

Original Research

Teachers' Usage and Perceived Content Quality of India's DIKSHA e-Learning Platform: Evidence from a National Survey

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Article Info

Article history:

Received 12 18, 2025

Revised 02 17, 2026

Accepted 05 28, 2026

Keywords:

E-learning

DIKSHA

E-courses

NISHTHA

Educational technology

ABSTRACT

DIKSHA, India's largest government-run, multilingual e-learning platform for school education, provides free access to curriculum-aligned instructional content (e-content) and professional development courses (e-courses) for teachers. This study examines the usage and acceptance of DIKSHA based on a survey of 274 teachers from both government and private schools in India. A comparative assessment of engagement with e-content and e-courses was done by analyzing responses across school management types (government/private), locations (rural/urban), and teaching stages. Data were collected using a questionnaire developed based on the Teaching e-Learning Attitude Related Test (TeLRA) scale and the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Results indicate teachers' general preference to use the platform in school settings. Government school teachers, particularly in rural areas, report higher use of DIKSHA for classroom teaching and lesson planning, while private school teachers engaged more with capacity-building courses. There is a moderate positive correlation between frequency of the platform use and utilisation of both e-content and e-courses. NISHTHA, the flagship teacher training program plays a pivotal role in adoption of the platform among teachers. These findings indicate the need for differentiated content strategies for teachers from different school types, locality, etc. A targeted outreach to government schools for professional development courses and a similar outreach to private schools for classroom use may further enhance the adoption of the platform. These findings will also inform evidence-based UI/UX enhancements and feature designs.

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1. INTRODUCTION

Many countries still find it difficult to allocate the necessary budgetary resources required for ensuring quality schooling for their citizens (Shaturaev, 2022). The global south, in particular, is struggling with key requirements like recruiting quality teachers and building sufficient classrooms. Providing learning resources in digital format can help address issues of inclusive and widespread access to quality learning, to some extent (Wilkens et al., 2021). It is considered that technology can bring a level playing field to learners from diverse backgrounds and located at different geographical locations by providing equal opportunities (Aruleba & Jere, 2022).

Since the turn of the 21st century, India has been making steady progress in achieving its goal of ensuring primary education for all citizens, and digital initiatives in education are helping the cause (Singh et al., 2021). Online and digital modes of education gained prominence in India from the second decade of the twenty-first century. This decade saw the emergence of various e-learning platforms in India. The National Council of Educational Research and Training (NCERT), under the aegis of the Ministry of Education, GoI, introduced educational platforms like E-Pathshala (2015), SWAYAM (2016), and DIKSHA (2017) for school students. However, it was the COVID-19 pandemic that gave an impetus to the rapid adoption and integration of the online mode in the formal education system. Most governments used digital education as a backup response to ensure learning continuity at all levels of education (Martin & Ramos, 2022; Lennox et al., 2021; Selim, 2020; UNESCO, 2015).

The UNESCO Ljubljana OER Action Plan 2017 (OER, 2017) encourages and urges governments to promote the development, use, and adoption of Open Education Resources (OER). One such OER platform in India is DIKSHA (Digital Infrastructure for Knowledge Sharing). It is India's national platform for school education (DIKSHA, 2017), developed and maintained by the NCERT. Over the Internet, one can access a plethora of learning resources from DIKSHA aligned to different school boards. The platform is accessed by students and teachers across the country and currently houses learning resources in 38 languages. DIKSHA is designed as a multi-tenant platform, meaning each State has the liberty to tailor and run courses and disseminate learning materials aligned to their curricula. Thanks to various interventions at both the national and state levels, DIKSHA has become a repository for a large number of e-Contents (350,000) like audio, video, text, quizzes, simulations, and other interactive formats. Besides this, there are various courses available in DIKSHA for the continuous professional development of teachers. The COVID-19 pandemic caused a surge in the usage of DIKSHA. Since 2020, the platform has seen a cumulative usage of more than 5.45 billion learning sessions spanning more than 63 billion minutes.

While DIKSHA has a large repository of resources and, given its large-scale adoption, less is known about how teachers actually engage with the platform in their teaching practices and what they think about the quality and usefulness of the content. It is also not clear whether usage of the platform varies between private and government schools or between schools located in rural and urban localities. Knowing these in finer detail is critical for a national platform like DIKSHA to align its strategies with actual user needs and their challenges. These findings can be useful in bringing the required e-contents and e-courses on the platform, as well as planning appropriate outreach strategies.

For this, the present study relies on well-known technology adoption frameworks like the Teaching e-Learning Attitude Related Test (TeLRA) scale and the Unified Theory of Acceptance and Use of Technology (UTAUT) to find out teachers' engagement with DIKSHA in terms of usage frequency, teachers' perceived usefulness and content quality, in different school settings.

By analyzing the collected data, the study addresses the following specific research questions:

- RQ1. How do teachers use DIKSHA in the classroom and for their own professional development, and how frequently do they access e-content and e-courses available on the platform?
- RQ2. How do teachers perceive the usefulness and quality of DIKSHA's e-contents and e-courses?
- RQ3. Do usage patterns, perceived usefulness, and perceived content quality vary across school management types (government/private), locations (rural/urban), and teaching stages?

