

# COMPATIBILITY OF CANDIDATES IN COMPLYING WITH ONLINE EXAMINATION SYSTEM IN INDIA

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## ABSTRACT

*Today is a scenario of technology wherein various sectors are undergoing rapid digitization. One of the most prominent sectors undergoing change is the educational sector. In India, 'the Gurukula' system was the most ancient and traditional form of education. This was the most predominant form of education until the British arrived. However, after British captured India, they introduced the Western system of education in India. Slowly the 'pen and paper' system came into picture. Gradually as time passed, Distance Education mode of learning became increasingly popular. This was the second era. Now, the educational system in India is slowly moving towards the third era, i.e. "Online". Many courses are now being conducted online in India. Many online portals like 'Swayam' and 'MOOC' provide numerous online courses which can be undertaken by studying at the comfort of one's home. The present research paper focuses on the Online Examination System and the Compatibility of Candidates in this regards. For the purpose of study, the data has been collected from 60 candidates of the Online Examination System, which is analysed using Factor Analysis and Regression and Mediation Analysis. The present research tries to shed some light on the problems if any, faced by the candidates with respect to the online examination system. An analysis of comfortability and compatibility of the candidates has also been made with regards to the compliance to pre-examination, during examination and post examination requirements of the online examination system in India.*

**Key words:** *Digitization, Online Examination, Comfortability, Compatibility, Candidates.*

## INTRODUCTION

Digitization of services is the need of the hour to keep India in par with other countries and online examination services are a positive step in this direction. There are many exams in India which are conducted online. Bank exams, LIC exams, NET exams, Railway exams and many others conduct online exams for recruitment purposes. Bank exams are mostly being conducted by the IBPS. NET exams were earlier being conducted by CBSE but now, NTA has taken over.

The Online Examination System has its own advantages, the most important being, it supports the Green Environment mission. Secondly, it saves time. The results are automated and they are declared quicker compared to the offline mode of exams. Also online exams are more secure. There are very few chances of a question paper leakage. However, the Online Examination System are also not free from any disadvantages. Firstly being, although it is more secure still, there is a high probability of hacking or indulging in any other type of Cyber crime and thereby leaking out the questions. A very important aspect to be considered for the success of online examination system in India is the availability of high speed internet services. From the process of filling the examination form till the checking of results, smooth and uninterrupted internet services are greatly essential. India is still a developing country and has a 4G network whereas other developed countries like Norway (which has one of the fastest internet speeds in the world) are already on the 8G network.

Hence, there are a lot of network related issues when it comes to online exams in India. Online exams in India have come a long way and it has been implemented in a phased manner. Earlier candidates were required to download the application form, fill it manually and then submit the forms at the concerned offices. Payment also had to be made only through a DD. Exams were held in the offline mode and results were declared in the newspapers. Then came the stage where candidates could fill the entire application form online itself however, payments were being made through DD only. Exams were continued to be held in the offline mode but results started getting declared in the websites. This was followed by a phase where gradually the examination conducting body started giving the option of Online Payment. However, exams were still conducted in the offline mode.

Initially, online filling of examination form and online payment of examination fees was an optional process. Candidates could either fill the form online or even make an offline submission. Similar, was the case with the payment of examination fees. However, as time passed it became compulsory to fill the examination form and pay the examination fees through online mode only and all the other options like DD, etc. slowly started dying out. Subsequently, online exams started being conducted in India which was then followed by a whole transition. In a nutshell, it can be said that although going strong, still, the Online Examination System in India can go a long way and it must be encouraged in a country like India which has the second largest population in the world as it is hassle free and could save a lot of paperwork.

