MOTIVATION TO USED APP-BASED EDUCATION FOR COMPETITIVE EXAMS IN INDIA

Anurag Mishra

MBA Hons. Student
Institute of Business & Management
GLA University, Mathura, India

Abstract: This research explores the motivations behind adopting app-based education for competitive exam preparation in India, focusing on its impact on student engagement and performance. Given the rigorous demands of exams like JEE, NEET, and UPSC, the study emphasizes the crucial role of motivation in maintaining student dedication and resilience. App-based platforms address traditional education challenges by offering interactive, flexible, and personalized learning experiences tailored to individual needs. Using a mix of primary and secondary data, the study surveyed 200 exam aspirants, examining factors such as digital literacy, time management, and app features through a 7-point Likert scale and factor analysis. The analysis identified four main motivational dimensions: peer collaboration and comparison, quality of study materials and app features, self-paced learning with multilingual support, and efficiency in exam preparation coupled with career guidance. The findings indicate that app-based education significantly improves learning outcomes, preparation efficiency, and student motivation, especially through features like mock tests, instant updates, and career guidance. The integration of technology in exam preparation is vital for modernizing education and enhancing accessibility, particularly in remote areas. Future research should delve deeper into the effectiveness of specific app features and personalized learning algorithms to further advance competitive exam preparation in India.

Keywords - **App-based Education, Competitive Exams, Multilingual Support, Digital literacy, Personalized learning Experience, Peer Comparison, Self-Paced Learning.**

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INTRODUCTION

Motivation plays a crucial role in the context of application-based education, especially when it comes to preparing for competitive exams. Competitive exams often require prolonged and consistent effort. Motivation acts as the driving force that helps individuals stay committed to their study schedules over an extended period. The preparation for competitive exams is challenging and can be mentally exhausting. Motivation becomes the mental resilience that helps candidates overcome obstacles and keep moving forward despite setbacks. Motivation helps individuals clarify their goals and understand the significance of achieving success in competitive exams. This clarity is essential for effective planning and focused efforts. A motivated mindset is generally more positive and optimistic. This positivity can enhance cognitive functions, improve problem-solving abilities, and foster a conducive environment for learning. Motivation encourages effective time management. When individuals are motivated, they tend to prioritize their tasks, allocate time efficiently, and avoid procrastination. Motivation builds resilience, helping individuals bounce back from failures or disappointments. In the competitive exam scenario, setbacks are common, and a motivated mindset helps candidates learn from failures and persevere. Leveraging app-based education can lead to improve retention, better time management, and increased motivation among students. These factors contribute to empowering success in competitive exams. The demand for app-based education is on the rise, especially for the competitive exams like JEE, NEET and UPSC. Students are seeking interactive and personalized experience through educational apps. Traditional exam preparation methods often lack personalized learnings and real time feedbacks, hindering students' engagement. Embracing app-based education can addresses these challenges and enhance learning outcomes. Mobile apps offer flexibility, accessibility and personalized learning experiences, catering to the diverse need of exams aspirants. They also provide interactive content and real-time progress tracking. The integration of technology in education is essential to adopt to the changing learning preferences of digital-native students. Embracing the app-based learning aligns with this need for modernization. Adaptive learning algorithms in educational apps cater to individuals learning styles and pace, providing a personalized learning journey for exam preparation. App-based education can bridge the gap in accessibility to quality study materials and experts career guidance, especially for the students in remote areas. This creates a more inclusive learning

environment. Educational apps enable real-time monitoring of progress, allowing students and educators to identify areas of improvement and adjust study strategies accordingly.

LITERATURE REVIEW

The literature review focuses on the motivation behind the utilization of app-based education for competitive exams in India. It underlines the importance of motivation in the realm of competitive exam preparation and explores how app-based education addresses various challenges encountered by students. Furthermore, it underscores the escalating demand for app-based learning among students gearing up for exams such as JEE, NEET, and UPSC, underscoring the necessity for personalized and interactive learning experiences.