Answers to these may help in provisioning infrastructure, improving user experience, and improving learning outcomes overall.

2. LITERATURE REVIEW

The success of e-learning, to a great extent, is influenced by teachers' attitudes (Kisanga & Ireson, 2016; van Raaij & Schepers, 2008), which in turn affect students' attitudes towards e-learning (Kisanga & Ireson, 2016; Pynoo et al., 2012). Different scales have been developed to measure the attitude of teachers and students towards the adoption of e-learning (Bertea, 2009; Ejdy, 2021). To some extent, these scales are helpful in identifying the factors that impact the attitude of teachers and students towards e-learning. One such scale to evaluate the attitude of teachers towards e-learning in higher learning institutions is known as Testing e-Learning Related Attitude (Kisanga & Ireson, 2016), or TeLRA, in short. It is based on Davis's Technology Acceptance Model (Davis, 1986), which takes into account external variables, teachers' perceived usefulness, teachers' perceived ease of use and teachers' attitude towards e-learning (Figure 1).

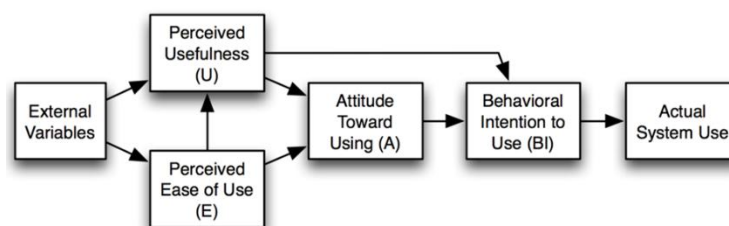


Figure 1: TAM Model (Davis et al., 1986).

Researchers in the field of e-learning have identified significant factors that impact students' satisfaction (DeLone & McLean, 1992; Lee, 2010; Sun et al., 2008; Teo & Wong, 2013). There is a positive relation between learners' perceived usefulness and their level of satisfaction with e-learning (Sun et al., 2008). Learners spent more time in learning activities through e-learning mode when they found an e-learning system to be user-friendly (Lee, 2010), thereby leading to increased satisfaction. It is also concluded that the method of course delivery had an important bearing on students' perception of usefulness (Shen et al., 2006). Sun et. al (2008) identified perceived ease of use and usefulness as crucial factors among educators. Similar observations were made by others (Arbaugh & Duray, 2002; Kim & Lee, 2011). Another study (Teo & Wong, 2013) concluded that while facilitating conditions do not have a direct impact on satisfaction, there was an indirect effect through perceived ease of use. According to them, four factors - perceived ease of use, course delivery, perceived usefulness, and task quality - directly impact satisfaction. These findings provide cues to consider perceived quality of resources and usage as important factors while studying engagement with national e-learning platforms.

In the Indian context, some of the important research studies have examined the adoption and impact of DIKSHA. The Digital Education Index for Developing Countries (DEIFDC) (Martín & Ramos, 2022) evaluated the implementation of digital education at foundational, preparatory, and middle stages by considering nine variables organized into three categories. The score for India was 0.596, which indicates insufficient digital education adoption/implementation. However, the study highlighted that utilization of DIKSHA as a platform for educational resources, pedagogy, and professional development has provided some positive and valuable insights regarding the platform's adoption and integration in learning and pedagogy by stakeholders and its effectiveness on the teaching and learning process. Kumar and Kumari (2023) evaluated the utility and effectiveness of DIKSHA in enhancing pedagogy and professional growth among secondary school teachers. The findings indicated satisfactory utilization of both teaching content and capacity-building courses, highlighting a preference for DIKSHA as a teaching-learning platform for continuous professional development. Further, it was observed that the platform was predominantly used by male teachers and skewed towards those in urban areas. The study conducted by K. Ghosh (2022) focused on assessing the use and influence of DIKSHA in English language teaching in central government-run schools called 'Kendriya Vidyalayas'. DIKSHA's popularity among English teachers was evident, with over eighty percent of respondents reporting its use in their classroom teaching. Additionally, teachers considered the platform highly beneficial for their professional development. Videos and PDF notes emerged as the most preferred teaching-learning resources. The study also demonstrated a positive effect on students' learning outcomes, evidenced by improved test scores following the utilization of DIKSHA. These studies have provided insights into the extent of acceptance and integration of DIKSHA by stakeholders. The findings underscore DIKSHA's significance in teachers' professional growth and its effectiveness in classroom instruction.

Together, these studies show that teachers' attitudes, perceived usefulness and ease of use influence the adoption of e-learning platforms. Existing research on DIKSHA cited above mainly shows positive adoption and mentions the role of DIKSHA in supporting classroom teaching and teacher professional development. However, the majority of the reported studies focus on subjects, regions, or user groups, and do not compare usage across school management types, rural-urban contexts, and school stages together. There are very few works that have examined how frequency of use, perceived quality of resources, and usage are related. This study addresses these gaps by considering these factors together using the TeLRA/TAM and UTAUT frameworks.

