“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi
A COLLECTION OF

Innovations and Ideas in the Open and Distance Learning System

Editors

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National Centre for Innovation in Distance Education
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Maidan Garhi, New Delhi
CONTENTS

FOREWORD
Prof. S. B. Arora
Vice Chancellor, IGNOU

PAGE NO.
5

INTRODUCTION
Prof. Manoj Kulshrestha
Director, National Centre for Innovation in Distance Education (NCIDE), IGNOU,

6

PREFACE
Dr. Moumita Das
Assistant Director, National Centre for Innovation in Distance Education (NCIDE), IGNOU
Dr. Sujata Santosh
Assistant Director, National Centre for Innovation in Distance Education (NCIDE), IGNOU

7

1. Mobile Application as a Learner Support Service
Mr. Binod Deka
System Analyst, Krishna Kanta Handiqui State Open University, Guwahati, Assam

9-16

2. Post Graduate Diploma in E-learning (PGDEL), an Online Programme
Prof. Santosh Panda
Professor of Distance Education, Staff Training and Research Institute of Distance Education (STRIDE), IGNOU, New Delhi
Dr. G. Mythili
Deputy Director, Staff Training and Research Institute of Distance Education (STRIDE), IGNOU, New Delhi

17-22

3. Reaching Children with Disabilities through ODL: Innovating through the Certificate Programme in Early Childhood Special Education Enabling Inclusion (Cerebral Palsy)
Prof. Rekha Sharma Sen
Professor, Child Development, School of Continuing Education, IGNOU, New Delhi

23-32

Prof. Manoj Kulshrestha
Director, National Centre for Innovation in Distance Education (NCIDE), IGNOU, and Professor in Civil Engineering in School of Engineering and Technology, IGNOU, New Delhi

33-37

5. Mobile Application for Efficient Delivery of Learner Support Services in IGNOU
Dr. Anjana
Assistant Regional Director, IGNOU Regional Centre, Khanna, Punjab

Dr. Santosh Kumari
Regional Director, IGNOU Regional Centre, Khanna, Punjab

38-42
6. Information Brochure of Indira Gandhi National Open University for Persons with Disabilities

Dr. Sanjay Kant Prasad
Deputy Chief, Commissioner for Persons with Disabilities, Office of the Chief Commissioner for Persons with Disabilities, Government of India

Dr. Siddhant Kamal Mishra
Deputy Director, National Centre for Disability Studies, IGNOU, New Delhi

Mr. Santosh Kumar Pandyan
Producer, Electronic Media Production Centre (EMPC), IGNOU, New Delhi

7. Web-based Environment for Evaluation of Project Reports

Dr. G. Mythili
Deputy Director, Staff Training and Research Institute of Distance Education (STRIDE), IGNOU, New Delhi

Dr. Sanjaya Mishra
Education Specialist (eLearning), Commonwealth of Learning, Canada

8. Didactics of French as a Foreign Language in Open and Distance Learning in India: Hindi as a Pedagogical Tool (French Learning)

Dr. Deepanwita Srivastava
Assistant Professor, French language, School of Foreign Languages (SOFL), IGNOU, New Delhi

9. A Monitoring Process for Enhancing the Quality of the Certificate Programme in Diabetes Care for Community Worker

Ms. Neerja Sood
Assistant Professor, Nursing, School of Health Sciences, IGNOU, New Delhi

10. A Web-based GIS Application for Learner Support

Dr. Anshu Miglani
Assistant Director (R&D), Inter University Consortium for Technology-Enabled Flexible Education and Development (IUC), IGNOU, New Delhi

11. Imparting Software Skills in Geospatial Technology through Online Lectures

Dr. Satya Raj
Assistant Professor, Geography, School of Sciences, IGNOU, New Delhi

12. ICT Enabled Examination On-Demand in IGNOU

Dr. Oum Prakash Sharma
Deputy Director, National Centre for Innovation in Distance Education, IGNOU

13. Designing Cardiology Programme for Open and Distance Learning

Prof. Tapan Kumar Jena
Professor, School of Health Sciences, IGNOU

Dr. Biplab Jamatia
Assistant Professor, School of Health Sciences, IGNOU
IGNOU, with international recognition and presence, has achieved the distinction of becoming the largest University in the world with three million students on its rolls. The University provides seamless access to sustainable and learner-centric quality education, skill upgradation and training by using innovative technologies and methodologies. The mandate of the University is to reach large numbers and the unreached sections of the society with quality education, and this calls for innovative mechanisms that need to be implemented for increasing system efficiency and quality.

The National Centre for Innovation in Distance Education (NCIDE) at IGNOU is mandated to promote innovations and develop innovative mechanisms for the Open and Distance Learning (ODL) system. It is actively involved in identifying areas of innovation and documenting innovations for easy reference of the stakeholders. This volume is such an endeavour. It covers innovations from a wide range of areas, such as innovative programmes, information and communication technology (ICT) based applications in course delivery, innovative methods in evaluation, admission and student support. The compilation not only documents the innovations but also suggests the adaptation of these innovations by the ODL system, including IGNOU, the State Open Universities and the Directorates of Distance Education.

I congratulate NCIDE for bringing out this timely document and sincerely hope that this would encourage the stakeholders in the ODL system to innovate.

(S. B. Arora)
Vice-Chancellor (I/c)

Dated: 24th April, 2018
INTRODUCTION

Innovations play a vital role in the growth and development of any educational system and the Open and Distance Learning (ODL) system is no exception to it. It has been a consistent endeavour of IGNOU to recognize the need of innovations in the ODL system. Accordingly, the National Centre for Innovations in Distance Education (NCIDE) came into being in 2005 to usher in the environment of innovation for the growth and development of the ODL system in the country.

NCIDE is intensively involved in promoting and developing innovative mechanisms for the different components of ODL system. The faculty members of NCIDE are proactively working on many such projects to benefit different stakeholders. Towards the fulfilment of these initiatives of NCIDE, the university instituted a Gold Medal in 2006 for the best innovation in Distance Education to be awarded at the University Convocation every year. This is a step to accord recognition to the innovators and encourage the ODL fraternity to explore new ideas for the educational interventions. Since then, NCIDE receives many nominations for the Gold Medal every year. As a result, NCIDE has built up a good repository of ideas which can be termed as a gold mine of innovative ideas. In one of the faculty meetings of NCIDE, it was decided to publish a select few ideas and innovations from this repository in order to facilitate the stakeholders and for the benefit of the ODL system in general. This volume in your hands is the result of this effort. The book contains thirteen articles that provide the details of the innovations which were awarded the Gold Medals in 2008, 2010, 2013 and 2016 along with the details of nine other close contenders for the Gold Medal.

I hope that this volume would serve as a ready reference and would be of immense help to the stakeholders of the ODL system including teachers, policymakers and research scholars in propagating the culture of innovation on the basis of outcomes of the articles contained in this issue.

Place : New Delhi
Date : April 24, 2018

Prof. Manoj Kulshrestha
Director, NCIDE, IGNOU
In my twelve year association with the National Centre for Innovation in Distance Education (NCIDE), I have been working on identifying the gap areas of the Open and Distance Learning (ODL) System, especially IGNOU, to find out innovative solutions for quality improvement. In the quest for this, I have come across many wonderful solutions. The beauty of these innovative ideas is that these have emerged from the people’s minds who are actually working in the area. Over these years, NCIDE has received more than a hundred innovative ideas by the way of nominations for the Gold Medal in Innovation in ODL awarded by the IGNOU in its Convocation. This gave me the idea of compiling these ideas and innovations together with my colleague Dr. Sujata Santosh to be presented before you in an organised and lucid manner.

For this volume, we had written to the innovators and ideators who have enthusiastically responded to this endeavour and have sent their well-drafted contributions.

We have included twelve such ideas and innovations in this volume.

I sincerely hope that our efforts to bring out these ideas and innovations for you would be useful.

Moumita

This book was compiled to present and share the instances of innovative ideas and initiatives in distance education taken up by the Open and Distance Learning (ODL) practitioners. It was realised that these innovative ideas could be useful for other members of the ODL fraternity for integration into the ODL system or for future research and development. The innovative initiatives presented in this book are selected from the various innovative projects received for the award of the Gold Medal for Innovations awarded by NCIDE. The innovators share their innovations, what made them think and work on the idea, the creative process, the process of development and implementation, and also how these could be taken further.

I believe that the renderings of the various innovations will help the readers know more about the various innovations, visualise the related operational aspects, and motivate them to do something similar. I hope that the readers are inspired and empowered to take up innovative endeavours towards further enriching the open and distance learning system.

Sujata
Mobile Application as a Learner Support Service

The use of new technology for educational purposes has always been in the forefront of Open and Distance Learning (ODL) system in India. And in this context, we can say that in the 21st century mobile learning plays a significant developmental role in the field of higher education. This seems to be a new trend of learning among the learners. The ODL system is passing through the fifth generation of learning where there is a felt need to apply the Intelligent Flexible Learning Model for our learners. Intelligent learning mode shall reciprocate the delivery modes like internet sources, interactive multimedia model and also mobile learning. The Krishna Kanta Handiqui State Open University (KKHSOU) has developed an innovative mobile application (app) to support learning in the state of Assam as well as in the whole of India. The innovation and its distinctive features are presented in this article.

Introduction

The use of new technology for educational purposes has always been in the forefront of the most cutting-edge open distance learning (ODL) systems. Technology-supported teaching and learning has helped enormously in overcoming the physical distances between teachers and students, enabling the flexible delivery of education at a distance, anywhere and anytime.