Several references are cited to bolster the discussion:

- Bajpai, N.: This source likely delves into business research methods, potentially offering insights into the research methodology employed in the study.
- Kothari, C. R.: This book on research methodology could provide a comprehensive overview of research methods and techniques, thereby aiding in the design and execution of the study.
- Khandelwal, U., Yadav, S. K., & Kumar, Y.: The study referenced here investigates the online purchase behaviour of Indian consumers, offering potentially valuable insights into online learning preferences and behaviours.
- Sathyan, S., & K., K. P.: This case study on BYZU's Learning App during the COVID-19 outbreak may furnish pertinent information on the adoption and efficacy of app-based education in India, especially during challenging circumstances.
- Joshi, S. S.: The study discussed in this reference explores the use of social media for educational purposes, particularly in the context of competitive civil service exams. It could shed light on the role of technology in exam preparation and student engagement.

OBJECTIVES OF THE STUDY

Below is the main aim of the study-

- To investigate the factors influencing students' motivation to use application-based education for competitive exams in India.
- To assess the effectiveness of application-based learning methods in enhancing student engagement and comprehension.
- To identify the challenges and barriers faced by students and educators in integrating application-based learning into competitive exam preparation.
- To propose strategies for optimizing the implementation of application-based education to enhance motivation and performance in competitive exams in India.
- To explore the impact of application-based education on students' academic performance and exam outcomes.

RESEARCH METHODOLOGY

- **Collection of data:** This research examines both primary and secondary sources of data. The relevant data collected through structured questionnaire and respondents are mainly competitive exams aspirants. The questionnaire contained 18 questions relating to different dimensions of Motivation to used app-based education for competitive exams in India such as digital literacy, time savings, knowledge, app features, etc. and 4 demographics (Gender, Age, Use online applications for preparation of Competitive exams, Educational App you used for competitive exams) questions. Data were collected by using a 7-point Likert scale (7 means strongly agree, 6 means agree, 5 means somewhat agree, 4 means somewhat disagree, 3 means disagree, 2 means disagree, 1 means strongly disagree).
- **Sample size:** For the survey 200 questionnaires have been distributed through online in terms of Google forms. Non-Probability - Convenience sampling method targeted to all aspirants using app-based education for competitive exams. A total of 200 respondents were covered in the study hence, the analysis was confined to these respondents only.
- **Tools of analysis:** The collected data recorded, analysed and interpreted in the significant manner with the help of SPSS. The statistical tools-Factor Analysis and Likert 7point scale were used. For better understanding, analysis requires more complex analysis and hence factor analysis has been applied.

Table 1. List of statements depicting

Label	Statements
M1	Effective in enhancing learning outcomes
M2	Good study material for a competitive exam
M3	Feel confident in digital literacy skills
M4	Helps in preparing for exams efficiently
M5	Positively influences my study habits
M6	Offer features for collaborative learning
M7	Reliability of educational app crucial for academic success
M8	Peer comparison motivates to perform better academically
M9	Saves time in comparison to traditional study methods
M10	App enhances competitiveness in academics
M11	Satisfied with the features offered by educational app
M12	Influenced by social interactions within the app
M13	Provide Mock Test (Practice Test) on regular basis

M14	Cost effective with comparison to Offline Study mode
M15	The flexibility of Self-Paced learning
M16	The availability of multi-language enhances learning experiences
M17	Valuable instant updates on exam notifications
M18	Inclusion of career guidance features in educational apps

Table 2. Demographic of the Respondent

Demographics	Valid	Frequency	%	Valid %	Cumulative %
Gender	Male	99	49.5	49.5	49.5
	Female	100	50	50	99.5
	Prefer Not to Say	01	0.5	0.5	100
	Total	200	100	100	
Age	< 18 Years	22	11	11	11
	18 – 25 Years	165	82.5	82.5	93.5
	25 – 30 Years	11	5.5	5.5	99
	30+ Years	02	1	1	100
	Total	200	100	100	
Use of online applications for preparation of Competitive exams	Yes	200	100	100	100
	No	00	00	00	
	May Be	00	00	00	
	Total	200	100	100	
Educational App used for competitive exams	Un- Academy	44	22	22	22
	Drishti IAS	26	13	13	35
	BYJU'S	31	15.5	15.5	50.5
	PHYSICSWALLAH	48	24	24	74.5
	Others	51	25.5	25.5	100
	Total	200	100	100	