### **Literature Review**

- **King G. Chula, Guyette W. Roger (2009)**, in his study titled ‘Online Exams and Cheating: An Empirical Analysis of Business Students Views’ tried to study the behaviour and the issues faced by the students while giving online exam. The study revealed that students found it easier to cheat online when compared with traditional course and hence the researcher strongly recommended instructors to take action and reduce temptation of cheating among students.
- **Kotwal V. Deepankar, Bhadke R. Shubhamet.al. (2016)**, discussed in their paper the functions and the principals followed in online examination system. They also stated that computerization of examination has created easy distribution of results and has developed high level of effectiveness of examinations to be conducted.
- **Maiya Umesh, K. Shivaprasad (2014)**, in their research paper titled, “Students Perception towards Online Examinations of University” discussed the different methods followed by the University Examinations primarily focusing on online assessment. The research revealed the overall performance of the current online examination by measuring the satisfaction level of the students with respect to the infrastructure facilities, the administration of the examination, the comfort of answering and the network connectivity by rating them. The researchers pointed out that network connectivity was the major backbone of the online examination and hence issues with respect to connectivity would create disturbance in the examination.

However, most of the students favoured positively and were satisfied overall with this system.

- **Rangat Dipali, Singh Preeti et.al. (2018)**, gave an overview of online examination system in India and its importance. The paper briefly discussed on the functions of the system which include originating papers, online analysis. The researcher explored the advantages as well the disadvantages of the system, highlighting some of main the issues such as network issue, hacking, problem arising in rural areas where there is deficiency of computers while on a contrary, the system also possessed instant results, conversion of all the documentation in digital form etc.
- **Woit Denise, Mason Dave (2003)**, analyzed in a study the effectiveness of Online Assessment of Students ability of programming for introductory programming courses in Computer Science. The findings of the study were that, Online Examination can be implemented securely, efficiently and can result into increased student motivation and programming capabilities. The study also revealed problems associated with evaluation of candidates through online mode.

#### **Identification of Research Problem:**

The foregoing Literature Review shows that there are numerous studies on Online Examination System however, only a few studies have been conducted on students' perception with regards to the Online Examination System. Studies have also been done in states such as Sikkim. However, very few such studies are available in Goa.

### Objectives of the Study

The present study attempts to analyze the comfortability and compatibility of the candidates with regards to the compliance to pre-examination, during examination and post examination requirements of the examination system in India. However, the specific objectives that have been considered for the purpose of the study are stated below:

1. To study the candidate comfort in complying with the requirements of Online Examination System in India.
2. To identify the problems if any, with respect to the Online Examination System in India.
3. To analyze compatibility of the candidates with respect to Online Examination System in India.

### Research Questions

The following research questions were framed to study the above objectives:

- Are the candidates comfortable in complying with the requirements of Online Examination System in India?
- What are the problems faced by candidates with respect to the Online Examination System in India?
- Are the candidates compatible with regards to answering the Online Examination System in India?

### Research Methodology

With due consideration to the above-mentioned objectives, a quantitative approach was chosen and the following methodology was adopted for conducting the present study. They are as under:

- **Universe:** For the purpose of study, candidates who have answered online exams in the state of Goa have been selected as the universe.
- **Sample:** A purposive sample of 60 candidates have been selected from Goa for the purpose of study.
- **Period of Study:** The period of study was the period of survey.

➤ **Sources of Data Collection:**

The present research study titled 'Compatibility of Candidates in complying with Online Examination System in India' is based on the data collected from both primary as well as secondary sources. The primary data is collected by using a well-designed and structured questionnaire. The questionnaire used in this study was divided into two parts: The first part consisted of questions about the demographic or personal profile of the students like name, gender, age and qualification. The second part contained questions about the comfortability of candidates in complying with the requirements of Online Examination System. Likert five point scales were used. The information related to study was also collected from E-journals/papers and relevant books as secondary data.

➤ **Statistical Tools:**

- a) Factor analysis
- b) Regression analysis and
- c) Mediation analysis is used to analyse the data in SPSS.

### **Hypotheses**

H<sub>01</sub>: Candidates are not comfortable in complying with the requirements of Online Examination.

H<sub>02</sub>: There exists no mediation effect of problems faced by the candidates with regards to online exams between comfortability of candidate and compatibility of the candidate in answering the exam online.

### **Limitations of the Study**

1. Due to time constraint, only 60 respondents have been selected.
2. For the purpose of present study, candidates who have answered any online exams only from the state of Goa have been included in the survey. However, candidates from other states are not a part of this survey.

The above mentioned limitations make a scope for further research in the area.

