



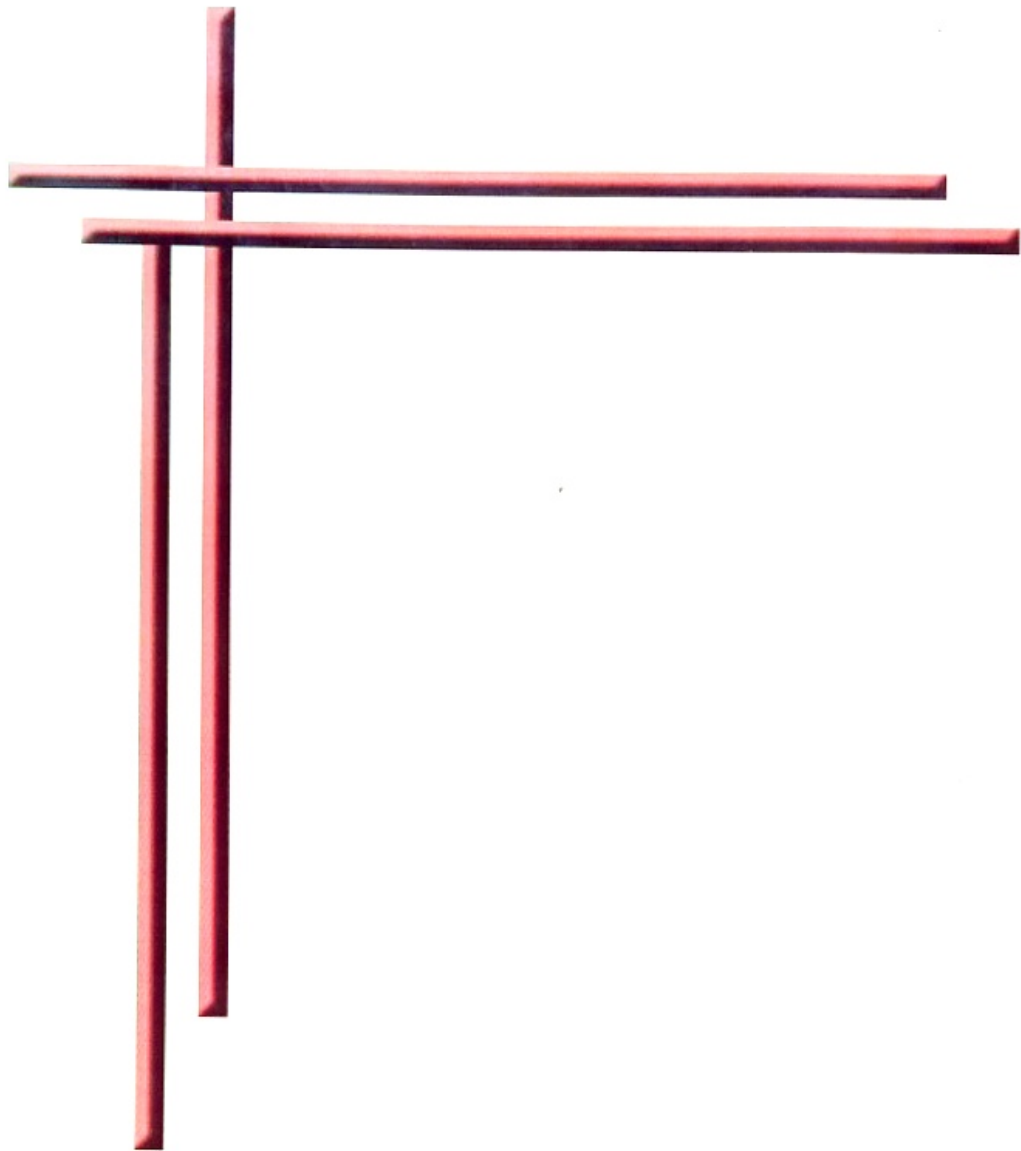
NEELKAMAL

INNOVATIONS IN EDUCATION



Dr. Jayan Erancheri Illam
Dr. Saritha Namboodiri
Bhavya P.V.

www.neelkamalbooks.com



www.neelkamalbooks.com

Price: ₹ 450

ISBN: 978-93-89740-80-6



9 789389 740806



NEELKAMAL PUBLICATIONS PVT. LTD.