3. METHODOLOGY

Items prepared to study the usage pattern of DIKSHA were designed based on the established frameworks and scales. Specifically, items from the 'Teaching e-Learning Attitude Related Test' scale (Kisanga & Ireson, 2016) and the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Marikeyan & Papagiannidis, 2023; Venkatesh et al., 2003) were referred to. Additionally, rating scales were

used in some items to capture nuanced responses from participants. Two questionnaires - one for teachers and one for students were designed. Apart from demographic variables, the questionnaire for teachers had 11 objective-type questions, and those for students had 8 objective-type questions.

Data for this research were collected from students and teachers of grades 6-12. The respondents were from both government and private schools located across different parts of India. The survey was conducted in online mode over a period of three weeks in February 2024. The survey was created using Google Forms, and the link was shared with the respective users over the Internet. Respondents were selected using convenience and snowball sampling techniques. In order to ensure the quality and authenticity of the data, the survey link was shared with only those teachers and students who declared using the DIKSHA platform to some extent. A total of 274 teachers took part in the survey. The demographic variables included respondents' school management category (government or private), locality of the school (rural or urban), and school stage (grades 6-8, 9-10, or 11-12) in which they teach.

Table 1. Demographic details of the respondents

Respondent type: teacher (n=274)			
Characteristic	Category	Frequency	Percentage
School management	government	135	49.3%
	private	139	50.7%
School locality	Rural	136	49.6%
	urban	138	50.4%
Respondent type: student (n=478)			
Characteristic	Category	Frequency	Percentage
School management	government	72	14.7%
	private	333	69.7%
School locality	Rural	145	30.3%
	urban	408	85.3%

In order to conduct a more comprehensive analysis, schools were classified into two categories: government schools and private schools. The locality of schools was classified into two categories: rural and urban. This approach of classification is used for the analysis of the engagement of users with the DIKSHA platform and their experiences from the viewpoints of school administration and locality (which are also the independent variables in this study), thereby enabling the extraction of insightful findings.

4. RESULTS AND DISCUSSION

As mentioned earlier, DIKSHA contains e-contents aligned to school books. Teachers can either use those contents in their classroom or refer to them while preparing their lesson plans. The platform is also used to deliver various courses aimed at teachers' professional development. This section is a comprehensive analysis and interpretation of the responses collected from teachers on their engagement with the DIKSHA platform. It includes the study of important parameters and dimensions pertaining to the usage of DIKSHA by teachers.

4.1. Usage preference

4.1.1. App vs Website preference

Figure 2 shows the distribution (in %) of users and their preferred interface based on the school management type and locality type. The pattern indicates that teachers primarily access DIKSHA through mobile devices, highlighting the importance of a mobile-first approach to future enhancements for sustained platform use.

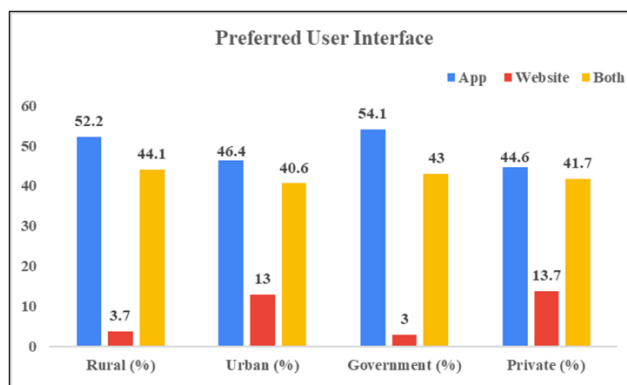


Figure 2. Distribution of user type by school locality and management type

4.1.2. At school or home?

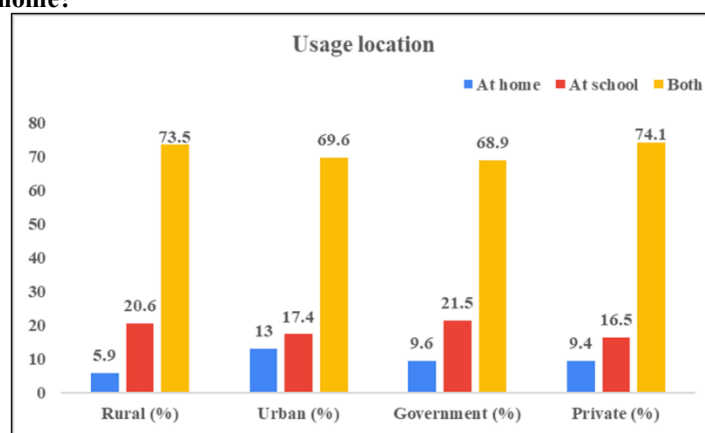


Figure 3. Comparative distribution of teachers utilizing DIKSHA from different locations

On the question of whether they use DIKSHA at school or at home, [Figure 3](#) shows a detailed distribution of users based on location and school type. The distribution suggests that DIKSHA is being used not only for lesson preparation and teachers' professional development but also during classroom transactions, indicating holistic integration.