Table 3. Descriptive statistics

Label	Motivation to use app-based education for competitive exam	1	2	3	4	5	6	7	Mean	Std. Dev.
M1	Effective in enhancing learning outcomes	10	04	06	35	39	75	31	5.19	1.498
M2	Good study material for a competitive exam	06	08	08	31	33	71	43	5.31	1.512
M3	Feel confident in digital literacy skills	04	09	09	39	20	86	33	5.26	1.461
M4	Helps in preparing for exams efficiently	04	09	11	35	25	72	44	5.30	1.510
M5	Positively influences my study habits	09	10	08	42	36	61	34	5.03	1.593
M6	Offer features for collaborative learning	07	08	12	44	33	62	34	5.05	1.543
M7	Reliability of educational app crucial for academic success	07	10	09	44	41	65	24	4.97	1.492

M8	Peer comparison motivates to perform better academically	08	09	14	43	23	67	36	5.05	1.614
M9	Saves time in comparison to traditional study methods	05	07	12	45	29	62	40	5.16	1.509
M10	App enhances competitiveness in academics	05	10	13	35	31	71	35	5.15	1.526
M11	Satisfied with the features offered by educational app	06	08	08	36	34	74	34	5.21	1.482
M12	Influenced by social interactions within the app	08	05	15	41	34	64	33	5.06	1.536
M13	Provide Mock Test (Practice Test) on regular basis	10	03	08	39	28	65	47	5.28	1.576
M14	Cost effective with comparison to Offline Study mode	02	12	09	37	36	66	38	5.21	1.462
M15	The flexibility of Self-Paced learning	07	05	06	43	27	75	37	5.27	1.479
M16	The availability of multi-language enhances learning experiences	07	08	11	37	36	71	30	5.11	1.510
M17	Valuable instant updates on exam notifications	06	06	08	44	20	78	38	5.25	1.506
M18	Inclusion of career guidance features in educational apps	09	06	10	39	37	72	27	5.07	1.514

FACTOR ANALYSIS

For better understanding, analysis requires more complex analysis and hence factor analysis has been applied. For applying factor analysis, we have to use the KMO (Kaiser-Meyer-Oklin) for sampling adequacy and Bartlett's test of sphericity. KMO is a test conducted to examine the strength of the partial correlation (how the factors explain each other) between the variables. KMO values closer to 1.0 are consider ideal while values less than 0.5 are unacceptable. Recently, most scholars argue that a KMO of at least 0.80 are good enough for factor analysis to commence. If the value of KMO comes lesser than 0.5 than it is suggested to increase the sample size.

Table 4. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.887
Bartlett's Test of Sphericity	Approx. Chi-Square	1649.239
	df	153
	Sig.	.000

From our result, we had a KMO value of .887. This indicates that our sample size is adequate. Hence it is plausible to conduct factor analysis.

The Bartlett's test of Sphericity is used to test the null hypothesis that the correlation matrix is an identity matrix. An identity correlation matrix means your variables are unrelated and not ideal for factor analysis. A significant statistical test (usually less than 0.05) shows that the correlation matrix is indeed not an identity matrix (rejection of the null hypothesis). In simple terms, we are going to measure certain kind of a phenomena on the basis of certain variables so whether these variables are actually associated with the particular phenomena or not. So, in this particular case value is .000 that means our all variables are actually measuring the phenomena that we want to measure.

Table 5. Communalities

	Initial	Extraction
Study Materials	1,000	.740
Exam Efficiency	1,000	.753
Learning Outcomes	1,000	.641
App Features	1,000	.680
Digital Literacy Skills	1,000	.624
Study Habits	1,000	.607
Competitiveness	1,000	.534
Time Savings	1,000	.542
Academic Performance	1,000	.434
Collaborative Features	1,000	.688
Peer Comparison	1,000	.661
Social Interactions	1,000	.510
Practice Sets	1,000	.512
Cost Effective	1,000	.492
Self-Paced Learning	1,000	.737
Multi Language	1,000	.662
Updated Notifications	1,000	.654
Career Guidance	1,000	.642

Extraction Method: Principal Component Analysis.

Communalities which are actually tells about the variance individually. Higher the variance shows the higher importance of that particular variables in measuring that particular phenomena that we want to measure. Here, .753 (Exam Efficiency) shows the higher variance among all the variables and .434 (Academic Performance) shows the lower variance among all the variables. It is suggested to drop those variables whose values are lesser than 4.