Sultan Bazar, Hyderabad - 500 095. (T.S.) India

☎ 24757140, +91 80199-18182, 90001-68953, +91 91210-01237 📞

Delhi Office:

4764/1, 23, Ansari Road, Daryaganj,

New Delhi-110 002, India.

☎ 011-23244237, +91 98118-28953

e-mail: neelkamalbooks@gmail.com

website: www.neelkamalbooks.com; www.neelkamalonline.com

**INNOVATIONS
IN
EDUCATION**



Innovation is often the hidden thing,
because we can't put numbers to it.
And yet it's the thing that defines
the way we live, the things we'd like
to have for everyone whether it's
health or education.

— *Bill Gates* —

INNOVATIONS IN EDUCATION

Chief Editor

Dr. Jayan Erancheri Illam

Principal

Sreekrishnapuram V. T. Bhattathiripad College,
Mannampatta, Palakkad, Kerala.

Editors

Dr. Saritha Namboodiri

Head of the Department of Computer Science and
IQAC - Coordinator

Sreekrishnapuram V. T. Bhattathiripad College,
Mannampatta, Palakkad, Kerala.

Bhavya P.V.

Assistant Professor

Department of Computer Science
Sreekrishnapuram V.T. Bhattathiripad College,
Mannampatta, Palakkad, Kerala.



NEELKAMAL PUBLICATIONS PVT. LTD.
EDUCATIONAL PUBLISHERS

(EXPORTERS & IMPORTERS)

NEW DELHI

HYDERABAD

INNOVATIONS IN EDUCATION

Chief Editor : Dr. Jayan Erancheri Illam

Editors : Dr. Saritha Namboodiri
Bhavya P.V.

© All rights reserved.

First Edition : 2021
(Hardback)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher.

ISBN: 978-93-89740-80-6

NEELKAMAL PUBLICATIONS PVT. LTD.

Sultan Bazar, Hyderabad - 500 095.

☎ 24757140, 24757197, +91 80199-18182, 90001-68953, +91 91210-01237

Delhi Office:

4764/1, 23, Ansari Road, Daryaganj, New Delhi-110 002,

☎ 011-23244237, +91 98118-28953

e-mail : neelkamalbooks@gmail.com

website : www.neelkamalbooks.com; www.neelkamalonline.com

Published by *Suresh Chandra Sharma* for
Neelkamal Publications Pvt. Ltd., New Delhi, Hyderabad
and printed at *NKPL*, New Delhi, India.

Preface

This book "Innovations in Education" is a collaborative initiative by Sreekrishnapuram V.T. Bhattathiripad College, University of Calicut. This aims to comprise the research perspectives of E-teaching and E-Content development. Researchers are from different educational backgrounds and they all are here to express their innovative ideas. Now, there is a lot of researches going on in this area of E-teaching and E-Content development. This book aims at motivating beginners in E-teaching by introducing new methodologies, going through discussions about the impact of digital teaching in the higher education area, and also provides new insights about E-teaching and E-learning. It is the need of the present day scenario. We extend our sincere gratitude to all who stood along with us in this great venture. We congratulate all the authors for their contributions to this volume.

This book suggests some approaches that they can adopt to manage this sudden shift of teaching and learning from physical classrooms to digital classrooms. Even though the internet and all the E-teaching technologies are around us for a long time, we were hesitant of implementing these into our Teaching-Learning process. This book aims to walk along with the teachers and guides them to a new era of E-teaching.

We must thank our publisher Mr. Suresh Chandra Sharma, Managing Director of Neelkamal Publications Pvt. Ltd., New Delhi-Hyderabad, who has taken a lot of interest in this book. His efforts to bring out the Book in the excellent form will always be remembered.

We feel happy to entertain any suggestions and additions for refinements of this book and all such modifications will be taken care of in the next issue of the book.

Editors

Dr. Jayan Erancheri Illam

Dr. Saritha Namboodiri

Bhavya P.V.

Acknowledgements

Thanks to everyone on our publishing team and our publishing partner Neelkamal Publications Pvt. Ltd., for their sincere cooperation.