Mobile learning is a kind of learning that takes place via a portable handheld electronic device. It also refers to learning through other mobile devices such as tablet computers, netbooks and digital readers. It is the ability to obtain or provide educational content on personal pocket devices. Most researchers and educators probably view mobile learning as the immediate descendant of e-learning. For example, e-learning has been defined as ‘learning supported by digital “electronic” tools and media’, and by analogy, mobile learning as ‘e-learning that uses mobile devices and wireless transmission’. Mobile technology actually offers the appropriate educational environment to assist learning activities both inside and outside the classroom.

Desmond Keegan, the eminent expert in distance education, on the other hand, viewed the growth of distance education on the basis of technological developments in information and communication technologies (ICT). According to Keegan, the evaluation in distance education is characterised as a move from distance learning (d-Learning), to electronic learning (e-Learning), to mobile learning (m-Learning), a phenomenon that he suggests corresponds to the ‘societal evolution’ from the Industrial Revolution, to the Electronic Revolution of 1980s, to the Mobile Revolution at the close of the 21st Century.

The Krishna Kanta Handiqui State Open University (KKHSOU), realising the increasing use of mobile devices by the learners to access information, designed a mobile application for supporting its learners.

Background of the Innovation

Due to the recent development of technology, the education system has also upgraded itself and helped the learners to get their best at their finger tips. We know that the website of any organisation plays a very important role in its functioning. The website of a University reflects its
image and helps anybody to have a basic knowledge about the organisation. Now-a-days, along with the website, mobile application is also playing a crucial role.

The analysis of the website of the KKHSOU (www.kkhsou.in) using Google analytics revealed that 78 per cent of the users are using their mobile phones to view information on the website (Table 1).

Table 1. Google Analytics report of September 2017.

<table>
<thead>
<tr>
<th>Devices used to view the KKHSOU website</th>
<th>Total number of users (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile</td>
<td>75,544 (78.00)</td>
</tr>
<tr>
<td>Desktop</td>
<td>20,578 (21.25)</td>
</tr>
<tr>
<td>Tablet</td>
<td>724 (0.75)</td>
</tr>
</tbody>
</table>

A survey done by www.statista.com, showed that by 2019, approximately 813 million users will use their mobile in the various activities of their day to day life (Fig. 1). So, keeping this in mind, I have developed a mobile application for helping the learners get the desired information at their fingertips at any point of time. Till the time of writing this, more than 5600 users have used the android application having a rating of 4.51 in the Google Play Store.

Figure 1. Number of mobile users from 2013 to 2019.

The Creative Process

Most of the people now-a-days are using mobile phones in their daily lives. The expectations of people from their mobile phones are increasing day by day. Keeping this in mind, we have designed a mobile application for all types of mobile users and are continuously trying to provide as much information as possible at their fingertips. The application is available in Google Play Store. We have customised it keeping in mind the learners’ needs. Rather than focusing on a specific mobile operating system, we have generalised the application so that it can be used in any device by any user. For using the features of the application, we just need an internet connection and a browser.