### **Operational Definitions**

- **Compatibility:** Compatibility for the purpose of the present study is an ability to meet the pre, post and during the exam requirements of the online exam successfully. Many of the candidates, especially the seniors may possess the desired knowledge needed to clear the exams but as they may not be well versed with the Online Examination System, they may not get through the exams successfully.
- **Comfortability:** Comfortability for the purpose of the present study basically deals with adaptability to the technology. Comfortability is the fluency with which you are able to upload or download the documents and inspite of all the technical problems and anxiety, concentrate on answering the exam. Comfortability is the ability to adjust to new technology and to cope up to the latest developments with ease. It deals with the level at which the candidate complies with the Online Examination System requirements.

### **Analyses and Findings**

For the purpose of present study, a sample of 60 candidates were surveyed out of which 18 were male and 42 were female candidates. Most of the candidates belonged to the age group of 20-40 years. The selected candidates had Graduation as their minimum qualification. Prior to doing the analysis, the reliability test of the primary data has been done. The Cronbach's Alpha value obtained is 87.1%. This value shows that the data is reliable for further analysis. The present study uses Factor analysis, Regression and Mediation analysis as suitable for objectives.

### **Analysis of Candidate Comfort with Online Examination**

The first objective of the study was to study the candidate comfort in complying with the requirements of Online Examination System in India. For the purpose of this analysis, in total 18 variables have been used of which the reliability was found to be 95.2%. 17 variables have been

used and transformed to form 03 independent variables namely comfort in complying with the pre-exam, during exam and post-exam requirements.

Here, the Pre-exam comprises of 08 variables namely,

1. Locating the Website
2. Filling the Form
3. Uploading the Photo
4. Uploading the Signature
5. Uploading the Declaration
6. Uploading the Other Documents
7. Making the Payment
8. Downloading the Hall Ticket

During Exam comprises of 05 variables namely,

1. Procedural Formalities
2. Concentrating on Answering the Exam despite of Technical Difficulties
3. Convenience in “Marked for Review” & “Save & Next” option
4. Effortless Switching between Sections
5. Difficulty in Scrolling through question

Post Exam comprises of 04 variables namely,

1. Downloading Answer Key
2. Challenging the Answer Key
3. Checking the Results
4. Downloading the Certificate

A hypothesis has been framed and tested using Regression analysis with a dependent variable namely, Candidate Comfortability to comply with Online Examination Requirements. The purpose of this analysis is to understand during which phase, out of the 03, a candidate is comfortable with regards to an online exam. Following is the hypothesis tested in this analysis.

H<sub>01</sub>: Candidates are not comfortable in complying with the requirements of Online Examination.

**Table No: 01 Impact of Comfort at Prior, During & Post Online Examination**

<b>Test H<sub>01</sub>: Candidates are not comfortable in complying with the requirements of Online Examination</b>			
<b>Dependent Variable: Candidate Comfortability to comply with Online Examination Requirements</b>			
<b>R square: .392</b>		<b>F value: 12.053 P value: .000 Decision: Reject H<sub>01</sub></b>	
<b>Independent Variables</b>	<b>Beta values</b>	<b>T values</b>	<b>Sig. value</b>
Constant	1.717	1.955	.056
Pre Exam	.057	2.221	<b>.030</b>
During Exam	.018	.335	.739
Post Exam	.096	2.050	<b>.045</b>

Source: Computed from Primary Data

Above table shows the output of Regression analysis which tests the comfortability of the candidate in complying with the requirements of Online Examination System in India. As per the results obtained, it may be noted that Regression Model tested, fits the data to the extent of 0.392 as shown by R square. The model has been found significant at 5% level. However, the details in the model show that two, out of the three explanatory variables have been found significantly contributing to the relationship of the exploratory variable.

As shown in the Table No 01, it can be observed that candidates are comfortable to comply with the requirements of the online examinations, prior to the exams and post exams. However, as far as the during examination requirements are concerned, candidates are not found to be comfortable. This may be due to anxiety during the examination. The Online Examination System is new at the first hand and secondly, candidates need to concentrate on answering exams successfully in spite of all the technical issues at the examination. Thus, the test results show clearly that, the candidates are comfortable to comply with the pre-exam and post-exam requirements of an Online Examination System in India.