The technical support given by EMMRC, University of Calicut for our teachers and contributors to the book in related to educational technology is highly appreciated. We express our sincere gratitude to the team EMMRC for this successful endeavour.

We are extending our gratitude to all the contributors of the book.

Thank all those who contributed to the success of the physical creation to completion of this book.



Contributors

This book is a compilation of research works and articles from the academicians and faculties of different disciplines from the educational institutions of Kerala.

The contributors of the book are:

1. Dr. Ampili Aravind, Principal, NSS Training College, Ottapalam.
2. Dr. Ashish, Assistant Professor, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta.
3. Suprabha. K. Assistant Professor, NSS Training College, Ottapalam, Palakkad.
4. Dr. G. Subramonian, Principal, Sri Ramakrishna Mission, Vidyalaya College of Education (Autonomous), Coimbatore, Tamil Nadu.
5. Sangeetha Achuthan, Assistant Professor, NSS College, Manjeri
6. Swapna M.P., Research Scholar, Dept. of Computer Science, Sri Ramakrishna College of Arts and Science for Women, Coimbatore.
7. Dr. G. Satyavathy, Associate Professor, Dept. of Computer Science, Sri Ramakrishna College of Arts and Science for Women, Coimbatore.
8. Niman S., Assistant Professor, Department of Computer Science, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
9. Subha I.N., Assistant Professor, Department of Computer Science, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
10. Dr. Umer Farooque, Assistant Professor, Farook Training College, Calicut.
11. Santhosh T.M., Research Scholar, Farook Training College, Calicut.
12. Sadeep. K., Assistant Professor and Head, Dept. of Physical Education, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.

13. Mohammed Azeez V.K., Ph.D. Research Scholar (Full Time), Department of Physical Education, Annamalai University, Tamil Nadu.
14. Dr. Seema Menon K.P., Assistant Professor, NSS Training College, Ottapalam.
15. Dr. Sagy John, HSST Zoology, GHSS Puthupadi, Kozhikkode.
16. Rathi K.N., Assistant Professor, Department of Commerce, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
17. Sathyabhama N., Assistant Professor, Department of History, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
18. Vidya K., Assistant Professor, Department of Commerce, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
19. Bhavya P.V., Assistant Professor, Department of Computer Science, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
20. Aswathy A., Assistant Professor, Department of Computer Science, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
21. Sathyavathi M., Assistant Professor, Department of Economics, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
22. P. Divya, Assistant Professor, Department of Commerce, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
23. Anu, A.N., Assistant Professor, Department of Commerce, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
24. Vijayalakshmi. K.K., Assistant Professor, Department of Economics, Sreekrishnapuram V.T. Bhattathiripad College, Mannampatta, Palakkad.
25. Rajitha, M., Assistant Professor, CCST for Women, Karalmanna.



INNOVATIONS IN EDUCATION

Contents

1. Experimental Use of Blended Learning Instructional Strategy for Effective Teaching at Higher Secondary Level	...	1
1.1 Introduction	...	2
1.2 Need and Significance of the Study	...	2
1.3 Objectives of the Study	...	2
1.4 Hypotheses of the Study	...	3
1.5 Methodology of the Study	...	3
1.6 Analysis and Interpretation of Data	...	4
1.7 Findings of the Study	...	6
1.8 Conclusion	...	6
2. Artificial Intelligence Its Impact on Employment and the Workforce	...	8
2.1 Introduction	...	8
2.2 Application Areas of Artificial Intelligence	...	10
2.3 Impact of Artificial Intelligence on Employment and Work Force	...	11
2.4 Conclusion	...	12
3. Remodelling Educational Sector, Revolutionized by the Disruptive Decentralized Blockchain Technology	...	14
3.1 Introduction	...	15
3.2 Blockchain – The Open Distributed Decentralized Ledger	...	16
3.3 Blockchain Use Cases in Education Sector	...	16