Table 6. Total Variance Explained

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.378	40.987	40.987	7.378	40.987	40.987	3.700	20.553	20.553
2	1.526	8.476	49.463	1.526	8.476	49.463	2.979	16.548	37.101
3	1.188	6.600	56.063	1.188	6.600	56.063	2.467	13.707	50.808
4	1.022	5.678	61.741	1.022	5.678	61.741	1.968	10.933	61.741
5	.905	5.026	66.767						
6	.810	4.498	71.264						
7	.737	4.092	75.356						
8	.620	3.445	78.801						
9	.554	3.076	81.877						
10	.520	2.888	84.765						
11	.459	2.549	87.314						
12	.448	2.490	89.804						
13	.408	2.268	92.072						
14	.367	2.040	94.112						
15	.320	1.775	95.887						
16	.285	1.585	97.472						
17	.260	1.447	98.918						
18	.195	1.082	100.000						

Extraction Method: Principal Component Analysis.

This table is actually telling about how many factors are extracted. This technique is actually grouping these 18 variables to certain numbers of group that we called factors. So, the eigen value in which the values are greater than 1 will form factors. Here 4 variables have eigen value greater than 1 so the total number of factors formed is 4.

Figure 1. Scree plot: eigen value for factor analysis
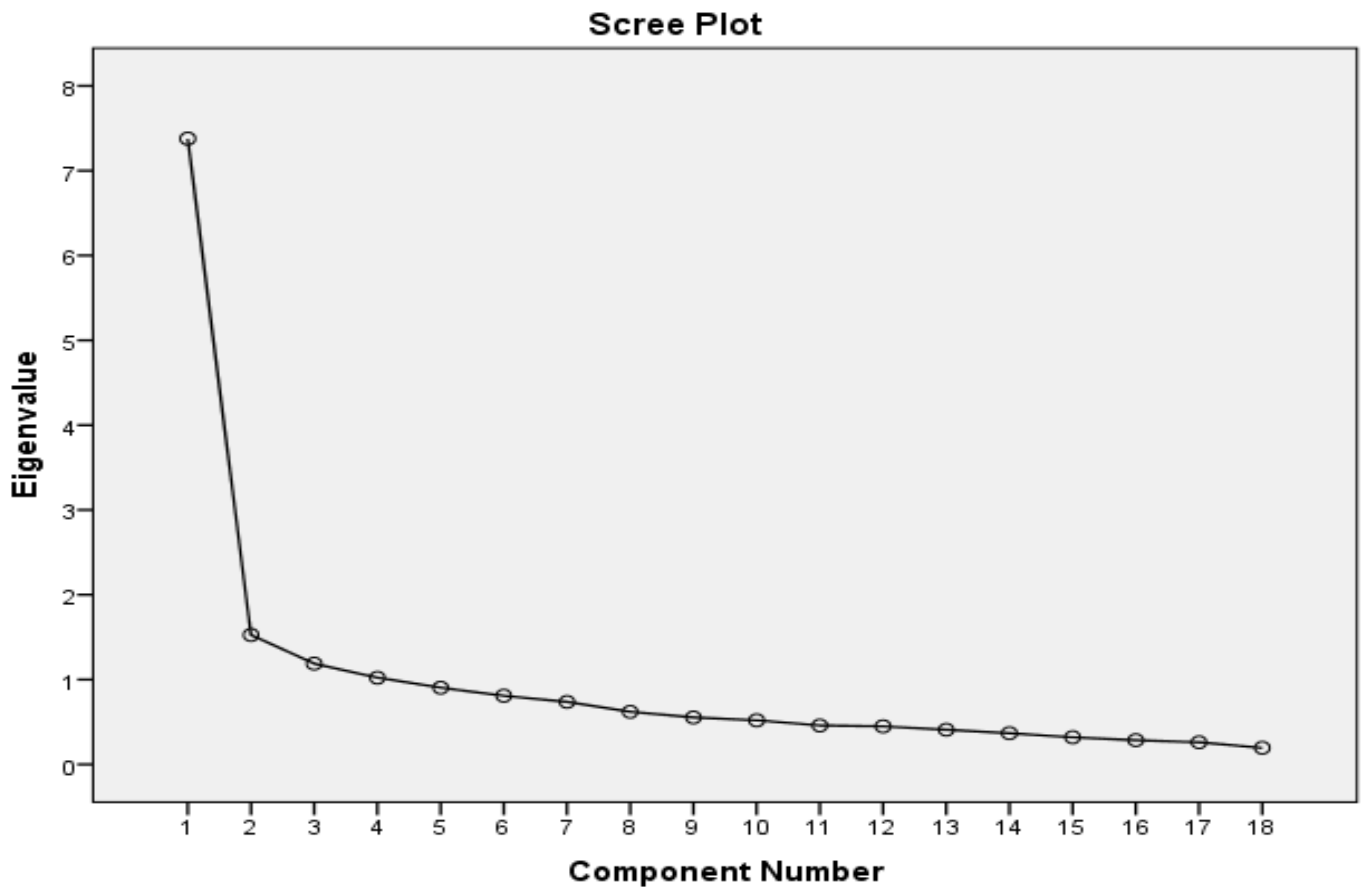
Scree Plot