### **Problems Faced by the Candidates with regards to Online Examination System in India**

The present study also explored and highlighted the various problems faced by the candidates with regards to applying for and answering the Online Exams in general.

In total, there were 19 problems identified in this research. For the purpose of better understanding and further analysis, these problems were grouped under 05 main categories after a Dimension Reduction technique has been implemented upon this data. Using Factor Analysis, with Principal Component method and Varimax Rotations, 05 crucial problems faced by the candidates have been highlighted. These 05 factors have a Cumulative Variance explained to the extent of 70%. The problems listed in the first group are as under and collectively been named as “Problems of Individual Competency”

- Tough Document Uploading
- Photo Troublesome
- Uneasy Declaration Uploading
- Signature within KB
- Complicated form Filling
- Difficulty in Locating Website
- Uneasy Hall Ticket Downloading
- Download Certificate Tiresome

The second category of problems are highlighted as “Network Related Issues”. This category comprises,

- System Slowdown
- Downloading Answer Key
- Checking results Troublesome

Further, the third set of problems indicate “Disturbing Screen Display” comprising three problems namely:

- Font Size
- Switching Sections Tedious
- Scrolling Questions Difficult

Yet another group of problems that have been faced by the candidates is also due to “Unpleasant Facilities” at the Examination Center. These problems include:

- Strain in the Eyes
- Unpleasant Infrastructure

It has also been found that Inconvenient Exam Location is yet another problem with the Online Examination as faced by the candidates.

Thus, the above 05 problems are the most prominent ones faced by the candidates with regards to Online Examination System in India and the analysis is shown in Table No 2.

**Table No. 02: Problems Associated with Online Examination System in India**

	Components				
	1	2	3	4	5
Tough Document Uploading	.871				
Photo Troublesome	.864				
Uneasy Declaration Uploading	.810				
Signature within KB	.698				
Complicated form Filling	.660				
Difficulty in Locating Website	.648				
Uneasy Hall Ticket Downloading	.560				
Download Certificate Tiresome	.539				
System Slowdown		.811			
Downloading Answer Key		.629			
Checking results Troublesome		.609			
Font Size			.812		

Switching Sections Tedious			.751		
Scrolling Questions Difficult			.670		
Strain in the Eyes				.752	
Unpleasant Infrastructure				.730	
Inconvenient Exam Location					.863
Total Eigen Values	5.019	2.479	2.243	2.014	1.607
% Variance	26.415	13.046	11.807	10.602	8.458
Cumulative Variance	26.415	39.461	51.268	61.870	70.328

**Source:** Computed from Primary Data

Out of the total 17 variables obtained, five noticeable factors are retained which are named as

1. Individuals Competency
2. Network Related Issue
3. Disturbing Screen Display of the Paper
4. Unpleasant Facilities
5. Inconvenient Exam Location

### **An Analysis of Mediation Effect of Problems faced by Candidates between Candidates Comfortability and Compatibility with regards to Online Examination System in India**