3.4	Challenges of Adopting Blockchain Technology	...	20
3.5	Conclusion	...	21
4.	Sentiment Analysis of Animated and Non-animated E-learning Content	...	23
4.1	Introduction	...	24
4.2	Literature Review	...	24
4.3	Proposed Approach	...	24
4.4	Conclusion	...	27
5.	E-resources and Coconut Sector	...	29
5.1	Introduction	...	29
5.2	Objectives	...	30
5.3	Methodology	...	30
5.4	Need of E-resources	...	30
5.5	Types of E-resources	...	31
5.6	E-resources Related to Agriculture and Coconut in India	...	32
5.7	Problems	...	35
5.8	Conclusion	...	36
6.	Information Communication Technology (ICT) as a Learning Tool in Commerce among Students at Higher Secondary Level	...	39
6.1	Introduction	...	40
6.2	Significance of the Study	...	40
6.3	Statement of the Problem	...	40
6.4	Operational Definitions	...	41
6.5	Objectives of the Study	...	41
6.6	Hypotheses	...	41
6.7	Methodology	...	42
6.8	Findings of the Study	...	44
6.9	Educational Implication	...	46
6.10	Conclusion	...	46

7. Importance of Leadership	...	48
7.1 Introduction	...	48
7.2 Meaning and Importance of Leadership	...	49
7.3 Leadership Nature and Leadership Importance	...	49
7.4 Why is Leadership Important for Students?	...	49
7.5 The 3 Most Important Roles of a Leader	...	49
7.6 Importance of a Good Leader	...	50
7.7 Qualities of a Good Leader	...	51
7.8 Conclusion	...	52
8. Making Teaching–Learning Effective Through ICT	...	54
8.1 Introduction	...	54
8.2 Components of ICT	...	55
8.3 ICT in Education	...	55
8.4 Advantages of ICT in Education	...	56
8.5 Role of ICT in Teaching Learning Process	...	56
8.6 Usage of ICT in Teaching Learning Process	...	57
8.7 Conclusion	...	57
9. Magic Tricks as a Powerful Teaching Tool in College Classrooms	...	59
9.1 Introduction	...	60
9.2 Operational Definition	...	61
9.3 Review of Related Literature	...	61
9.4 Magic Tricks as a Teaching Tool	...	63
9.5 Theoretical Bases for Use of Magic Tricks as an 'Ice-breaker' in Classroom	...	64
9.6 Benefits of Use of Magic Tricks in the Classroom	...	65
9.7 Guidelines for Appropriate Use of Magic in the Classroom	...	65
9.8 Limitations of Use of Magic Tricks in the Classroom	...	66
9.9 Magic Trick E-Resources	...	66
9.10 Conclusion	...	66

10. Social Media Competence of Prospective Teachers in Relation to their Academic Self-efficacy	...	70
10.1 Introduction	...	71
10.2 Need and Significance of the Study	...	71
10.3 Objectives of the Study	...	72
10.4 Hypotheses of the Study	...	72
10.5 Methodology of the Study	...	73
10.6 Data Analysis and Interpretation of Data	...	73
10.7 Findings of the Study	...	75
10.8 Educational Implications of the Study	...	75
10.9 Conclusion	...	76
11. Fostering of Socially Responsible Leadership among Undergraduate Students through NSS	...	77
11.1 Introduction	...	78
11.2 Review of Related Literature	...	79
11.3 Objectives of the Study	...	80
11.4 Hypotheses	...	80
11.5 Methodology Used	...	80
11.6 Results and Discussion	...	81
11.7 Findings	...	82
11.8 Conclusion	...	83
12. Facial Expression Recognition Using Convolution Neural Network for Adaptive Learning in Mooc	...	84
12.1 Introduction	...	85
12.2 Literature Survey	...	85
12.3 System Architecture	...	88
12.4 System Implementation Using CNN	...	90
12.4.1 Dataset	...	90
12.4.2 Convolution Neural Network	...	91
12.4.3 Testing and Evaluation	...	92
12.4.4 Analysis	...	93
12.5 Results	...	93
12.6 Conclusion and Future Work	...	93