These findings indicate that ease of access through a mobile phone and the availability of ICT devices in schools may be facilitating regular use of the platform. This aligns with the UTAUT principle of expected effort and suitable conditions influencing technology adoption.

4.2 Teaching material utilization patterns

Teaching materials are of great importance in shaping the learners' experiences. DIKSHA contains e-contents in different formats like text, audio, video, and other interactive formats. Finding teachers' engagement with various resources available in DIKSHA is essential for enhancing educational outcomes. Such findings can help in understanding teachers' preferences for different types of resources. [Figure 4](#) shows detailed preferences for resources on DIKSHA by teachers belonging to government and private schools. The preference for video and audio resources suggests that teachers favor formats that are easily presentable in the classroom through smartboards and help learners visualize concepts.

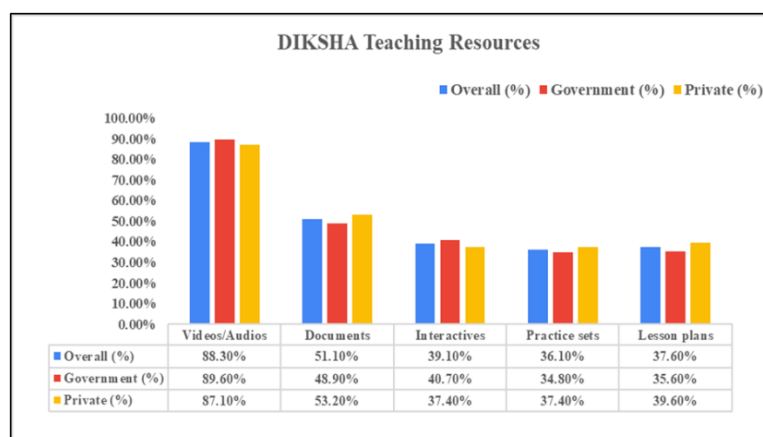


Figure 4. Distribution of resource (content) utilisation by teachers

These preferences show that teachers prefer to use resources that directly support classroom teaching and student engagement. This pattern is consistent with the Technology Acceptance Model underlying the TeLRA scale, in which teachers' perceived usefulness of a resource format is shaped by how directly it maps onto an existing classroom task, in this case, delivery through a smartboard. It also echoes prior e-learning research showing that user-friendly, easily deployable formats increase engagement and satisfaction (Lee, 2010; Sun et al., 2008), and that the method of content delivery has an important bearing on perceived usefulness (Teo & Wong, 2013). The comparatively lower reported preference for text-based or interactive formats suggests that, unlike video and audio, these may require additional preparation time or

technical familiarity before they translate into classroom-ready use, a possible avenue for future investigation.

4.3 A Comparative Analysis of DIKSHA Usage

In order to assess the quality and usefulness of e-contents (including courses) available in DIKSHA, five statements were designed to collect the perceived usefulness of teachers using a three-point likert scale, as detailed in Table 2.

Table 2. Perceived usefulness by teachers

Question	Purpose of use	Frequency, n=478		
		Very helpful	Somewhat helpful	Not so helpful
How do you find the content and courses on DIKSHA for the following	Explaining concepts in class	216	55	3
	Preparing lesson plan/ getting ideas or examples	190	80	4
	Sharing content links (practice sets, quizzes, etc.) with learners	196	71	7
	Own professional development through the NISHTHA courses	186	81	7
	Courses/training programs other than NISHTHA	185	82	7

Internal consistency of these variables was evaluated using Cronbach's alpha to ensure coherence and robustness. A Cronbach alpha coefficient of 0.8405 was obtained, indicating a significant degree of internal consistency among the items. This particularly highlights the dependability of our measuring tool in obtaining and presenting insightful observations regarding the utilisation patterns of the DIKSHA platform by teachers.

4.3.1 Perceived usefulness for government and private school teachers

Hypotheses 1:

H0: There is no variation in adoption, integration, and perceived usefulness of the DIKSHA platform between government and private school teachers, or between rural and urban school teachers

Since the platform is freely available for all teachers, irrespective of their school management type, the above hypothesis was formed to identify if there is any significant variation in adoption, integration and perceived usefulness of the DIKSHA platform between government and private school teachers or between rural and urban school teachers. For this kind of non-parametric multivariate test, the Kruskal-Wallis H Test was performed for each use case.

Kruskal-Wallis H Test - the test was conducted to evaluate the differences in perceived usefulness ratings of the contents and courses available in DIKSHA for different purposes. The result of the test is given in Table 3.