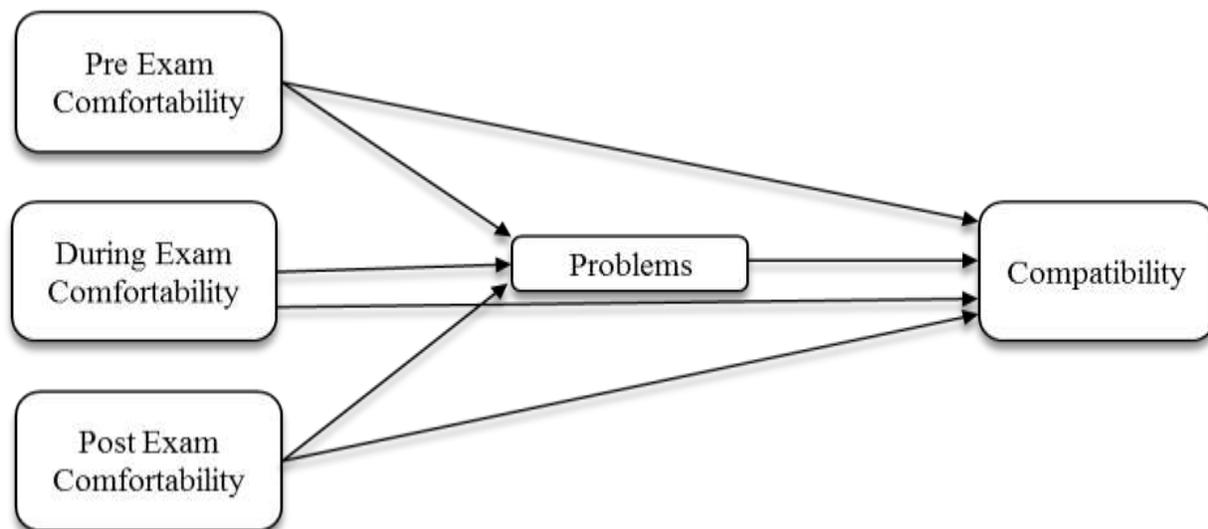
As one of the objectives of the study is to analyze the compatibility of the candidates with respect to Online Examination System in India, three variables have been used and the compatibility of the candidates has been calculated. Further, an analysis has been made to find the relationship between comfortability and compatibility of the candidates in answering the online examination. It has also been studied, if this relationship is affected when there are any problems faced by the candidates in regards to the Online Examination.

This analysis has been done by testing following hypothesis:

H0<sub>2</sub>: There exist no mediation effect of problems faced by the candidates with regards to online exams between comfortability of candidate and compatibility of the candidate in answering the exam online.

In order to test this hypothesis, a model has been designed wherein five types of problems which have been identified with regards to the candidate answering online exam have been transformed. The comfort level of the candidate in answering online exam has been considered in three phases i.e. pre-exam, during exam and post exam level of comfortability of the candidate in answering the online exam. The compatibility of the candidates with regards to online exam has been tested by using a mediation analysis. Thus in the below given model comfort of the candidate acts an independent variable, problems faced by the candidate in answering online exam acts as mediator and compatibility of the candidate to answer the online exam acts as a dependent variable.

**Figure No. 1 Initial Proposed Mediation Model**



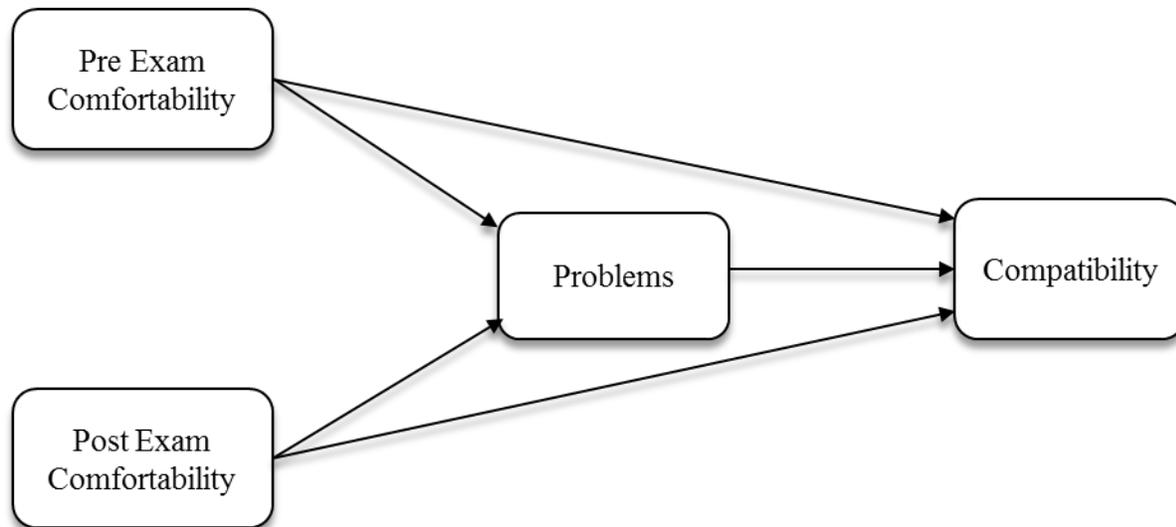
**Source:** Designed by Researcher

The requirement of mediation analysis using Barron and Keny Approach shows that there is a significant relationship between pre exam and post exam comfort of the candidates with compatibility of answering online exam. However, the comfort level of the candidate during the

exam does not have a significant relationship with regards to candidate compatibility in answering online exam. This relationship is shown in Table No: 1 above.