The working principle of the mobile application is shown below:

```
MOBILE APPLICATION  KKHSOU
KKHSOU WEB PORTAL  SERVER
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Both the mobile application and KKHSOU webservers are synchronised with the server. While developing the application, we kept in mind the following information:

- User devices may not be equipped with high processor and storage capacity.
- Users always have the minimum internet bandwidth.

For front end development of the mobile application, JAVA, JQUERY is used. For the back-end PHP, MYSQL is used. The application was developed in two phases. In the first phase, the application was linked specific web pages of the website and some information was provided for offline to viewing. In the second phase, we integrated most of the information in the application itself and made the application work using the Internet so that the information is always up to date, and now-a-days Internet connection is easily available with very low cost.

About the Innovation

a. Description

The mobile application is android based. The application helps the users, who are associated with the university, to get continuously updated information from the university. The download link is available on the University website (http://m.kkhsou.in), which can be accessed either by clicking on the link or scanning the Quick Response (QR) code available on the KKHSOU website. It can also be downloaded from the Google Play Store. For the users of iOS, Blackberry and Windows, it has the same look and functionality as the mobile based web application, which can be easily accessed from the university website. The users who are trying to access the KKHSOU website from their mobile devices are automatically redirected to mobile based web application. Rather than searching for information on the website, the user can get information by just clicking on the application installed on their mobile devices.
The mobile application is compatible with existing MYSQL database and PHP based file, which is also linked to the KKHSOU website. The mobile application will work on all Android devices independent of their operating system as well as the mobile manufacturing company.

The functionalities have been assigned in the mobile application as per the convenience of the learners. The basic functionalities of the application are as follows:

- Latest news, announcement, etc. is provided.
- Examination routine, results and any kind of news available category wise and these information are available in mobile friendly readable format.
- Frequently Asked Questions related to the university with answers are available.
- Admission procedures, course information along with fee details are provided.
- Assignments, previous years’ question papers, etc. are available.
- Self Learning Materials (SLM) and the University newsletter are available in e-format.
- Send/Call feedback facility to the University/University officials, etc. are available.

In addition to the above, audio-visual lectures are also made available. Anyone can locate the study centres according to their location or course offerings. All contacts and addresses of study centres are also made available.

A few snapshots of the android application are shown in Figure 2.
To measure the efficiency and quality of the application, Google Play Store provides the rating and comments from the users who have downloaded the application. The data related to ratings and downloads collected from Google Play Store is presented in Figure 3 (a) and (b).
b. Novelty

The first and most important thing about the application is that, the application can be used in the non-android devices (iOS, Windows, etc.) as well, in addition to the android devices.

Keeping in mind the different types of operating systems (OS) in mobile devices or other devices, the application was designed in such a way that it will work on all devices independent of the OS on the devices or the device manufacture company. In case of non-android devices, one needs to just type m.kkhso.in to get the same features available in the application. The look and feel of the application for other devices is kept as the same so that the user does not feel the difference when s/he changes devices.

The size of the application is 1.33 MB which is very small and can easily fit in the devices having less storage space.

Another important point about the application is that the user can easily locate their nearest study centre based on the district or course they are interested in. In addition, they get the contact information, whether it is of study centre or of the university officials just by clicking on the phone/e-mail icon. The respective application will automatically open to operate the function (e.g., in the case of phone numbers, the phone dialer will open when the phone number is selected. When the e-mail icon is selected, the e-mail application will open for sending e-mail to the contact person).

Learners can also download e-SLM, or audio/video lectures from the application for offline viewing later. Another feature of the application is that it is always synchronised with the university.
website. If any learner sends a message via the application to the university official, the message is automatically transferred to the concerned department of the university and later, both the learner and the official can independently communicate with each other.

c. **Usefulness**

The use of the application has already been discussed in the section above. The main and basic purpose of this application is to provide the user useful information on their mobile phones in a very easy manner, and at the same time make it interesting by introducing interactivity in the application.

Before the development of this mobile application, the users who are related to this university mainly relied on the website as well as on telephonic support, which is not suitable for all the users. Generally the website (desktop based) is viewed either from a laptop or a desktop. Due to enormous usage of smart phones in India, people now-a-days are more familiar with mobile apps than the website. It does not mean that the website does not play any important role. The website renders the same function, but with respect to user feasibility and technical feasibility, mobile application has won the game. The mobile application is always synchronised with the website, and helps users get the same kind of information.

d. **Reach**

Anyone with a smart phone can use this application to access the university website and obtain the necessary information or interact with the university officials. The learners residing in remote areas, but having a smart phone can easily avail of this facility. The reach of this application is indeed wide.

e. **Cost effectiveness**

The existing application is freely available and can be downloaded from the Google Play store. All the information in the mobile application is retrieved from the server dynamically and it costs around 5-10 Kilobytes (KB) per retrieval, which is very cheap as compared to the today’s internet bandwidth value.

The application has a repository of soft copies of previous year questions paper and e-materials that can be read/download for offline viewing at a later time. This reduces their printing cost and the material carrying cost and at the same time, the e-materials are also available on their mobile phone anytime and at any location.

f. **Scalability**

The application can be used by any number of users at the same time, as in the background, the Virtual Private Server (VPS) is used to handle huge traffic. The VPS configuration can be increased if the number of users increases. The software code will not only work on the existing VPS but also on the new configuration of VPS. There are provisions for the modification of existing application without affecting the existing users as per the requirement.
g. **Sustainability**

The application is developed using an Open Source technology. These technologies are likely to be used in the future also. The application can be modified anytime without affecting the existing functionality. In addition, the functionality provided in the application will not only help the users to get information related to the results, schedules, etc. but also will provide the updated information and the latest news of the university. As e-materials are available in the form of PDF, html, audio and visual materials, the application can also be used by other university students. With respect to technology and functionality perspective, the application will sustain over a period of time.

h. **Implementation and impact**

As shown in Table 1, the total number of mobile phone users is more than the desktop users. The total number of KKHSOU android application users is more than 5600 till date and the number is increasing day by day. From this, we can say that there is an increasing need for mobile based applications so that the users will be benefited and remain informed about the latest news of KKHSOU on the go.

**Future Application**

In the future, we have plans to make it compatible for the differently-abled learners. In addition to this, information will be provided to the learners as per their requirement. For example, at times the learner may not be interested in information other than the examination dates of the university. For making the application more user friendly, only the customised information is provided to the learner. Also, we have a plan to alert each learner before the assignment submission/examination date through this application. To test the learner’s ability to use the application, there will be an online examination facility to evaluate the learners.

The application is open to all the people on the Internet. By providing e-materials, guidelines related to the course, KKHSOU shall not only help the learners, but shall also help the users from different colleges/universities.

**An important aspect**

Such an application shall play an important role in the education sector. In the past, the student had to come to the Guru’s home and spend many years to earn knowledge. However, with the use of such digital technologies, the required information goes to the learners’ hands with the click of their fingertips. It also makes the relation between a teacher and the student stronger.

**About the Innovator**

**Mr. Binod Deka** is presently working as System Analyst at the Krishna Kanta Handiqui State Open University, Guwahati, Assam. He is an M. Tech in Computer Science and Engineering from the Indian Institute of Technology, Guwahati. He has a work experience of eight years in his field.

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**Post Graduate Diploma in E-learning (PGDEL), an Online Programme**

With the increasing use of web technologies in education, there is an increasing need for qualified human resources to design, develop, implement and manage effective e-learning programmes. Although a variety of online programmes are available, their quality remains an issue. It is in this context, the Indira Gandhi National Open University (IGNOU) has designed and developed a Post Graduate Diploma in E-Learning (PGDEL). The PGDEL programme is innovatively designed with special features that are offered to the learners in an online mode. This Programme was awarded the Gold Medal for Innovation in Open and Distance Learning by IGNOU in 2013.

**Introduction**

The Indira Gandhi National Open University (IGNOU) designed the Online Post Graduate Diploma in E-Learning (PGDEL) Programme in January 2010 to develop the professional competencies in offering online Programmes in the country, and offered through the Staff Training and Research Institute of Distance Education (STRIDE). The PGDEL Programme is designed for both the theory and the practice of e-Learning. It is available at the website: http://pgdel.ignouonline.ac.in/pgdel.

The objectives of the programme are to develop human resource capabilities in planning, designing, developing, implementing, and evaluating e-learning programmes. The programme offers personalised online student support, and uses Open Educational Resources (OERs) and recommended texts, Moodle Learning Management. It employs synchronous delivery methods using online conferencing tools, and uses discussion forums extensively for both academic and personal support. It offers compulsory face-to-face practical sessions at the headquarters. It contains a mandatory project work component to facilitate hands-on work in online learning tools.

The PGDEL Programme aims that after the successful completion of the study, the learners are able to:

- Analyse the theoretical foundations as well as concepts related to design, development, implementation and evaluation, online education and training.
- Apply theoretical principles to design e-learning programmes.
- Identify innovative practices and developments in the field of e-learning.
- Use appropriate instructional design models for e-learning programmes.
- Teach online courses to develop collaborative learning and maintain communities of learners.
- Manage e-learning projects.
- Choose appropriate technology and develop and implement content for e-learning.
From 2010 to 2013, the programme has several batches and each batch comprised of about 30-40 learners.

**Background of the Innovation**

Although the use of web technology in education is increasing and a wide variety of online programmes are available, their effectiveness and optimum use to improve student learning is mostly questionable as institutions tend to put static web pages and downloadable zip files as online learning without considering the need for interaction design and the need for having interactive learning materials. Further, no formal training programmes are available in India on “E-Learning”, though many short-term training programmes are organised by different institutions from time-to-time. There are many virtual education initiatives in the country, and the need for having qualified human resources to design, develop, implement and manage effective e-learning programmes is growing manifold. It is in this context, IGNOU designed and developed a Post Graduate Diploma in E-Learning (PGDEL) and offered through the online mode.

**The Creative Process**

The creativity of this innovative Programme in inherent in its design, development and implementation processes.

*a. Design*

The programmes of IGNOU follow the credit system of the open distance learning system. While designing the PGDEL Programme, the experts designed it as a 24 credit online programme with 5 courses. Since, it is a professional development programme on e-Learning, each course covers academic and pedagogical aspects as well as industry aspects.