13. Memory Techniques for Students	... 95
13.1 Introduction	... 95
13.2 Definition	... 96
13.3 Memory Types	... 96
13.4 How We Form Memories	... 97
13.5 Ways to Better Remember Our Lessons	... 99
13.6 Conclusion	... 105
14. Google Classroom as a Tool for Effective Learning	... 107
14.1 Introduction	... 107
14.2 Google Classroom as an Effective Tool of Learning	... 111
15. Remote Online Proctoring - Paving Way to Secure Digitalized Education	... 114
15.1 Introduction	... 114
15.2 Statement of the Problem	... 115
15.3 Objectives of the Study	... 115
15.4 Significance of the Study	... 115
15.5 Research Methodology	... 116
15.6 Limitations of the Study	... 116
15.7 Review of Literature	... 116
15.8 Concept of Proctoring	... 116
15.9 Conclusion	... 120
16. Blended Learning: An Overview	... 121
16.1 Introduction	... 121
16.2 Literature Review	... 122
16.3 Advantages in Blended Learning	... 122
16.4 Disadvantages	... 124
16.5 Types of Blended Learning	... 124
16.6 Conclusion	... 126

17. A Study on the Effectiveness of Swayamprabha Channel Lectures for Promoting the Self-Learning Skills of College Students	... 128
17.1 Introduction	... 129
17.2 Conceptual Framework: About Swayam, Swayamprabha and Self-learning Process	... 129
17.3 Importance of the Study	... 131
17.4 Statement of Problem	... 131
17.5 Objective of the Study	... 131
17.6 Hypothesis	... 132
17.7 Methodology of the Study	... 132
17.8 Major Findings and Discussions	... 133
17.9 Suggestions for Using Swayamprabha Video Lectures	... 134
17.10 Scope for Future Research	... 134
17.11 Conclusion	... 134
Index	... 136



CHAPTER

15

Remote Online Proctoring - Paving Way to Secure Digitalized Education

- P. Divya*

Anu A.N.**

ABSTRACT

The future of education is completely depends on e-learning which results in global and digitalized education. Nearly 100 millions of people are moving towards rapid and easy accessible learning suites. These are nothing but the contribution of advanced technologies including AI which has drastically changed our perception and view about education. One such field that is acquiring significance is the virtual proctoring space. The main reason for the popularity of proctoring is the gaining importance of E-Learning. When talking about online education, accountability is almost always associated with it. Since the students are self-learning through online media, it's very important to evaluate their each move in the learning process. "Proctoring" is a technique existing in e-learning which provides us with many modules or programs which can be utilized to evaluate the progress of students embracing online education. This paper is an attempt to study the importance of proctoring in securing and improving the online education.

15.1 Introduction

The traditional test conducting method comprises booking a physical test center, intimating the candidates, examining the tests and then evaluating the answer sheets to finally declare results, is a system of the past. Innovations

* P. Divya, Assistant Professor, PG Department of Commerce and Management, SVTB College, Mannampatta, Palakkad, Kerala.

** Anu A.N., Assistant Professor, PG Department of Commerce and Management, SVTB College, Mannampatta, Palakkad, Kerala.

and technologies have changed the entire process into a brilliantly crafted, less burdensome online process of proctoring. The online proctor usually known to us as remote proctoring developed as a reaction to the growing online presence of candidates and learning in remote areas. Trick the cheater with the trait of remote proctoring in online exams. Make the assessments convincing in the remotest of locations by proctoring candidates from distant. Proctoring is the answer that brings integrity to an individual's learning. This paper aims at studying the importance of remote proctoring and its various features in securing and integrating online learning.

15.2 Statement of the Problem

As the education has undergone a drastic change in digitalized era the students are opting for online education from any part of the world. Therefore there arises a necessity to integrate the learning process in e-learning which would ensure the security and reliability of digital education. Proctoring is a recently developed technique which aims at minimizing fraudulent acts and fake learning in online education. Hence this paper is an attempt to study the significance of proctoring in online education system and assessing online exams.

15.3 Objectives of the Study

- To understand the concept of online proctoring
- To identify the problems related with off line proctoring
- To study the features of online proctoring
- To study various types of online proctoring
- To know the need and uses of online proctoring

15.4 Significance of the Study

Online education has become an inevitable part of everyone's life which has made the learning process easier and fast. The student from any part of the world can access any universities of the world and acquire their education through simple procedures. But there arises the problem of safety and security of education system. As an answer to this the proctoring system has been developed in online education to prevent fraud and ensure the integrity of the digital education system. This also ensures the credibility of the education through online basis.

15.5 Research Methodology

This paper is completely a conceptual work. The study is mainly based on secondary data collected from various websites, online papers, journals, research papers, books etc.