In exploratory factor analysis (EFA), a scree plot is a plot of eigenvalues of factors arranged in descending order of magnitude from the left to the right side of the plot. The idea is to find out the number of factors that can be retained by identifying the point of inflexion (where the curve flattens) of the factors. So, the number of factors before the curve flattens represents the significant number of factors to be extracted for your factor analysis. X axis shows the component number means the total variables and on Y axis it shows the eigen value. So here, according to the scree plot it can be easily visible that 4 variables out of 18 have greater eigen value than 1.

Table 7. Rotated Component Matrix

	Component			
	1	**2**	**3**	**4**
Collaborative Features	.764	.060	.040	.315
Peer Comparison	.757	.180	.125	.199
Study Habits	.666	.248	.317	-.046
Academic Performance	.573	.179	.212	.168
Digital Literacy Skills	.563	.446	.279	-.174
Competitiveness	.527	.136	.302	.382
Practice Sets	.524	.382	.188	.237
Social Interactions	.514	.471	.107	.110
Study Materials	.114	.815	.072	.242
App Features	.266	.715	.312	-.014
Learning Outcomes	.336	.706	.037	.170
Exam Efficiency	.091	.635	.090	.577
Self-Paced learning	.124	.216	.820	-.046
Multi Language	.208	.034	.733	.282
Updated Notifications	.319	.081	.561	.481
Cost Effective	.426	.256	.459	.186
Time Savings	.202	.253	.069	.658
Career Guidance	.220	.058	.487	.594

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 13 iterations.

The Rotated Component Matrix represents the relationships between different variables in the dataset after conducting a Principal Component Analysis (PCA) with Varimax rotation. As each row corresponds to a specific variable, and each column represents a component identified by the analysis. The numbers in the table show the strength of the relationship called loadings between each variable and each component.

As, variables like "Collaborative Features" and "Peer Comparison" have high loadings in Component 1, indicating that they are strongly associated with this component. This component may represent aspects related to collaboration and comparison among peers.

Similarly, variables such as "Study Materials" and "App Features" have high loadings in Component 2, suggesting that they are important factors in this component, possibly related to study materials and app features.

Table 8. Principal components analysis with varimax rotation

	1	2	3	4	Community
M1	.764	.060	.040	.315	.740
M2	.757	.180	.125	.199	.753
M3	.666	.248	.317	-.046	.641
M4	.573	.179	.212	.168	.680
M5	.563	.446	.279	-.174	.624
M6	.527	.136	.302	.382	.607
M7	.524	.382	.188	.237	.534
M8	.514	.471	.107	.110	.542
M9	.114	.815	.072	.242	.434
M10	.266	.715	.312	-.014	.688
M11	.336	.706	.037	.170	.661
M12	.091	.635	.090	.577	.510
M13	.124	.216	.820	-.046	.512
M14	.208	.034	.733	.282	.492
M15	.319	.081	.561	.481	.737
M16	.426	.256	.459	.186	.662
M17	.202	.253	.069	.658	.654
M18	.220	.058	.487	.594	.642
Eigen Values	7.378	1.526	1.888	1.022	11.814
% Variance	40.987	8.476	6.600	5.678	
Cumulative Variance	40.987	49.987	56.063	61.741	

The Extraction Method used PCA to identify the components, while the Rotation Method (Varimax) aimed to simplify the interpretation by maximizing the variance of the loadings within each component.