*b. Development*

The PGDEL Programme went through two different development phases, namely (i) Content development and (ii) Technology development.

(i) Content Development: One of the major objectives of this programme to use OER materials in the courses. Identification of suitable OER materials for the courses was the most challenging tasks. In this programme, various OER websites were used for searching the relevant materials for the courses.

(ii) Technology Development: The selection of technology environment is very important for an online programme. Accessibility and usability for both organiser and user should be considered while selecting the relevant technology. The PGDEL Programme uses open source software for its content and student access. After consulting the experts and based on relevant research, Moodle, an open source Learning Management System (LMS) was selected for the teaching-learning process of the PGDEL Programme.
c. Implementation

The PGDEL programme was deployed on Moodle LMS platform, which was hosted in eGyankosh of IGNOU. The PGDEL Moodle LMS, database and maintenance of all the aspects related to PGDEL is done by eGyankosh, the technical wing of IGNOU.

About the Innovation

a. Description

Online teaching encourages student-teacher interaction, peer to peer interaction, active learning, provides, prompt feedback and motivates the learner to complete the courses successfully. The PGDEL Programme is a professional development programme on e-learning. It helps the learners to become online teachers and e-learning manager/administrator. When the learners change their role to online teacher and administrator of an online course, the course teacher/programme coordinator of PGDEL has to monitor or guide them accordingly.

A. Programme Structure

The 24 credit* PGDEL Programme has the following five Courses :

1. MDE-001 : Introduction of E-Learning (4 Credits)
2. MDE-002 : Design and Facilitation of E-Learning Courses (4 Credits)
3. MDE-003 : Management of E-Learning Projects (4 Credits)
4. MDEI-004 : Technologies for E-Learning (4 Credits)
5. MDEP-005 : Project Work (8 Credits)

*(1 credit = 30 study hours by students)

Teaching-Learning Components

Besides self study of the recommended online/pdf resources, the following teaching-learning modes are used in the PGDEL Programme through the Moodle LMS :

1. Virtual Classes : Virtual classes were arranged for interaction between learners and course teachers through a virtual environment to clarify doubts and answer academic queries. These classes were normally held on weekends and hosted from STRIDE, IGNOU.

2. Discussion Forums : Students are required to participate in two discussion forums in each of the three courses, MDE-001, MDE-002 and MDE-003. The discussion forums have been designed and placed in the Moodle LMS. Each student is expected to express his/her views in the discussion forums and other fellow students are expected to give their views. Wherever required the course tutor intervenes in the discussion forums. The discussion forums are assessed by the course tutor for 10 marks each and the score is included in the continuous assessment for each course.
3. Assignments: Assignment is an important component of the study. Each course of PGDEL has compulsory assignments. The assignments carry 45 per cent weight in the final result. It means the learner has to submit the assignment per course before their term-end examination.

4. Computer Marked Assignment (CMA): A quiz for MDE-001, MDE-002 and MDE-003 was placed in the Moodle LMS for 10 marks each and it was automatically evaluated and the scores were included in the continuous assessment.

5. Tutor Marked Assignment (TMA): An assignment for MDE-001, MDE-002 and MDE-003 was placed in the Moodle LMS for 10 marks each and it was evaluated by the course tutor. The tutor comments and evaluated assignment had been sent to the students through Moodle LMS. The scores were included in the continuous assessment.

6. Face to Face (F2F) Session: There was a one-week compulsory fact-to-face workshop at the IGNOU headquarters (preferably in August) to provide hands-on experience on the Moodle LMS, audio and video content, social media (Blog, Facebook), etc. so that the learner could design and develop their own online course related to MDE-004 and MDE-005.

7. e-Portfolio: The students were expected to develop an e-Portfolio precisely mapping the processes that each one goes through, starting from the first course till last course (in about 6000 words). The structure of e-portfolio had been provided at the beginning of the course when a pre-study online survey was conducted. Submission and pass marks in e-Portfolio were mandatory, although the scores were not counted towards overall student assessment and certification. Besides, there were interactions in a specially created Google Group.

B. Term-End-Examination

The term-end examinations of MDE-001, MDE-002 and MDE-003 were conducted in the month of June and term-end examination of MDE-004 and MDEP-005 were conducted in the month of December every year. All the term-end examinations were conducted through Adobe Connect online.

C. Successful Completion of the Programme

The minimum standards for completion of a course and also the PGDEL programme were the following:

1. Minimum 45% of marks in Continuous Evaluation i.e. assignments in each course.
2. Minimum 45% of marks in the Term-End Examination in each course.
3. Final marks in a course (Assignment+Term-End-Examination) should be minimum 45%.

D. Certificate

The final completion certificate was issued after the convocation ceremony for the year in which the learner completed the Programme. However, immediately on completion of the Programme, the learner was issued a provisional certificate.
b. **Novelty**

As described above the novelty of the Programme was in the design, the use of virtual classes and role play. Virtual classes were arranged through a virtual environment for interaction between learners and course teachers to clarify doubts. Role play is one of the instructional strategies that help the learners to get involved and solve real-life problems. Role play can simulate real-life situations and help learners to gain learning experience to understand and solve the problem. The PGDEL Programme provided an opportunity for the learners to play different roles during their academic year. Learners enrolled themselves as students. After gaining experience to design online, they played the role of a content developer, online course coordinator, online teacher, and the instructor of their own online course on Moodle LMS. This programme facilitated the learners to experience all sorts of roles in designing and delivering an online course.

c. **Usefulness**

The Programme facilitated the learners in developing competencies in design, development, implementation and management of online education and training programmes at all levels of education, including corporate training.

d. **Reach**

This programme motivated the learners to become self-directed and independent learning and collaborative learning. The successfully completed learners of the PGDEL online Programme expressed their satisfaction with accessibility, content, collaboration and support provided by the course teachers and facilitators. This programme created an opportunity among the learners irrespective of their discipline to update their knowledge and skills in e-Learning.

e. **Cost effectiveness**

Since this programme uses open source resources and software, this programme is cost effective.

f. **Scalability**

Yes, this Programme is scalable. As of 2013, the intake of this Programme was 50 students. This can be expanded as the programme coordinators had gained experience and can handle more students.

g. **Sustainability**

This Programme was sustained for 4 years, now this programme is on hold because of the formulation of new regulations for online courses by the University Grants Commission (UGC).

h. **Implementation and impact**

As can be observed from Table 1, the total number of students enrolled from 2010 to 2013 was 138, out of which 66 completed the Programme successfully.
Table 1. Number of students enrolled in the PGDEL online Programme from 2010 to 2013.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Students Admitted</th>
<th>No. of Student Successfully Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2010</td>
<td>27</td>
<td>14</td>
</tr>
<tr>
<td>January 2011</td>
<td>33</td>
<td>15</td>
</tr>
<tr>
<td>January 2012</td>
<td>47</td>
<td>18</td>
</tr>
<tr>
<td>January 2013</td>
<td>31</td>
<td>19</td>
</tr>
</tbody>
</table>

In January 2013, CEMCA sponsored 10 women candidates for the PGDEL Programme. A proposal has been submitted to the Ministry of Human Resource Development (MHRD) to offer the PGDEL Programme through the PAN Africa project.

Future Application

After the implementation of online regulation by UGC, this Programme will be resumed as the demand for this programme is high from the prospective students.

An important aspect

The course MDE-002 (Design and Facilitation of e-learning Courses) has been converted into a Massive Open and Online Course (MOOC) and is being offered through the SWAYAM platform of the MHRD, Government of India.

About the Innovators

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Reaching Children with Disabilities through ODL: Innovating through the Certificate Programme in Early Childhood Special Education Enabling Inclusion (Cerebral Palsy)

The Certificate Programme in Early Childhood Special Education Enabling Inclusion (Cerebral Palsy) is the first of its kind that was developed at the Indira Gandhi National Open University (IGNOU) for training personnel to provide education and intervention to children with cerebral palsy. This innovative programme in the sector of disability was developed by the Faculty of Child Development in the School of Continuing Education at IGNOU in collaboration with the Rehabilitation Council of India. The innovation in the Certificate Programme was in terms of programme concept, instructional design, programme content (curriculum and self-learning materials), eligibility requirements and the target group addressed.

Introduction

The Certificate Programme in Early Childhood Special Education Enabling Inclusion (Cerebral Palsy) is a national level programme, which is the first of its kind with no precedent either in the face-to-face mode or the ODL mode that helps to create trained personnel to provide education and intervention to children with cerebral palsy during the period from birth to six years. The minimum qualification to enroll in the programme is successful completion of class 10th examination from a recognised Board with a minimum of 50 per cent marks. It is a 24 credit Certificate Programme of one year duration, which can be completed within three years. The Certificate Programme is innovative and unique on many fronts – in terms of programme concept, instructional design, programme content (syllabus/curriculum and self-learning materials), eligibility requirements and target group addressed. Each of these aspects of innovation has been described further in the following sections.

Background of the Innovation

The faculty of Child Development in the School of Continuing Education was the first faculty to initiate programmes of study in the sector of disability in 2001. Awareness-cum-Training packages meant for the parents and family members of persons with disabilities were developed as a part of the Memorandum of Understanding (MoU) signed between the Rehabilitation Council of India (RCI), New Delhi and IGNOU in 2001. These packages were developed over the period 2001-2008 in a phased manner in four disability areas, namely visual impairment, intellectual disability, cerebral palsy and hearing impairment. The objective of these packages was to empower the parents and family members with the requisite knowledge, understanding, attitudes and skills for fostering the multifaceted development of their children with disabilities, leading to their inclusion in various aspects of family and community life. The content adopted a lifespan approach to disability in the right perspective, with a special focus on enhancing the child’s development during the first six years. A feedback study, where data were collected from the organisations implementing the packages for IGNOU as well as the learners themselves, showed that these packages were found to be highly useful by the parents and family members. The participants of the feedback study expressed the view that the packages had helped the parents to understand their child better; they learnt appropriate methods of teaching their young child activities of daily living and ways of fostering development across domains; they experienced a change in their attitudes and...
behaviour towards their child and could also bring about a positive change in their child’s behaviour; and they developed a confidence in their ability to look after the child and in their child’s ability to learn.

However, since these were non-credit packages, these did not provide the learners with certification, which would enable them to enter the job market in the disability sector, though they effectively developed the competencies of the parents and family members to look after their children and to foster their all-round development. The target group of these packages, i.e. the parents, had spent the early years of their adulthood looking after their child and, consequently, had not been able to upgrade their qualifications for the job market. They now wanted to acquire professional qualifications to enter the arena of work but the formal system of education was closed to them, both because of age bar and lack of adequate qualifications. So on the one hand, the positive response of the parents and family members to these Awareness-cum-Training packages provided a strong evidence for the necessity of preparing Programmes of study addressing the age group birth to six years in the content. On the other hand, the strong motivation of the parents and family members to initiate a career in the field of disability spurred the faculty to strive for creating programmes of study that would support the aspirations of this sector of the population that could not access the face-to-face system. Research in the area of disability has shown that the most powerful change agents are the people who themselves have been affected by disability, which includes the persons with disabilities themselves and their parents and family members. Thus, developing a credited Programme of study in the sector of disability having the young child as its subject matter seemed to fulfill multiple objectives stated below. These were also the motivations for the faculty’s efforts in this direction:

- The programme of study would be in line with the thrust of IGNOU to develop programmes of study for disadvantaged and marginalised and reach the unreached.
- The Rights of Persons with Disabilities Act, Government of India (1995/2016) and international rights-based declarations and conventions (UN Convention of the Rights of the Child, 1992 and UN Convention on the Rights of Persons with Disabilities, 2006) stress equality of opportunity and access in all spheres for persons with disabilities. This equality cannot be achieved unless children with disabilities are given opportunities to grow to their full potential from the earliest years of their life. Further, neuroscience research had established the critical importance of early years in the development of an individual. A Programme of study, which has the development of young children as its content would serve these purposes.
- The Programme of study would serve to open avenues for employment for population groups who could not access the face-to-face system due to age and qualification bars.

**The Creative Process**

The creative process for this innovation began with the conduct of the feedback study on the implementation of the Awareness-cum-Training packages mentioned above. Once the usefulness of the packages and the need to upgrade them into a credited programme of study was established through the feedback study, the next step was to obtain the permission of the RCI to develop credited programmes of study in the four disability areas, since it is the statutory body that regulates and monitors services given to persons with disabilities, standardises syllabi and
maintains a Central Rehabilitation Register of all qualified professionals and personnel working in
the field of Rehabilitation and Special Education. It is mandatory to register with the RCI to
practice in the field of disability as well as get its approval for the launch of courses in the sector.

The feedback of the Awareness-cum-Training packages in disability served as a needs analysis
document for the creation of the Certificate Programme. While identifying the gap in the existing
programmes – both in the face-to-face mode and distance education – in the disability sector, it
was clear that there was a need for a programme of study that would focus on the early
childhood years.

The formal report of the feedback study was submitted to the RCI and this served as a needs
analysis document forming the basis for discussions conducted over a two year period, regarding
the desirability of developing a programme of study pitched at 10th class pass as the eligibility
criteria and optimal all-round development of children during the birth to six years as its subject
matter. The lack of such a programme in either face-to-face or distance mode was a strong
factor pointing to the need to develop such a Programme. A breakthrough was achieved in 2007
when the RCI agreed in a review meeting on ‘Awareness-cum-Training Package in Disability’ held
in August 2007 to upgrade the Awareness-cum-Training package in disability in each of the four
disability areas into independent Certificate Programmes. The RCI also approved the proposal
that learners successfully completing the Certificate Programmes would be recognised as qualified
to register as ‘Personnel: Category B’ in the Central Rehabilitation Register of the RCI. Thus the
creative breakthrough was achieved at two levels: recognition of the Certificate Programmes of
study by RCI and recognition of the learners who successfully complete the programme.

The Certificate Programme in Early Childhood Special Education Enabling Inclusion (Cerebral Palsy)
described in this article for which the Gold Medal for Innovation in Programme Design and
Development was awarded by IGNOU in 2010 was the first of the four National level Certificate
Programmes that were developed in the period 2009-2011.

About the Innovation

a. Description

The Certificate Programme is chiefly a print-based programme of study, as per the standard
IGNOU practice. It is a 24 credit programme of one year duration, which can be completed within
three years. The 24 credits are equally distributed between theory and field-based practical work.
The broad aim of the Certificate Programme is to enable the learner to work as a member of an
interdisciplinary team providing early intervention and education to children with cerebral palsy up
to the age of 6 years in a variety of settings such as inclusive set-ups, integrated set-ups and
special schools.

Course Structure

   i) Theory Component : The 12 credits of theory are transacted through two courses of
       6 credits each titled ‘Foundation in Early Childhood Development and Disability’ and
       ‘Early Childhood Special Education for Children with Cerebral Palsy’ which the learner
       has to successfully complete by submitting assignments and appearing for term-end
       examinations. Thus, the non-credit Awareness-cum-Training Package in Disability
       (Cerebral Palsy), after changes and modifications in content, was included as a 6
ii) Field-based Practical Work: The 12 credits of hands-on field work is further divided into 3 Projects of 4 credits each, involving working with children with cerebral palsy in three different contexts. Each Project Work is of about 3-month duration. The first Project Work requires the learner to work in a family setting where there is a child below three years of age and implement an Individualised Family Support Plan. The second Project Work requires the learner to work in a preschool/school setting with an individual child between 3-6 years of age and implement an Individualised Education Programme. The third Project Work requires the learner to work in a preschool/school setting with a group of children between 3-6 years of age and carry out Group Teaching.

b. Novelty

The novelty of the innovation has been explained under four heads as follows:

i) Innovation in Programme Concept

The Certificate Programme is innovative from the point of view of the subject matter of its content: it addresses the critical age group (birth to six years) and the most vulnerable section of our population – children with disabilities. The early childhood years are the period of most rapid brain development in the lifespan of an individual and this makes the early years ‘critical periods’ for development of various competencies. The brain grows to almost 70 per cent of the adult size within two years of birth and within five years to about 90 per cent. These critical years are ‘windows of opportunity’ so that if the child receives favourable environmental inputs pertaining to health, nutrition, learning and psychosocial development, the chances of the child’s brain developing to its full potential are considerably enhanced. If the environmental experiences are unfavourable and the child faces deprivations, the brain’s development is negatively affected, and the ‘windows of opportunity’ are lost, often irreversibly. In case of children with disabilities, the early years are critical because of the plasticity of the brain. If stimulated early the brain cells next to the damaged brain cells learn to take up the functions of the damaged and dead cells. Early intervention needs to be provided to children with disabilities both at home and through the early childhood education centres. The earlier the intervention is started, the better it is. ‘Early’ means ‘as early as possible.’

When launched in 2009 the Certificate Programme was the first of its kind comprehensive national level educational programme recognised by the statutory body RCI which equips the learner to promote the development of the child during early childhood years in all domains: cognitive, physical, motor, language, social and emotional. There is no doubt that initiatives existed in the form of short training courses for personnel working with the young child with cerebral palsy; but there was no national-level recognised programme of 
study providing systematic content to promote all-round development of the child in different developmental domains, either in the face-to-face mode or the ODL mode.

ii) Innovation in Eligibility Requirements and Target group addressed

The Certificate Programme is innovative in terms of the target group for whom it is meant. An educational programme, which aims to develop a cadre of personnel to provide early intervention to children with disabilities is always a welcome step and serves a felt need of society. But the innovation here is that this RCI recognised Certificate Programme is the only such programme available for those who have minimum educational qualifications of class 10 and wish to work in the sector of disability. 70 per cent seats are reserved for family members of persons with disabilities, the persons with disabilities themselves and those with two years of work experience in this field. By doing so, the Certificate Programme promotes equity by giving a second chance to parents and family members who were unable to build their careers due to the pressures of looking after a child with a disability. Further, there are many experienced personnel working in the field who, due to their low educational qualifications, are not able to enroll in standard educational programmes offered by the face-to-face mode which does not account for prior learning and experience. A dedicated programme, which provides an avenue for this marginalised group (people with disabilities, their family members and professionals working in the sector) to upgrade their qualifications and legitimise their personal and professional life experience of handling and working with children with disabilities, is the first of its kind in the country.

iii) Innovation in Instructional Design, Syllabus and Curriculum

Working with any child with a disability requires both specialised skills and knowledge. The implication is that a programme of study must have an appropriate mix of theory and practical components. Responding to the needs of a child with cerebral palsy is even more challenging because of the multiple areas that the child needs support in and the environment that needs to change to support the child. The instructional design for the Certificate Programme, therefore, laid equal stress on theory and hands-on fieldwork. The theory courses provide detailed information regarding how to respond to and manage the child from the first day of birth to promoting the optimal development of the child in all areas up to the age of 6-8 years, including the teaching of basic reading, writing and arithmetic skills. The field exposure through the project work component has provided a context for the application of theoretical concepts in real life situations during the course of the programme.

The innovation in the curriculum and the syllabus is the following: the intervention strategies of Individualised Family Support Plan, Individualised Education Plan and Group Teaching, which are the field-based hands-on component, are typically taught as academic content to students of Diploma Programmes in face-to-face mode. In fact, Individualised Family Support Plan as the appropriate form of intervention in the earliest years of the child’s life is essentially ignored as a teaching content in academic programmes though it is practiced by leading organisations in their hands-on intervention work with infants and young children. However, the academics and experts associated with the Expert Committee of the Certificate Programme agreed that these concepts needed to be demystified and brought within the grasp of the learners of this Certificate Programme.
Thus, through this programme, we have developed the syllabus structure and laid out the academic norms and curriculum for future such programmes in the country.

iv) Demystification of Academic Concepts in the Self Learning Material

Having obtained the recognition from RCI, it was important to transact appropriate and adequate academic content and yet do so in a manner which would be comprehensible to a learner with 10th class qualifications. This has been achieved in the self-learning material (SLM) using various strategies as described further:

a) Difficult but critically important academic concepts in the field of special education, such as Task Analysis, Individualised Family Support Plan, Individualised Education Plan, Teaching Strategies and Group Teaching have been transacted and explained the level of 10th class pass learners. When the material was in the process of being developed, there was skepticism from senior academics about the possibility of transacting such difficult academic concepts with parents/learner at 10th pass level. However, the team at IGNOU maintained its vision and went ahead with the development of self-learning material on these lines. Subsequently, favourable feedback was received from the parents (who were our prospective learners) regarding the appropriateness of having included concepts like task analysis and teaching strategies in the material. A parent reported, “The idea of task analysis or the methods of teaching a special child was unknown to me, but after attaining the knowledge about these form this course and applying them on my child, I have really got positive results!”

b) Real-life situations involving children with disabilities and their families have been included as examples and short case profiles in the SLM extensively. These have been provided by the course writers and the team members on the basis of their work experience in the field. These have been printed in the SLM in italics so that they stand out from the text. The purpose of including these situations and case profiles is to illustrate/clarify the various theoretical concepts and to connect theory with everyday life. They have also been included with the intent of bonding/making a connect with the learners and to cut away their sense of isolation by helping them see that they are not the only ones facing the difficulties that they are. The inclusion of these brief profiles seems to have served their purpose. In the words of a parent, “The case studies have helped me to compare the problem of my child and now I can understand her better and act in a more informed way.”

Another parent commented on how the reading of the printed material helped her to understand that the management of her child did not need a medical approach but instead required early intervention and rehabilitation.