Thus the proposed model which contains three independent variables has been changed and only two variables have been retained.

**Figure No. 2 Edited Mediation Model**



**Source:** Designed by Researcher

As far as the second requirement of mediation analysis using Baron and Keny Approach is concern the independent variable needs to be significantly related with the mediator and the mediating variable should be significantly influencing the dependent variable.

The test results show that there exists a significant relationship of pre exam comfort and post exam comfort with the problems faced by the candidates with regards to online examination. The relationship is significant at 5% level of significance and is explained with an r square of .400.

At the second level of the test, the problem faced by the candidate are found to be inversely related with the compatibility of the candidate in answering online exam and the relationship is explained to the extent of .146 with help of r square.

For the purpose of mediation analysis as per the above hypothesis i.e. problem faced by the candidate with regards to online exam is treated as mediating variable between the candidate comfort and candidate compatibility with respect to online examination.

The following table provides an output of mediation analysis.

**Table No. 03: Analysis of Mediation Effect**

<b>Test H<sub>02</sub>: There exist no mediation effect of problems faced by the candidates with regards to online exams between comfortability of candidate and compatibility of the candidate in answering the exam online.</b>						
<b>Dependent Variable: Compliance with Online Examination</b>						
<b>R square:.400</b>		<b>F value:12.460</b>		<b>P value: .003</b>		<b>Decision: Reject H<sub>01</sub></b>
<b>Independent variables</b>	<b>Beta values</b>		<b>T values</b>		<b>Sig. value</b>	
	<b>Before Mediation</b>	<b>After Mediation</b>	<b>Before Mediation</b>	<b>After Mediation</b>	<b>Before Mediation</b>	<b>After Mediation</b>
Pre Examination	.075	.045	2.791	2.038	.000	.046
Post Exam	.021	.086	.410	2.124	.007	.062
Problems	-	-.094	-	-.924	-	.036

**Source:** Computed from Primary Data

The above table shows the test results of the relationship between pre exam and post exam comfort level of the candidate with respect to online examination and the candidate compatibility in answering such exam. It also provides the test results of relationship of their variable after introduction of mediating variable i.e. the problems faced by the candidate in answering the online exam. It may be observed from the above test results that the problems faced by the candidate with regards to online examination has significant mediating impact between comfortability and compatibility of the candidates in answering online examination. It is also observed that the previously existing significant relationship of the post examination comfort of the candidate has been turned insignificant after the introduction of mediating variable which means candidates who face problems with regards to online examination are not comfortable post online exam and their compatibility maybe reduce with the increase in problems that they

might have faced. It is been also observed that the impact of pre exam comfort of the candidate on their compatibility in answering online exam has been reduced after introduction not mediating variable but with the minor magnitude. Thus there exist a mediation impact of problem faced by the candidates with regards to online exams between comfortability of candidate and compatibility of the candidate in answering the exam and this relationship has been explained by r square of 0.400 at significance level of 5 %.

**Conclusion:**

The present study focused on the understanding the candidate comfortability and compatibility with respect to online examination system in India. Requirements such as pre, during and post online examination were analyzed to know the comfortability of the candidates with regards to Online Examination System wherein, candidates were found comfortable in complying with the pre and post requirements of the online examination. However, During the Examination they were found not comfortable. Problems faced by candidates with regards to Online Examination were Individuals Competency, Network Related Issue, Disturbing Screen Display of the Paper, Unpleasant Facilities & Inconvenient Exam Location. Further, it may be concluded that mediation effect of problem faced by the candidates with regards to online exams between comfortability of candidate and compatibility of the candidate in answering the exam, does exists. The comfortability of the candidates influences their compatibility to handle the Online Examination.

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