Table 3. Results of Kruskal-Wallis rank sum tests with $n = 274$, $df = 3$

S. No	Purpose of use	Kruskal-Wallis chi-squared	p-value	Conclusion at significance level 0.05
1	How helpful are the contents of DIKSHA for - Explaining concepts in class	2.116	0.5487	null hypothesis is not rejected
2	How helpful are the contents of DIKSHA for - Preparing lesson plan	9.0078	0.02919	null hypothesis is rejected.
3	How helpful are the contents of DIKSHA for - Sharing content links (practice sets, quizzes, etc.) with learners	7.5004	0.05755	null hypothesis is not rejected
4	How helpful are the NISHTHA courses available in DIKSHA for own professional development	13.816	0.003167	null hypothesis is rejected.
5	How helpful are the other courses available in DIKSHA for own professional development	6.909	0.07486	null hypothesis is not rejected

The result of the Kruskal-Wallis test for the statements at S.No.2 "How helpful are the contents of DIKSHA for - Preparing lesson plan" and the statement at S.No.4 "How helpful are the NISHTHA courses available in DIKSHA for own professional development" indicates that the perceived usefulness ratings differed significantly across the different groups. To identify which specific groups differ from each other, we performed Post-hoc analysis using Dunn's test with Bonferroni correction.

Table 4. Results of Dunn's test with Bonferroni correction

S. No.	Comparison	Z	P.unadj	P.adj
1	Rural.Government - Rural.Private	1.767	0.077	0.462
2	Rural.Government - Urban.Government	1.579	0.114	0.685
3	Rural.Private - Urban.Government	-0.15	0.88	1.0
4	Rural.Government - Urban.Private	2.913	0.003	0.021
5	Rural.Private - Urban.Private	0.56	0.575	1.0
6	Urban.Government - Urban.Private	0.731	0.464	1.0

Post-hoc comparisons using Dunn's test with Bonferroni correction indicated that the perceived usefulness ratings were significantly higher in the group Rural. Government compared to the group Urban. Private and Rural.Private. No other significant differences were found between the other groups. This finding indicates that teachers from government-managed schools in rural areas find DIKSHA content more useful for preparing lesson plans.

These findings show that perceived usefulness varies. This may be due to differences in school system support and exposure to the platform. The higher perceived usefulness by government school teachers in rural areas may be due to ecosystem-level support at blocks and clusters, as well as focused training programs like NISHTHA, further encouraging adoption.

This result adds nuance to earlier accounts of DIKSHA's diffusion. Kumar and Kumari (2023) reported that DIKSHA usage for professional development skewed toward urban and male teachers, which might suggest that urban government teachers, rather than their rural counterparts, would report the highest perceived usefulness. The present sample instead shows rural government teachers rating lesson-planning content most useful, a pattern better explained through the UTAUT constructs of facilitating conditions and social influence: block- and cluster-level academic support structures, together with peer- and NISHTHA-driven encouragement, may offset the connectivity and device constraints typically associated with rural settings. This divergence from Kumar & Kumari (2023) suggests that the effect of locality on adoption may depend on the specific administrative support ecosystem in place rather than on locality alone, a distinction that merits further comparative study across states with differing levels of block/cluster support.

4.3.2. Frequency of use and perceived quality of contents and courses

The respondents were also asked to rate the quality of contents and courses on DIKSHA on a 3-point scale - Good, Average, Poor. Initial observations (mode/frequency) indicated that almost all the teachers who took part in the survey frequently utilised DIKSHA for both teaching and training purposes. To identify if there is any significant variation in perceived quality of content and courses available in DIKSHA platform between government and private school teachers, an unpaired, two-tailed t-test was performed between the teachers of government and private schools.

Table 5. t-test result of the variables for comparative analysis [Government school teachers (N) = 135
Private school teachers (N) = 139]

S.no	Variable	p-value	Mean difference (Govt. minus Private)	95% CI (Lower limit)	95% CI (Upper limit)	t-value
1	Frequency of use	0.0490	0.38	0.00	0.76	1.9775
2	Quality of curriculum-based content	0.2477	0.12	-0.08	0.32	1.1584
3	Quality of training courses	0.0177	0.25	0.04	0.46	2.3864

The results indicate that government school teachers showed greater frequency in using the platform in comparison to private school teachers. These differences may be due to variations in exposure to the platform across school contexts. More interaction with training programmes and institutional initiatives may lead to higher engagement and perceived usefulness. Regarding quality of curriculum-based content, no significant difference in perception is observed between the two groups. However, as shown in Table 5, between the two groups, government school teachers perceive the quality of training courses to be good.

The higher usage frequency reported by government school teachers is broadly consistent with K. Ghosh (2022), who found that over eighty percent of teachers in central government schools used DIKSHA in classroom teaching and considered it beneficial for professional development. Read alongside the TeLRA/TAM framework, the absence of a significant difference in perceived curriculum-content quality, despite the frequency gap, suggests that the content itself is not the primary differentiator between the two groups; rather, the institutional embedding of DIKSHA within government teachers' routine professional development, through NISHTHA, appears to be the main driver of use, consistent with the facilitating-conditions construct of UTAUT (Venkatesh et al., 2003).