Overall, the Rotated Component Matrix helps us understand the underlying structure of the data and identify key factors or dimensions that contribute to the overall variability in the dataset.

As each row corresponds to a specific variable, and each column represents a component identified by the analysis. The Components involve explain-:

Factor 1: Collaborative Features, Peer Comparison, Study Habits, etc., have high loadings. This is the most important factor of the overall sample and it alone accounts for 40.987% of the total variance. Eight statements out of 18 loads significantly on to this factor. This component may represent aspects related to collaboration and comparison among peers.

Table 9. Factor Analysis

Factor No.	Name of Dimension	Statement Label	Statement	Factor Scores
1	Collaboration and Comparison among peers	M1	Effective in enhancing learning outcomes	.764
		M2	Good study material for a competitive exam	.757
		M3	Feel confident in digital literacy skills	.666
		M4	Helps in preparing for exams efficiently	.573
		M5	Positively influences my study habits	.563
		M6	Offer features for collaborative learning	.527

		M7	Reliability of educational app crucial for academic success	.524
		M8	Peer comparison motivates to perform better academically	.514
2	Study materials and App features	M9	Saves time in comparison to traditional study methods	.815
		M10	App enhances competitiveness in academics	.715
		M11	Satisfied with the features offered by educational app	.706
		M12	Influenced by social interactions within the app	.635
3	Self-paced learning and Multilingual support.	M13	Provide Mock Test (Practice Test) on regular basis	.820
		M14	Cost effective with comparison to Offline Study mode	.733
		M15	The flexibility of Self-Paced learning	.561
		M16	The availability of multi-language enhances learning experiences	.459
4	Exam efficiency and Career guidance	M17	Valuable instant updates on exam notifications	.658
		M18	Inclusion of career guidance features in educational apps	.594

Factor 2: Study Materials, App Features, Learning Outcomes, etc., have high loadings. This is the next important factor explaining Motivation to used app-based education for competitive exams and it accounts for 8.476% of the total variance. Four statements load significantly on to this factor. This component may represent aspects related to study materials and app features.

Factor 3: Self-Paced learning, Multi Language, Updated Notifications, etc., have high loadings. This is the third important factor and it accounts for 6.600% of the total variance. Four statements load significantly on to this factor. This component may represent aspects related to self-paced learning and multilingual support.

Factor 4: Exam Efficiency, Time Savings, Career Guidance, etc., have high loadings. This is the last and least important factor accounts for 5.678% of the variance of the total variance. This component may represent aspects related to exam efficiency and career guidance.

CONCLUSION

In summary, this research has investigated the motivations driving the adoption of app-based education for competitive exams in India, emphasizing its crucial role in sustaining students' dedication and perseverance throughout the demanding preparation process. By shedding light on how app-based platforms address various challenges faced by exam aspirants, the study has highlighted the provision of tailored, interactive, and easily accessible learning experiences.

The literature review has underscored the escalating demand for app-based learning tools, particularly among candidates gearing up for exams such as JEE, NEET, and UPSC. This surge reflects the necessity for adaptable, engaging, and efficient study methods that cater to the diverse learning styles of students. Additionally, integrating technology into education not only aligns with the imperative for modernization but also bridges the gap in accessibility, particularly for learners in remote areas. The references cited in the literature review have provided invaluable insights into business research methods, research methodology, online consumer behaviour, and case studies on app-based learning platforms. These references have enriched our understanding of the research landscape, augmenting discussions on the motivations behind opting for app-based education for competitive exams. Looking ahead, it is imperative to acknowledge the evolving educational landscape and continually explore innovative strategies to enhance student engagement, comprehension, and performance.

Future research endeavours could delve deeper into assessing the efficacy of specific app features, personalized learning algorithms, and the overall impact of app-based education on academic outcomes. In essence, app-based education harbours significant potential

to revolutionize exam preparation in India, equipping aspirants with the necessary tools and resources to excel in competitive examinations. As technological advancements persist and educational paradigms evolve, harnessing the capabilities of app-based learning will be pivotal in empowering students and shaping the trajectory of education in India. The future of exam preparation lies in the seamless integration of app-based education with traditional learning methods, creating a holistic approach to empower success in competitive exams.

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