15.6 Limitations of the Study

- The data for the study is derived from published sources.
- The study is conducted in a short span of time.

15.7 Review of Literature

Allen and Seaman (2010): Found that online enrollment represents approximately 25 percent of total enrollment, which has risen from 22 percent of previous year. The major problem is integrity of these online courses. Whitley (1998) studied that 70 percent above college students reported indulge in cheating during their postsecondary education. *Journal of Business Administration Online* Vol. 9, No. 2, Simkin and McLeod (2010) found that Online classes, without proctoring, facilitate cheating behavior as there is no one watching the student (Whitley 1998). Wellman (2005), Alexander (2001): These studies were based on in-class proctored online exams and their studies showed several benefits of in-class proctoring.

15.8 Concept of Proctoring

Online remote proctoring is a technology which helps in distant assessments. It is a characteristic that allows a test to be taken from any site, where the candidate can access a computer and can be connected to a high Speed internet. Assessing through an arrangement of technologies like monitoring software, video images avoid the candidates from indulging in any unwanted behavior.

Problems with Offline Proctoring

- Providing a proctored exam centre near the candidate is a difficult task for any test conducting organizations.
- It is very difficult to find a proper proctor and ensure their reliability, since there is no mechanism for cross checking the proctor's activities.
- Limitations of proctoring centre' and proctors leads to extension of time schedule.
- There are chances of impersonation and cheating on the part of candidates.

Features of Online Proctoring

- ❖ **Pre-Authentication:** It is the step which has to be taken before the examination procedure begins. The person taking the exam has to authenticate himself by using – OTP, Aadhaar/Biometric, IP etc. For the successful registration the candidate needs to undergo and pass the ID authentication stages which involves analyzing the fingerprints that should match with the biometrics scan submitted in the preliminary registration, facial identification by taking the candidate's picture and ID proof. This procedure confirms the authenticity of the candidate appearing for the exam.
- ❖ **Browsing Tolerance:** This feature detects the candidate and enables them to take the exam and ends the exam window once the test is over.
- ❖ **Remotely Authorize and Control:** It includes the following:
 - i) Validate and authorize the proctor to stop and end the test.
 - ii) Copy paste is allowed to avoid leakage of substance.
 - iii) Behavioral alerts: If the candidate is seen doing some doubtful activity, then alerts in the form of red signals is raised.
- ❖ **Report Generation:** This has two parts; one for the candidate and the other for the proctor.
 - i) The candidates report contains the overall summary of the performance of the candidates in the form of percentiles and number of correct/incorrect answers.
 - ii) The proctor's report regarding candidates is 2 parts: Online & Offline.
- ❖ The online part contains sections which comprises candidates report about their difficulty analysis and a detailed report regarding each question wise analysis. It also includes videos of the exam attended by the candidate.
- ❖ It is the downloaded version of the online exam report which does not contain online videos but contains only the images of the candidates.

The main feature of online proctoring is the online videos of the exam site which provides a complete picture of the exam- that is from the start of the exam till the end of the exam.

Types of Online Proctoring

There are three types of proctoring:

- ◆ **Live Online Proctoring:** In this type of proctoring a qualified proctor monitors the candidates at real time. Audio-video, screen are shared at real time. Such proctoring removes the constraints of remote locations. It is a live monitoring of a candidate appearing for the exam at a remote place through online testing. The proctor has the right to disqualify any candidate if he smells any suspicious act on the part of candidate. A proctor can invigilate 16/32 candidates at a time. The main disadvantages of such proctoring are that, it is expensive, need to be scheduled and is not scalable.
- ◆ **Recorded Proctoring:** Here the proctor does not monitor the test in real time instead they examine the recorded videos of the test candidates and analyze the performance. Since it is not real time the proctor can conduct any number of exams. The exam need not be scheduled but in this system also human review is required to scale down the result of the candidates.
- ◆ **Automated Advanced Proctoring:** It is the advanced form of online proctoring. The proctor need not invigilate the entire process of candidates testing screen but it is passed on to the software which keep a check on such activities. If any fraudulent act is found on the part of candidate it raises the alarm and the proctor comes back and rechecks the entire act to investigate the fraud and accordingly takes the action. This system also removes the constraint of remote location and does not have to do scheduling. It is also cost effective.