4.3.3. Teachers' Adoption of DIKSHA - A Correlation Analysis

The results of the t-test in Table 5 indicate that government school teachers use DIKSHA more than private school teachers. However, in order to identify the underlying parameter(s) which primarily encouraged teachers to engage with the DIKSHA platform, Pearson's correlation coefficient was calculated. This statistical tool helps in assessing the linear relationship between the frequency of use as a constant variable and five other variables (which are explaining concepts in class, preparing lesson plans, sharing content links with learners, NISHTHA courses, and courses other than NISHTHA)

Table 6. Pearson's correlation between frequency and parameters that influence engagement with DIKSHA for private school teachers

S. no	Variable	Private school teachers		Government school teachers	
		r	p	r	p
1	Explaining concepts in class	0.297	0.000	0.408	0.000000107364116
2	Preparing lesson plans, getting ideas, examples for classroom teaching	0.217	0.0000002600	0.233	0.0000003439909013
3	Sharing content with learners	0.280	0.0000000992	0.287	0.0000004364716629
4	Quality of NISHTHA courses	0.343	0.0000030990	0.277	0.0000001
5	Quality of courses other than NISHTHA	0.331	0.0000001651	0.277	0.00004201719667

Pearson's correlation coefficient and p-value for each variable and frequency of use were calculated. The results indicate a notable difference in the usage patterns between the two groups. Pearson's r values for private school teachers showed moderate positive correlations between the frequency of engagement with the DIKSHA platform and utilisation of DIKSHA content and courses. These correlations range from 0.217 to 0.343, all with p-values below 0.001. The results of this study indicate that Pearson's correlation coefficient exhibits a relatively higher value for teacher training courses and programmes compared to teaching content. Particularly, NISHTHA courses showed a significant relation with overall engagement with DIKSHA platform.

Similar to the findings from private school teachers, Pearson's r values for government school teachers also show moderate positive correlations between the frequency of engagement with the DIKSHA platform and utilisation of DIKSHA content and courses. However, they showed a relatively pronounced relation between the frequency of engagement with the DIKSHA platform and the utilisation of content and courses available on it, as indicated by Pearson's r values ranging from 0.233 to 0.408. All of these correlations had a p-value below 0.001, except for NISHTHA courses, where the p-value is 1. The results underline that the r value is relatively higher for teaching content in comparison to teacher training courses and programmes. It is noted that DIKSHA is used more for classroom teaching by government school teachers.

The findings highlighted that a difference in the utilisation of DIKSHA teaching content and training courses can be noted between teachers in government and private schools.

- Government school teachers utilise DIKSHA content for teaching more frequently than their counterparts in private schools. It could be because of a lack of awareness about DIKSHA among private school teachers. Another reason could be that private school teachers have access to other e-content repositories, apart from DIKSHA.
- Private school teachers use DIKSHA more for consuming courses targeted towards capacity building programmes. This could be because of the mandate of fifty hours of compulsory training for in-service teachers every year from the Central Board of Secondary Education CBSE, which caters largely to private schools.

4.4. Does the perception vary for teachers teaching at different school stages?

Comparative analysis, based on the school stages taught by teachers, was also performed on the aforementioned nine variables to find any underlying trend in DIKSHA usage. Teachers teaching in school grades 6-12 were divided into the following five distinct groups: middle stage only (grades 6-8), middle and secondary stage I (grades 6-8 and 9-10), secondary stage I only (grades 9-10), secondary stage I and secondary stage II (grades 9-12), and secondary stage II only (grades 11-12).

Hypotheses 2:

H0: There is no difference in adoption, integration and perceived usefulness of DIKSHA platform among teachers teaching at different school stages

Table 7. ANOVA Results: DIKSHA Usage by School Stage

Variable	F(4,269)	p	η^2
Frequency of use	1.40	.234	.020
Explaining concepts	0.55	.701	.008
Preparing lessons	0.96	.430	.014
Sharing with learners	1.64	.165	.024
Sharing with parents	1.69	.152	.024
NISHTHA courses	1.19	.315	.017
Other courses	1.47	.212	.021
Content quality	0.64	.637	.009
Training quality	3.23	.013*	.046

Note. N = 274 (Middle only = 114, Middle & Sec I = 58, Sec I only = 49, Sec I & II = 21, Sec II only = 32). $p < .05$.

A one-way ANOVA revealed a significant difference in perceived quality of training courses across school stages, $F(4, 269) = 3.23$, $p = .013$, $\eta^2 = .046$. Post-hoc comparisons showed that teachers at Middle only ($M = 4.74$, $SD = 0.73$) rated training quality higher than those at Secondary Stage I only ($M = 4.22$, $SD = 1.21$).

This finding suggests that the perceived value of DIKSHA's training courses is not uniform across the teaching career span, but tapers somewhat as teachers move from the middle to the secondary stage I. One plausible explanation, consistent with the TAM construct of task-content fit, is that as subject specialisation increases at the secondary stage, general-purpose professional-development courses are perceived as less closely aligned with teachers' immediate classroom needs, echoing Teo & Wong's (2013) finding that task quality is a direct predictor of e-learning satisfaction. The small effect size ($\eta^2 = .046$), however, indicates that school stage explains only a modest share of the variation in perceived training quality, and the absence of significant differences on the remaining eight variables suggests that, in this sample, adoption and perceived usefulness of DIKSHA are relatively stable across grade levels; school management type and locality (Sections 4.3.1–4.3.2) appear to be more consequential differentiators of usage than teaching stage.

