49, SD = 5.52) and female (N = 128, M = 22.73, SD = 6.00) owners did not differ significantly in the case of online lesson planning T(189) = -1.371, P =.172. The findings derived in both groups revealed the same

positive response of online lesson planning as effective in aiding the enhancement of the teaching practices, instructional delivery and classroom management.

Table No 3: ANOVA test to Determine difference in means of responses of teachers to Online Lesson Planning depending upon School Type.

Section 1	Type of School	*N*	*M*	*Sd*	*Df.*	*F*	Sig.
Online Lesson Planning	FAS	97	23.030	6.144	3	.592	.213
	EVS	37	21.729	5.091	187		
	PSRP	21	22.761	4.989			
	NSP	36	20.750	6.152			
	Total	191	22.319	5.864	190		

Table 3 presents the average responses regarding online lesson planning across different types of schools, analyzed using a one-way ANOVA. The results show that there were no significant differences between schools: FAS (N=97, M=23.03, SD=6.14), EVS (N=37, M=21.73, SD=5.09), PSRP (N=21, M=22.76, SD=4.99),and NSP (N=36, M=20.75, SD=6.15) . The ANOVA test result was F(3, 187) = 0.592, P = .213. This implies that educators in all school categories equally stated that an online lesson plan is effective in facilitating instruction methods, enhancing the effectiveness of teaching instructions, and improving classroom management.

Table No 4: ANOVA test to determine the mean differences in responses of teachers in Online Lesson Planning Based on Teachers qualification.

Section 1	Qualification	N	M	SD	Df	F	Sig.
Online Lesson Planning	Matric	2	18.000	.000	6	.348	.910
	Intermediate	33	22.242	5.321	184		
	Bachelors	53	21.943	6.090	190		
	BSc	44	22.704	6.200			
	Masters	51	22.490	5.808			
	Mphil	6	22.166	7.026			
	Ph.d	2	25.500	6.363			
	Total	191	22.31	5.864			

Table 4 shows the mean of responses toward online lesson planning in terms of teachers of various qualifications, and it was analyzed with the help of a one-way ANOVA. The results indicate no significant differences among the qualification groups: Matric (N = 2, M = 18.00, SD = 0.00), Intermediate (N = 33, M = 22.24, SD = 5.32), Bachelors (N = 53, M = 21.94, SD = 6.09), BSc (N = 44, M = 22.70, SD = 6.20), and Masters (N = 51, M = 22.49,

SD = 5.80) . This means that the teachers in all the levels of qualification had common positive perceptions regarding the effectiveness of online lesson planning in supporting teaching practices, facilitating lesson delivery, and classroom management.

Table No 5: ANOVA test to determine the average of responses of teachers to Online Lesson Planning based on Categories of Teacher Responses.

Online Lesson Planning	N	M	Std.	Minimum	Maximum	Df	F	Sig.
Less	62	36.48	11.401	16	83	2	3.221	0.042
Moderate	104	37.14	9.394	16	64	188		
High	25	40.60	7.280	16	44	190		
Total	191	37.20	9.978	16	83			

Table 5 represents the average scores of teachers according to their degree of involvement in the online lesson planning. The teachers who scored highest were those with High Online Lesson Planning (M = 40.60, SD = 7.28), then there were teachers with Moderate Online Lesson Planning (M = 37.14, SD = 9.39) and with Low Online Lesson Planning (M = 36.48, SD = 11.40). The outcome of the ANOVA (F = 3.221, P = 0.042) shows the statistically significant difference (P = 0.05) between the three groups. It implies that, teachers that are more involved in the online lesson planning are more effective in lesson planning and delivery. Moreover, it emphasizes that the use of technology in lesson planning contributes to the positive effect on teaching performance and increase the access to education, since every student will have access to the well-structured and consistent lessons, without references to their location in the school.

4. Discussion

The study results show that Online Lesson Planning (OLP) can be a useful tool of teachers working in PEF schools, specifically in rural regions. Teachers cited that OLP has assisted them to plan their lessons in an orderly way, utilize instructional time in an effective manner and present curriculum contents in a systematic way. Interactive strategy and the use of real-life examples make students more engaged and stimulates critical thinking (Oad et al., 2024). Although teachers had to cope with some difficulties in terms of time, lack of online materials, and infrastructures, OLP was considered useful in enhancing teaching and classroom management.

Moreover, the research has found out that the effectiveness of OLP is independent of gender, school type and teacher qualification. This indicates that the online resource can be customized and accommodate educators who may have different backgrounds and experiences. The greater the involvement of teachers in OLP, the more effective was the preparation of the lesson and teaching performance, which emphasizes that the regularity of working with digital lesson planning has a positive impact on teaching (Ahmad, Sewani, & Fatima, 2025; Ahmad et al., 2024). The findings are consistent with global literature, which

focuses on how structured digital lesson planning can increase teacher efficiency, support interactive learning, and access quality education in underserved regions.

5. Conclusion

To sum up, Online Lesson Planning can be considered as the effective initiative in facilitating the instructional practices of teachers in the PEF schools. It does not only assist in planning lessons and classroom management but also leads to fair access to education due to structured and uniform teaching resources. The researchers confirm that the benefits of OLP are not contingent on the gender, qualification, or the type of school of teachers, which justifies its relevance to both rural and urban environments as a scaled intervention. Overall, OLP will turn the process of teaching more efficient, motivate students to be more engaged, and become an inalienable tool in bridging the educational gap, particularly in the rural Punjab where the resources are limited.

5.1 Recommendations

The items of the study are followed by their recommendations:

- Teacher training to enhance OLP/digital proficiency.
- Enhance online access to lesson resources and digital learning.
- Give time management ideas on how to balance teaching, assessment, and
- reinforcement.
- Promote active OLP use to increase the quality of teaching and student learning.
- outcomes.
- Introduce monitoring and feedback to enhance lesson planning.
- effectiveness.
- Provide equal access to digital tools in unserved and rural schools.
- Promote collaboration among teachers to share best practices and innovative
- strategies.

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