c) Artwork and pictures have been extensively used in the text to indicate exact positioning needs and posture, and adaptations for a child with cerebral palsy. The appropriate handling and posturing of the child with cerebral palsy is the most critical feature of the child’s management. In the entire Certificate Programme there are 758 artwork and photographs. A sample of the type of artwork and photographs included in the SLM is provided in Figure 1 below. Figures 2-5 depict the sample photographs used in the SLM.
Figure 1. Sample artwork provided in the Self Learning Material.

Figure 2. With support, a child with cerebral palsy enjoys exploring the outdoors.

Figure 3. When family members spend time with the child, it helps the child to feel loved and fosters his all-round development.
v) Creation of Project Manuals

In order to enable the learner to implement the intervention strategies of Individualised Family Support Plan, Individualised Education Plan and Group Teaching in the field, which comprise the application part of the programme, extensive and detailed project manuals have been developed for each of these. The creation of these three project manuals is an innovation as these are unique study material of their kind in the country. Such extensive step-by-step detailing of these intervention strategies is almost non-existent in face-to-face teaching institutions or distance education institutions as articulated by the course writers themselves who were involved in the preparation of the manuals. Development testing of the manuals was done when they were in the process of being developed in order to assess the suitability of the material being developed. The feedback from reports of the developmental testing was incorporated in the material being developed. The layout and the formatting of the project manual are innovative.

Each Project Manual has two parts – Part A and Part B. Part A describes the entire procedure of implementing Individualised Family Support Plan, Individualised Education Plan, and Group Teaching in the form of steps which are called Practical Activities 1, 2, 3,... and so on till 10. Each practical activity has been explained in detail, including the amount of time
the learners should spend on them, the pre-preparation needed etc. (Query - should I give a format of the practical activity?)

Subsequently, for each of the projects – Individualised Family Support Plan, Individualised Education Plan and Group Teaching – a case study has been developed corresponding to each of the practical activities in the project. This is the Part B of each manual. Through this case study, we have shown how a learner carried out the various practical activities of the project and how she/he reported the work done for each one of them. This case study, based on real life, serves as an example to the learners, helps them to contextualise the practical activity and gives a guideline how to do it.

It is expected that the Project Manual, apart from being useful for the students of the Certificate Programme, will set standards in face-to-face teaching in various institutions as expressed by the Programme coordinators from the Programme Study Centres during the phase of developmental testing.

c. **Usefulness**

The Certificate Programme enables the development of the capabilities of a marginalised section of the society - parents and family members and persons with disabilities themselves. Their enhanced capabilities help them to enter into the professional world and also are of help to them in their day-to-day interaction with children in their families. Reaching out to the disadvantaged is one of the biggest impacts of this programme justifying its development.

d. **Reach**

The Certificate programme has been offered in selected Regional Centres wherever RCI recognised organisations working in the field of cerebral palsy could be identified. The programme is offered through 40 learner support centres, which report to and are managed by the IGNOU Regional Centres. Till date, 580 learners have enrolled for the Certificate Programme.

e. **Cost effectiveness**

The funds for the development of the programme are in the process of being reimbursed by the RCI. The cost of delivery of the Programme through the learner support centres is met through fees-sharing. IGNOU recovers the cost of printing the study material. The programme of study is meant for disadvantaged groups and is not a revenue-generating programme.

f. **Scalability**

Since the Certificate Programme in the disability area 'Cerebral Palsy' was launched in July 2009 by IGNOU, another three similar programmes were developed in three more disability areas – Intellectual Disability (2010), Visual Impairment and Hearing Impairment (2012). The SLM prepared for Certificate Programme in the disability area 'Cerebral Palsy' – both as Theory Blocks and as the 3 Project Manuals – served as a prototype for the SLM developed for the other three Certificate Programmes in disability. These three programmes of study also have the recognition from the RCI.

g. **Sustainability**

The programme is sustainable especially since it is approved by the RCI. Regular renewal of the MoU with RCI will ensure that institutions working in the sector of disability continue to be identified as IGNOU learner support centres for the Certificate Programme.
**Implementation and impact**

The innovation – that is, the programme of study – is implemented through the learner support centres of IGNOU which are institutions working in the sector of disability and are recognised by the RCI as competent institutions this ensures that quality is maintained in the delivery of the programme. The learner support centres are responsible for the conduct of counselling classes, arranging for the conduct of all three Project Work, providing supervision during Project Work and arranging for the conduct of term-end project work evaluation.

The SLM, especially the Project Manuals have been appreciated for their clarity by some Coordinators and counsellors of Programme Study Centres. The feedback received from parents who pursued the Awareness-cum-Training Package in Disability showed that they have been immensely benefited by the detailed description of teaching strategies and methods described in the package. As stated earlier, this package, after modifications, forms the Course 2 of the Certificate Programme. Thus, our SLM can serve as a prototype for the development of future SLM in ODL.

**Future Application**

The future of this innovative programme lies in re-initiating the lapsed MoU with the RCI and identifying more learner support centres to enhance the outreach of the programme. At the same time efforts need to be made to devise the next level of the programme so that upward mobility of the learners can be sustained.

**About the Innovator**

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Certificate Programme in Motorcycle Service and Repair (CMSR): An Innovative Programme Design

The IGNOU-HMCL Motorcycle Technicians Vocational Qualification Project (IH- MTVQP) is a collaborative initiative of Indira Gandhi National Open University (IGNOU) and Hero MotoCorp Ltd. (HMCL), world’s no 1 motor cycle manufacturing company, towards the competency based skill development training for the motorcycle technicians of the country. Under the project, a Certificate Programme in Motorcycle Service and Repair (CMSR) is on offer since April, 2006. The innovative programme design of the CMSR programme includes firstly, the theoretical and demonstrative training of learners at PSCs and then attaching them to actual work place to practice what is learnt. In fact, it is a perfect example of education-work linkage in vocational education where industry is participating shoulder-to-shoulder in terms of arranging the hands-on job training of the learners in the actual work place. Here, the learners are exposed to real world situations and the challenges of the field. Under innovative evaluation mechanism, the learners are continuously evaluated by their trainer during the hands-on training session apart from participating in Trade Test at the end of the programme.

Introduction

The Indira Gandhi National Open University (IGNOU), the largest open university in the world, in the pursuit of its consistent endeavour for quality, access and equity has joined hands with Hero MotoCorp Ltd. (HMCL), world’s no. 1 motorcycle manufacturing company, to initiate a competency-based skill development programme under IGNOU-HMCL Motorcycle Technicians Vocational Qualification Project (IH-MTVQP) (popularly known as IGNOU-HERO Project). It is a collaborative initiative of IGNOU and HMCL towards the competency based skill development training for the existing motorcycle technicians and educated raw learners of the country.

Under the project, a non-credit Certificate Programme in Motorcycle Service and Repair (CMSR) is on offer since April, 2006. The salient features of the programme include use of Information and Communication Technologies (ICT), resource sharing, education-work linkage, competency based training, and fulfilment of Corporate Social Responsibility (CSR).

Background

It had been observed that due to non-availability of skilled and certified technicians in the locale, a large number of motorcycle owners (around 70% as per the estimation of HMCL) visit untrained technicians for the service and repair of their motorcycles after the expiry of warrante period and in the process, they face several problems due to inept handling of their vehicles. It is a well-known fact that such technicians lack appropriate skills due to non-availability of avenues for such trainings.

Therefore, to mitigate this problem, it was felt necessary that motorcycle technicians working in private garages or in authorised dealers’ workshops be provided structured training in motorcycle service and repair to enhance their skills in tune with the changing techniques and technologies.
The Creative Process

Apart from the qualitative reasons cited above, the other motivational reason for initiating the project is quantitative too. Keeping in view the motorcycle population on the roads, the service and repair capacity of authorised dealers’ workshops and its growth is heavily disproportionate. This deficit of the service and repair capacity of authorised dealers’ workshops can be overcome with the growing number of trained and certified motorcycle technicians working in private garages.

Thus, it is in the interest of the motorcycle manufacturing companies to search for an alternative mechanism to create service and repair facilities for the motorcycles. The IGNOU-HERO Project is helping them in this endeavour by creating a pool of trained and certified technicians capable of handling the additional load without compromising on the confidence level of the customers.

About the Innovation

a. Description

The innovation contains the following features:

1. Use of ICT: The very first activity of the programme, i.e., Induction and Orientation Session for students of CMSR programme conducted through teleconferencing from EMPC, IGNOU, New Delhi.

2. Resource Sharing: All nine existing training centres of HHML recognised as PSC (v) FOR THIS PROGRAMME AND A STRONG NETWORK OF HHML Dealers’ Workshops is being used as Work Centre for imparting Hands on Training to the learners (Fig. 2).

3. Education – Work Linkage: Intense participation of industry all along in delivery of the programme making this model of public-Private Partnership (PPP) as a good example of industry–institute interaction.
4. Competency based Training: The training methodology adopted on the basis of Competency Statement developed for the programme. Here the stress is on “doing the work” instead of “knowing the work”.

5. Fulfilment of CSR from HHML side: Hero Honda Motors Ltd. Sponsoring this project and working towards the betterment of technicians, the backbone of automobile industry is an example of discharging their Corporate Social Responsibility (CSR).

6. Fulfilment of mandate of the University: As per the Act of the University, it has a mandate to initiate programmes for disadvantaged and marginalised segments of the society. This vocational training programme certainly fulfils the objective of the university.

![Figure 2. A view of a workshop.](image)

**b. Novelty**

The innovative programme design of CMSR programme includes firstly, the theoretical and demonstrative training of learners at training centres and then attaching them to actual work place to practice what is learnt. In fact, it is a perfect example of education-work linkage in vocational education where industry is participating shoulder-to-shoulder in terms of arranging the hands-on job training of the learners in the actual work place. Here, the learners are exposed to real world situations and the challenges of the field. Under effective evaluation mechanism, the learners are continuously evaluated by their trainer during the hands-on training session apart from participating in Trade Test at the end of the programme.

The vocational training model developed for CMSR programme is a live case study of implementing this kind of programme though ODL. It breaks the myth that ODL system is not capable/suitable for vocational training due to the problems in imparting hands-on training. As a matter of fact, the flexibility and industry participation being the corner stone in the programme design of CMSR, which is, otherwise, a difficult task in formal system.
c. Usefulness

The CMSR programme is very useful for the working motorcycle technicians whose training and certification needs cannot be addressed by any conventional and formal system of education. These technicians are attached with the workbench and long absence from their work is not possible for them.

In addition, the CMSR programme has been extended to the jail inmates of different Central Jails including, Central Jail, Baroda; Sabarmati Central Jail, Ahmedabad and Tihar Central Jail, New Delhi. This has created a positive impact in the lives of the jail inmates having developed skills in their hands helping them for legitimate livelihood after their release.

d. Reach

On the one hand, the programme aims at the general disadvantaged section of the society and on the other hand, it caters the customised need of specific marginalised class of technicians in general and skill development for jail inmates in particular.

e. Cost effectiveness