4.5. Usage & awareness of DIKSHA features

There was a set of questions aimed at checking the level of awareness of teachers regarding the availability of different features in the DIKSHA platform. These features include 'content downloading' and advanced searching of content, such as by type, by ratings, by category, by tenants, etc., aimed at enhancing the accessibility of DIKSHA.

- Overall, it was noted that 58% of the respondents were aware of or utilised the 'content download' option, making it the most popular or frequently used feature on DIKSHA. This was followed by joyful/classic mode (31.8%), my groups (31%), discussion forum (27.4%), and accessibility features (27%).
- As shown in Figure 6, Government school teachers reported a higher utilisation and awareness of the content download option (42.2%), followed by both my groups and joyful/classic mode (28.9%), accessibility features (26.7%), and discussion forum (11.9%).
- Similar to government school teachers, private school teachers also reported higher utilisation/awareness of the content download function (73.4%), followed by the discussion forum (42.4%), the joyful/classic mode (34.5%), my groups (33.1%) and accessibility features (27.3%).
- It is noted that the feature, which allows interaction/communication of teachers with their students, is the second most widely used feature/ or a feature which teachers are aware of. Though government school teachers reported to use/ be aware of my group feature, private school teachers indicated the same for discussion forums.

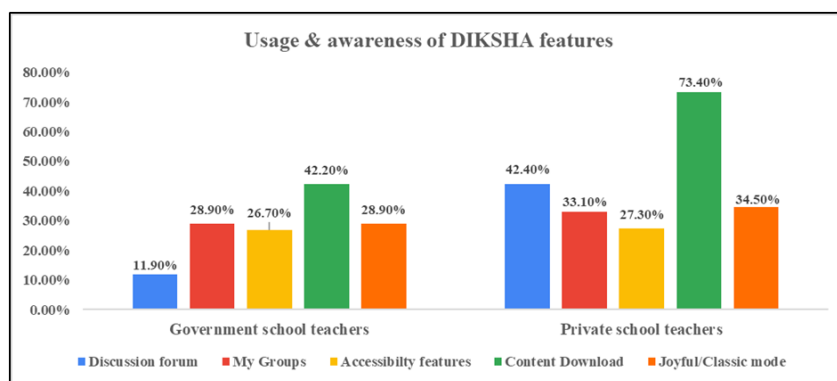


Figure 5: Percentage of teachers using the available features on DIKSHA

These usage patterns can be interpreted through the effort-expectancy and perceived-ease-of-use constructs of TAM/UTAUT: content download is a low-effort, one-time action that supports offline, asynchronous use, which likely explains its dominance over interactive features such as the discussion forum or accessibility tools. The comparatively higher uptake of the discussion forum among private school teachers, relative to their government counterparts, may again reflect the more frequent course-based professional-development engagement of private school teachers noted in Section 4.3.3, since discussion forums are typically embedded within course interfaces. The relatively low awareness of accessibility features (27%) across both groups is a notable gap given the platform's inclusive-education mandate, and suggests that awareness-building, rather than feature redesign alone, may be the more immediate lever for improving equitable access.

4.6. User-reported challenges in DIKSHA

While assessing the use of the DIKSHA platform by stakeholders, it is equally important to take into account any challenge faced by them in order to enhance the platform's usability and effectiveness. Participants were asked for four possible challenges they might have encountered while using the DIKSHA platform. Additionally, they were given the option to select 'No challenges' if they had not faced any issues. Responses recorded for this item/question are shown in Table 8.

Table 8. User (in %) challenge metrics

S.no	Challenges faced by users while accessing DIKSHA	Overall	Urban	Rural	Government	Private
1	Device compatibility issues	12.0	10.9	13.2	11.1	12.9
2	Login/registration related issues	10.2	8.0	12.5	11.9	8.6
3	Navigating/exploring the platform	2.9	2.2	3.7	3.7	2.2
4	Content Loading related	32.1	34.1	30.1	28.9	35.3
5	No challenges	42.7	44.9	40.4	44.4	41.0

The challenges related to DIKSHA were assessed from the perspective of users' school management and locality. Notably, more than 40% of the users reported not having faced any challenges in using DIKSHA. This aligns with the positive rating in terms of user-friendliness of the platform as approximately 72% of users rated DIKSHA as good, while 26% of users rated it as average and a small group (approximately 2%) expressed dissatisfaction by rating it as poor.

A considerable percentage of users reported content loading challenges (approximately 30%), which primarily may be due to lack of high-speed Internet needed at the user end to load high-resolution video and multimedia contents. However, this needs further assessment and subsequent action to minimise this problem. Similarly, device compatibility (issue reported by approximately 12% respondents) can also be improved to address user concerns.

4.7. Understanding User Preferences: Future enhancements for DIKSHA

The integration of new technologies and improvement to existing ones is imperative for the educational ecosystem of the 21st century and for the benefit of stakeholders, resulting in more significant outcomes. Therefore, alongside studying the usage trends of the DIKSHA platform, this study also tried to explore and understand user preferences pertaining to prospective improvements that could be made for a better user experience.