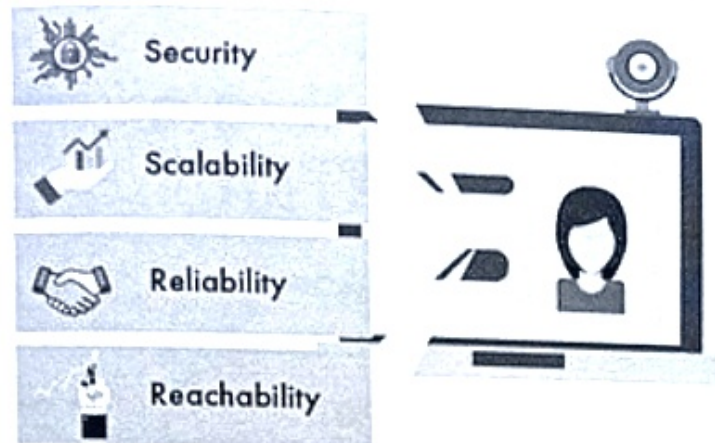
Need of Online Proctoring

The growing demand of e-learning and online examination have provided a favourable ground for developing better and advanced online proctoring system. Following are the needs for online proctoring:

- ◆ **Cheating:** The online proctoring has provided a security system to curb the cheating behavior of candidates at the time of examination.
- ◆ **E-Learning:** Online proctoring is the best solution to anyone who wants to take online courses from different universities of the world at any time.
- ◆ **Saves Time and Money:** Remote proctoring removes the problem of logistic by converting every room into examination hall. It saves the evaluation time of the proctor and improves the reach of each candidate.

- **Multi Options:** Online proctoring has many options of monitoring such as audio-video surveillance, webcam, live monitoring etc.

Remote Proctoring ensures an environment of -



Uses of Online Proctoring

1. **Universities:** Online proctoring has two fold effects in universities. One is to assess the **teachers** who are trained to use advanced technologies for conducting online courses and examinations. The other is for **students** to invigilate their performance during the examination. It is used to prevent fraud and authenticate the students appearing for the exam.
2. **Companies:** Various companies use online proctoring to recruit best employees for the benefit of their company through online examination having the feature of remote proctoring. This system is also used to do internal assessment of their employees for the purpose of identifying training needs, promotion, skill development etc.
3. **Certification Purpose:** As the people are largely attracted towards online courses the universities are using remote proctoring to validate the skill learned by the candidates.
4. **Governments:** Governments undertake various welfare programmers' with social objectives. In order to ensure the integrity of such initiatives



the government avail proctoring service to test the skill acquired by the people who are undergoing such programmes.

Implications of Online Proctoring

- Ensures security of the examination.
- Validates online courses
- Convenience to test takers regarding place and time of examination
- Data of candidates are available for future reference.

Limitations of Online Proctoring

- ◆ It may not be cost effective for all students.
- ◆ As it is a new concept it may create discomfort among students and teachers
- ◆ Effect of human proctoring is less as compared to automated proctoring.

15.9 Conclusion

The prospect of online remote proctoring seems very bright and beautiful, stretching its arms in all directions and attracting attention from all industries and region. A day will come when this system becomes reliant without online. Lot will be changed from today to tomorrow. Till then make maximum utilizations of technology available today in the market. Take the advantages of online proctoring now like low cost, flexibility of time, location etc.

References

1. E. Allen and J. Seaman (2013). Grade change: Tracking online education in the United States, *Babson Survey Research Group and Quahog Research Group, LLC*. Retrieved on, 3(5), 201
2. Dunn, T. P., Meine, M.F., & McCarley, J. (2010). The remote proctor: An innovative technological solution for online course integrity. *The International Journal of Technology, Knowledge and Society*, 1, 1-7
3. Karim, M. N, Kaminsky, S. E., & Behrend, T. S. (2014). Cheating, reactions, and performance in remotely proctored testing: An exploratory experimental study. *Journal of Business and Psychology*, 29, 555-572. DOI: 10.1007/ s10869-014-9343-z
4. Bedford, W., Gregg, J. & Clinton, S. (2009). Implementation of technology to prevent online cheating: A case study (SSRU). *MERLOT Journal of Online Learning and Teaching*, 5, 230-238.