The whole programme is an industry sponsored project. Hero MotoCorp Ltd. (erstwhile Hero Honda Motors Ltd.) in their own calculations, while sponsoring the project for last 15 years finds this much cheaper option for handling the repair and service needs of the motorcycles plying on the roads in excess to the installed repair and service facilities of dealers’ workshops.

f. Scalability

The innovative vocational education model developed for the motorcycle technicians may be helpful for designing similar kinds of vocational education and training programmes though Open & Distance Learning (ODL). Keeping in view the target population and vocations specifics, the contact sessions and other delivery components may be suitably designed.

Within the IGNOU-HERO Project, the training activities in various jails are taking a shape of separate vertical of Training in Jails and accordingly many jails are coming forward to launch the programme in the jails for their inmates.

g. Sustainability

The industry participation with an academic institution not only in terms of sponsoring the ODL project, its continuous involvement in the delivery of the programme is the strength of the model. In fact, the design and implementation parameters of this project are quite innovative in nature in comparison with conventional industry sponsored projects. This kind of Programme, if developed, certainly has long-term impact on ODL system in term of its continuous refinement in delivery mechanism.

h. Implementation and impact

Till now, over 14,000 learners have already been trained and certified under this programme through its existing network of 43 training centres located across the country. Under Skilling India
mission of Govt. of India, the CMSR programme needs to be made available to all the motorcycle technicians to cater their customised need of training/re-training and certification.

**About the Innovator**

**Prof. Manoj Kulshrestha** is presently the Director of National Centre for Innovation in Distance Education (NCIDE) at Indira Gandhi National Open University (IGNOU). He is also the Professor of Civil Engineering in School of Engineering and Technology (SOET) where he teaches Construction Project Management. He has designed and implemented several innovative training projects in engineering such as IGNOU-CIDC Construction Education and Training Project and the IGNOU-HERO Motorcycle Technicians Vocational Qualification Project. He has also worked as Director of Campus Placement Cell (CPC) of IGNOU during 2013-2016.

He has published over 30 research and technical papers in various International/National journals and leading conferences. A widely travelled scholar, Prof. Kulshrestha has delivered many keynote addresses/expert lectures in various international and national forums.

He has received many awards for his innovations. He is the recipient of all India University Gold Medal in 2008 for the innovation in Distance Education for his vocational educational initiative. He was awarded Scroll of Commendation by Construction Industry Development Council (CIDC) in recognition to his contribution to academic excellence in construction industry. He was also awarded World Education Award 2011 and World Educational Leadership Award 2011 for his innovative vocational education initiative under IGNOU-HERO Project.

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Mobile Application for Efficient Delivery of Learner Support Services in IGNOU

Effective learner support services are vital for the distance education system. These services may be delivered through emerging mobile technologies. A mobile application has been developed for efficient delivery of learner support services to the learners of IGNOU Regional Centre, Khanna, Punjab. It is expected that this application may improve the accessibility of updated information to the learners in a hassle-free manner. This article aims to provide information on this innovative initiative.

Introduction

With the global advancements in Information and Communication Technology (ICT) in Open and Distance Learning (ODL) system, the scope for reaching the learners around the world has increased to a great extent. According to a report by UNESCO, India has overtaken the United States to become the world’s second largest Internet market, with 333 million users, trailing China’s 721 million and mobiles being readily accessible, inexpensive, and reliable means of communication may play an important role in increasing accessibility of support services to the distance learners of IGNOU in cost-effective and efficient manner.

Mobile technologies are almost ubiquitous and the range of services and applications that can be accessed through mobile technology is also increasing day by day. The number of mobile subscriptions has grown exponentially over the years, from 738 million in 2000 to over 7 billion in 2015, with most of this growth taking place in the developing world. The number of mobile applications (apps) is also rising continuously every day, due to the high demand for apps by users as these shrink the programmes that were once available only on computer into versions usable on smartphones or mobile devices, e.g., stock trades, restaurant reviews, Facebook, news articles, educational apps, etc.

Many Indian Universities, such as the University of Delhi, Yashwantrao Chavan Maharastra Open University, Jawaharlal Nehru University, Amity University, etc., have already developed their mobile apps for various purposes, such as direct access to the University website, latest information about the admission process, results, events, courses offered, course content, short educational videos, assessment quizzes, downloading various forms, administrative and facilitation purpose, etc.

The Indira Gandhi National Open University (IGNOU) also needs to develop such mobile apps to facilitate its learners. Considering this need, the IGNOU Regional Centre (RC), Khanna developed a novel mobile app.

Background of the Innovation

Studying at a distance is very demanding, as distance learners have to study on their own without much opportunity for interaction and immediate feedback. Timely communication is critical to proper functioning in distance education system as delayed feedback or support from the institution may lead to demotivation amongst the learners. Therefore, in order to establish that learners get the information relevant to them at one place, without investing much effort in locating the information on IGNOU website, the present mobile app was developed in order to improve learner support services for the learner of IGNOU RC, Khanna.

The Creative Process

Cognisant of the growing role of mobile technology, this mobile application was developed using the open source Massachusetts Institute of Technology (MIT) App Inventor.
The MIT App Inventor is a visual, drag-and-drop and cloud computing tool for building mobile apps on the Android platform. The user interface of the app was designed using a web-based graphical user interface (GUI) builder and the behaviour of the app was specified by piecing together the blocks.

The App Inventor programming environment has three key parts, namely the component designer, blocks editor and an Android device. The component designer is used to select components for an app and specifying their properties. The blocks editor is used to specify the behaviour of components and the android device is used to actually run and test the app while developing it. In the case of non-availability of any android device, the app can be tested using the android emulator.

The app developed using this App Inventor was launched on a pilot basis in the January 2016 session for the learners of IGNOU Regional Centre, Khanna with the aim to extend better learner support services to the learners.

About the Innovation

a. Description

The application has following features (Fig.1):

- The learner will be able to get compiled information about the course of action that he/she will have to follow during their study in IGNOU. The information has been kept under the heading “Important Information for Fresh learners”. The information has been provided separately for the learners of Certificate, Diploma, Undergraduate and Postgraduate, and semester-based programmes.

- Links have been provided to the IGNOU website for checking the registration status, download assignments, hall ticket, previous year question papers, Term End Examination (TEE) result, grade card and applying for Re-registration (RR) and TEE form online. Important deadlines for submission of assignments, RR form and examination form have been provided separately for easy access.

- For specific queries, information on “Whom to contact for what” has been made available.

- A link has been given under the heading “Click here to call us”. By clicking on this link, the learner is able to call us directly on the mobile number (used exclusively for Learner Support Services at IGNOU RC Khanna).

- A link has been given under the heading “Click here to mail us”. By clicking on this link, the learner is able to mail us directly.

- Links have been given to the Facebook pages of IGNOU RC Khanna from where the learners are able to get the current status of their Self Instructional Material (SIM) dispatch status, counselling schedule, and latest updates.

- Links have also been provided to connect with the websites of IGNOU RC Khanna as well as the main IGNOU website, for more information about IGNOU.
Figure 1. A screenshot of the app.
b. **Novelty**

As per our knowledge, no such mobile application has ever been developed by IGNOU for delivery of learner support services to its learners.

c. **Usefulness**

In this application, all the learner specific information has been compiled in one place so that the learner does not need to move from one page of the website to the other for getting any specific information. Therefore, we feel that it has increased the efficiency of the existing system and has eased the accessibility of information and support services to the learners.

d. **Reach**

Although a few links that are useful specifically for the learners of IGNOU RC Khanna, such as counselling schedule, study material dispatch status have been inserted in the app, the link to e-mail/call RC Khanna and other information provided through this mobile app is relevant for all the learners of IGNOU.

e. **Cost effectiveness**

There is no cost involved in the development of this app and also there is no cost involved in the distribution of this app as it is distributed through the IGNOU RC, Khanna website.

f. **Scalability**

The application may cater to the need of all the learners of IGNOU in general and that of RC, Khanna in particular. Therefore, a large number of learners may get benefited with this mobile application and anyone having the Android phone may easily use this application.

The same may also be re-designed and re-developed to cater to the needs of all the learners of IGNOU.

g. **Sustainability**

The application is highly sustainable because new learners enter into the system every session and most of them are from the conventional background. Moreover, the information provided through the application is relevant to all the learners so long as they are enrolled in IGNOU as the learners will always get the updated information through this application, as and when required.

h. **Implementation and impact**

The application was launched in the region on a pilot basis in 2016 and the same was distributed amongst the learners of IGNOU RC, Khanna initially through an e-mail attachment, however it has now been uploaded on the alternate website of IGNOU RC Khanna, i.e. ignourckhanna.org.in and the learners of this RC are being informed through SMS to download the same on their mobiles. We had been getting the information/feedback from the learners that it was not easy for them to find out the information relevant to them at one place. Therefore, we made an effort to compile the relevant information in one place. Through the website links are provided in the mobile application, the specific information that the learner wants to access may be directly
accessed on a single click. Since the application is being widely used by the learners of RC Khanna, it is felt that it has eased the accessibility of information and support services to the learners of our Regional Centre.

**Future Application**

This application will always be useful to the learners of IGNOU in terms of getting easy access to all the learner specific information at one place.

**An important aspect**

It is expected that this mobile application may improve the accessibility of updated information to the learners in hassle-free manner. However, it is pertinent to mention here that this is mere a preliminary attempt for developing a mobile application for extending learner support services to the learners of IGNOU RC Khanna. Further, there is a need for improvement of the present mobile app in terms of design, development, stabilisation and deployment. The same may also be made more informative by incorporating information which is relevant not just to the present learners of IGNOU but also to the prospective learners.

**About the Innovators**

**Dr. Anjana** had joined Indira Gandhi National Open University (IGNOU) as Assistant Regional Director in 2011 and since then, she is posted at IGNOU Regional Centre, Khanna. Prior to that, she had completed Ph.D. in Botany (Plant Physiology) in 2007 from Jamia Hamdard, New Delhi and earned Gold Medal during M.Sc. (Environmental Botany). She has been a fellow of CSIR (JRF/SRF/RA) and has 12 research papers, review articles and book chapters to her credit and has participated in many national and international conferences, symposia as well as webinars. She is actively involved in providing effective support services to the learners of IGNOU.

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**Dr. Santosh Kumari** had joined IGNOU in 1993 as Assistant Regional Director and had been promoted to Regional Director in 2008. She had completed her M.Phil and Ph.D in Education from Punjab University, Chandigarh. She has a number of research papers to her credit and has attended and presented research papers in many State-level, National and International Conferences. She has a vast experience of more than 23 years in the field of Open and Distance Education.

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Information Brochure of
Indira Gandhi National Open University for
Persons with Disabilities