In order to explore and understand user preferences regarding the potential enhancements to DIKSHA, respondents were given six features as options, in alignment with the recommendations and

suggestions of the National Education Policy, 2020. The following were the features mentioned in the survey questionnaire:

- Mechanism to conduct live online sessions
- AI-based suggestions of learning resources and learning paths
- Credit-based courses
- Automated assessment
- Feedback mechanism
- Integration of generative AI

Table 10 shows the percentage of respondents and their preference for new features they would like to have on the DIKSHA platform in future.

Table 9. Preference of users (in %) regarding new features on DIKSHA

S.no	Features	Overall (%)	Government (%)	Private (%)
1	Mechanism to conduct live online sessions	58.4	67.4	49.6
2	AI-based suggestions	62.8	66.7	59.0
3	Credit-based courses	31.0	30.4	31.7
4	Automated assessment	30.2	30.4	30.2
5	Feedback mechanism	20.4	23.0	18.0
6	Integration of generative AI	32.5	25.9	38.8

Overall analysis highlighted the following three features that users would want to have on this platform.

- (a) AI-based suggestions: 62.8% of the respondents expressed an interest for AI-driven recommendations to be included as a feature on DIKSHA. This underlines the increasing significance and necessity that users feel for more curated and tailored recommendations in order to enhance their experience.
- (b) Mechanism to conduct live online sessions: 58.4% of the respondents have indicated their preference for a feature that allows them to facilitate live online sessions on DIKSHA.
- (c) Integration of generative AI: comparatively less than the above two features, 32.5% of the respondents indicated a desire for integration of generative AI on DIKSHA, making this feature the third most preferred choice.

In general, the responses highlighted interest in and preference for features that facilitate live sessions and incorporate AI-driven features for enhanced user experiences. A substantial percentage of users' preference (both government and private school teachers) for a feature that allows real-time interaction, in a way, aligns with the often-used but non-synchronous features on DIKSHA, which are 'My Group' and 'Discussion Forum' that allow (limited) interaction/engagement with students by teachers.

5. CONCLUSION

In this study, we investigated how teachers used the e-learning platform DIKSHA for educational purposes and the factors influencing their acceptance and usage of its contents. The analysis revealed variations in how e-contents and e-courses were accessed by teachers across different school systems, including government and private schools, rural and urban areas, and various school grades.

Our findings indicate that, overall, teachers in government-run schools use the platform more extensively than those in private schools. Specifically, government school teachers in rural areas found DIKSHA content particularly useful for preparing lesson plans. Furthermore, these teachers more frequently utilized e-contents for teaching-learning purposes compared to their counterparts in private schools. In contrast, private school teachers were more inclined to engage with the e-courses on DIKSHA, which are designed for capacity-building programs, than teachers in government schools. A moderate positive correlation was observed between the frequency of platform use and the utilization of both e-content and e-courses, with the NISHTHA training program playing an important role in platform adoption. Teachers gave strong preferences for AI-based content recommendations (62.8%) and live online video class capabilities (58.4%) as major future enhancements.

These insights can help improve the DIKSHA platform by tailoring its user interface, content packaging, and resource allocation to better meet the needs of different user groups. Additionally, understanding these usage patterns and preferences can inform the design and implementation of more effective e-learning platforms for school education.

6. LIMITATIONS AND WAY FORWARD

This study has the following limitations: First, the choice of convenience and snowball sampling limits the generalizability of findings, as the sample was restricted to teachers who were already DIKSHA

users, excluding perspectives of non-users or those with limited digital access. Second, the study relied on self-reported data by teachers, which is prone to bias, recall errors, and subjectivity. Third, the study did not check the actual impact on learning outcomes or correlate platform usage with student performance metrics, thus limiting the understanding of DIKSHA's effectiveness beyond perceived usefulness.

A longitudinal study on tracking teachers' DIKSHA usage over multiple academic years could give a better picture of adoption, engagement patterns, as well as the impact on students' learning. Mixed-methods approaches combining platform analytics, classroom observations, and in-depth interviews would provide insights into how teachers integrate DIKSHA in schools.

ACKNOWLEDGEMENTS

N/A.

DECLARATION OF INTEREST

The authors declare no conflicts of interest.

RESEARCH FUNDING

This research did not receive any financial support.

ETHICAL STATEMENT

This study was conducted in accordance with recognised ethical principles for research involving human participants. Participation in the survey was entirely voluntary, and respondents were informed of the purpose of the study prior to participation; completion and submission of the online questionnaire was treated as an indication of informed consent. No personally identifiable information (e.g., names, contact details, or IP addresses) was collected, and all responses were anonymised and used exclusively for the purposes of this research. Participants were free to discontinue the survey at any point without penalty. The study did not involve any experimental intervention, deception, vulnerable populations, or the collection of sensitive personal data, and it posed no more than minimal risk to participants.

AI USE STATEMENT

The authors declare that the generative artificial intelligence (AI) tool Grammarly was used exclusively for language editing and/or grammatical improvement. The use of AI did not influence the scientific content, study design, data analysis, data interpretation, results, or conclusions of the manuscript. Full responsibility for the content remains with the authors.

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