India has 2.68 crore persons with disabilities. There are about 18 million deaf and hard of hearing people in the country. There are legislations in India that mandate the use of appropriate augmentative and alternative modes of communication to supplement the use of one’s own speech to fulfil the daily communication needs of disabled persons to enable them to participate and contribute to their community and society. Further, the legislation also urge to make the provision of access to electronic media for the disabled. The Indira Gandhi National Open University (IGNOU) has a considerable number of learners with disabilities. Every piece of information regarding IGNOU must reach all such learners. Keeping this need in view the faculty members in the National Centre for Disability Studies at IGNOU decided to develop an information brochure about the university in sign language and audio form, which can be easily accessed by persons with deafness, hard of hearing and visual impairment. The information brochure has been found to be extremely effective in communicating the necessary information about IGNOU to the target group.

Introduction

The Indira Gandhi National Open University (IGNOU), being a people’s university, has an enrolment of approximately three million students all over India and other countries. IGNOU has a large enrolment of persons with disabilities, including persons with hearing impairment, the deaf, and persons with visual impairment. All students, irrespective of their physical and sensory disability, have the right to access information related to the various aspects of IGNOU, such as admission, facilities, regional centres, examination, etc. to pursue their higher education. To make the information accessible to all students, including the students with sensory impairment, there was a felt need to provide such information in an accessible mode.

The Government of India has enacted several legislations to facilitate persons with various disabilities. The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 provides that there should not be any discrimination in terms of education, employment and social inclusion of persons with disabilities.

Section 28 of the Persons with Disabilities Act, 1995 provides as under:

Research for designing and developing new assistive devices, teaching aids, etc.: The appropriate Governments shall initiate or cause to be initiated research by official and non-Governmental agencies for the purpose of designing and developing new assistive devices, teaching aids, special teaching materials or such other items as are necessary to give a child with a disability equal opportunities in education.

Section 30 of the Persons with Disabilities Act, 1995 provides as under:

Appropriate Governments to prepare a comprehensive education scheme providing for transport facilities, the supply of books, etc. : Without prejudice to the foregoing provisions, the appropriate Governments shall by notification prepare a comprehensive education scheme which shall make Provision for:
a. transport facilities to the children with disabilities or in the alternative financial incentives to parents or guardians to enable their children with disabilities to attend schools;
b. the removal of architectural barriers from schools, colleges or other institutions, imparting vocational and professional training;
c. the supply of books, uniforms and other materials to children with disabilities attending school;
d. the grant of scholarship to students with disabilities;
e. setting up of appropriate mechanism for the redressal of grievances of parents regarding the placement of their children with disabilities;
f. suitable modification in the examination system to eliminate purely mathematical questions for the benefit of blind students and students with low vision;
g. restructuring of curriculum for the benefit of children with disabilities; and
h. restructuring the curriculum for the benefit of students with hearing impairment to facilitate them to take only one language as part of their curriculum.

Under the Rights of Persons with Disabilities Act, 2016, sign language is covered under Section 2 (f) “communication” which includes means and formats of communication, languages, display of text, Braille, tactile communication, signs, large print, accessible multimedia, written, audio, video, visual displays, sign language, plain-language, human-reader, augmentative and alternative modes, and accessible information and communication technology.

Section 17 on the specific measures to promote and facilitate inclusive education provides as under:

(c) to train and employ teachers, including teachers with a disability who are qualified in sign language and Braille and also teachers who are trained in teaching children with intellectual disability;

(f) to promote the use of appropriate augmentative and alternative modes including means and formats of communication, Braille and sign language to supplement the use of one’s own speech to fulfil the daily communication needs of persons with speech, communication or language disabilities and enables them to participate and contribute to their community and society.

Section 29 (h) provides that persons with hearing impairment can have access to television programmes with sign language interpretation or sub-titles.

Section 42 (ii) provides that persons with disabilities have access to electronic media by providing audio description, sign language interpretation and closed captioning.

The National Centre for Disability Studies (NCDS) at IGNOU decided to develop an Information Brochure as an exploratory effort to provide information about IGNOU in an accessible format so
that the learners with disabilities in general and learners with hearing impairment and visual impairment, in particular, could benefit.

**Background of the Innovation**

Information is power for any individual and the community. Unless a person is informed properly, he/she will not be able to take decision for further action. To take the advantage of IGNOU and its programmes it was felt to provide information about IGNOU in sign language so that persons with hearing impairment and deaf can take benefit of such information in an accessible format, i.e. sign language. The choice of sign language was quite obvious as deaf and hard of hearing persons can get a better understanding through sign language as a compared to other modes of communication.

Keeping in view the provision of Persons with Disabilities Act, 1995, presently the Rights of Persons with Disabilities Act 2016, for providing the appropriate environment and no discrimination in availing the facilities existing within the society, the Information Brochure was developed in the form of an audio-visual (video) package in sign language.

**The Creative Process**

The video package was conceptualised by a team at NCDS and was prepared in the controlled environment of the Electronic Media Production Centre (EMPC) of IGNOU. The methodology for the development of video included script writing and preparation of PowerPoint presentations. The sign language interpreter services were used to transform the information into sign language. The video was also supported by voice-over so that the persons with visual impairment can also get the direct benefit of the Brochure. The shooting of the video was done in a controlled environment of the EMPC studio. The field testing of the video was also carried out on the sample for which the innovation was targeted.

**About the Innovation**

**a. Description**

This sign language video may be described as follows:

- A unique and innovative combination of the concept of accessibility and information and communication technology.

- Provides accessibility and dissemination for persons with disabilities in general and with persons with sensory disabilities in particular

- Synchronisation of sign language, video and voice-over.

The video contains information about the establishment of IGNOU, its aims and objectives, features, facilities, enrolment process, programmes offered, etc. One of the important features of this video is the "Frequently Asked Questions" (FAQs) about admission procedures and related queries with answers.
b. **Novelty**

The video is a unique application of technology for the learners with disabilities in general and persons with deafness, hard of hearing and visual impairment in particular.

c. **Usefulness**

The video is not only useful for persons with deaf and hard of hearing, but also for the persons with visual impairment and other disabilities who would also be benefited as it has voice over as well as a PowerPoint Presentation with text and pictures. A non-disabled person would also find this video informative and useful. This video is the need of the hour as per the provisions of the Rights of Persons with Disabilities Act 2016 as well as the UN Convention on the Rights of Persons with Disabilities.

d. **Reach**

The reach of this video is for the entire prospective learners with disabilities. The persons with deafness, hard of hearing and persons with visual impairment will be greatly benefited by this video. They can be acquainted with the various programmes, the procedure of admission, etc. and easily approach the respective regional centre of IGNOU for getting themselves enrolled in their preferred programme of study.

e. **Cost effectiveness**

The video was developed with the help of internal support in the form of script writing, sign language interpretation and its suiting in the controlled environment of EMPC studio. Therefore, it is very cost effective in comparison to its effectiveness.

f. **Scalability**

This video about IGNOU in sign language is a small effort in the line of accessibility of information for proving an equal opportunity to persons with disabilities. The size and scope of the video can be expanded to any extent as per the need, e.g. the prospectus of IGNOU and other documents, can be developed in sign language for the larger dissemination among the persons with disabilities. This effort would not only be useful in disseminating information on IGNOU but would also increase the enrolment of learners with disabilities in IGNOU.

g. **Sustainability**

The demand for such type of accessible information system is increasing day-by-day with the increasing awareness about right based perspective and equal opportunities for the rehabilitation and education of persons with disabilities. Further, it is cost effective as no extra resources have been used. The need-based in-house updating in the content of the video can be done time to time without incurring any expenditure.

h. **Implementation and Impact**

After uploading to the IGNOU website, this video in sign language is disseminating information to persons with disabilities as a whole and persons with deafness, hard of hearing and visual
impairment in particular. Further, the video is also promoting the Open and Distance Learning (ODL) system among the persons with disabilities as the video itself has the features of the ODL system.

**Future Application**

The video can be adapted for further updating the information comprising the maximum content about the IGNOU and its various activities. If the need arises, a video in sign language for counselling in contact classes can also be developed. For television telecast also such a video can be used. Therefore, its future application has no end rather its use and applicability could be considered as an accessible mode of dissemination of information, whether it is academic or non-academic.

**About the Innovators**

**Dr. Sanjay Kant Prasad** holds a Doctorate in Psychology with specialisation in Clinical and Rehabilitation Psychology having more than 30 years of experience in the field of Disability and Rehabilitation programme, policies, education and research. Presently he is serving as Deputy Chief Commissioner for Persons with Disabilities, Office of the Chief Commissioner for Persons with Disabilities, Government of India. He has authored a book titled "Psychological Management of Disability” and written 14 research papers 9 articles in various reputed journals. He is the recipient of several awards and fellowships.

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**Dr. Siddhant Kamal Mishra** is presently working as Deputy Director at the National Centre for Disability Studies, IGNOU. He has published a number of articles in national and international journals. He has contributed in books and other publications. He has attended several national and international conferences and seminars.

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Web-based Environment for Evaluation of Project Reports

A software tool named "Web-based environment of evaluation of project reports" was developed by the Indira Gandhi National Open University (IGNOU) for assessment of project reports of the ES-320 course of the Master of Arts in Distance Education Programme. This web-based environment has several innovative features for online learner and evaluator support. This system can be used in various ways, such as a digital repository for the online availability of project documents submitted and evaluated as reports. This article presents the innovative features of this software.

Introduction

Assessment of student performance is a central element of educational systems around the world. Traditional forms of evaluation of project reports take a lot of time and formal procedures need to be followed. Due to this, there was a felt need for immediate attention towards building a web-based evaluation method which gives a quick response to the learners.

The Staff Training and Research of Distance Education (STRIDE) at the Indira Gandhi National Open University (IGNOU) offers the programme Master of Arts in Distance Education (MADE). It has a compulsory project work component of six credits (ES-320 course) in the second year. There was a need for a quick, easy and effective solution for evaluating the project work submitted by the learners. Considering this, the innovators decided to develop a web-based tool to facilitate the process of evaluation.

Consequently, an online system or a web-based environment of evaluation of project reports was developed by the innovators for assessment of project reports.

The objective of this system is to enable students to submit their project report online and to help the university develop an online repository of project reports in Distance Education.

This web-based system is envisaged as a solution to the inordinate delay in project report evaluation. Its features, such as automatic allotment of project report to evaluators and automatic update of student record and feedback are innovative. The system also facilitates the creation of a digital repository of project reports that can effectively support student learning from project experiences and can be used to check plagiarism.

Background of the Innovation

Project work is a significant component of learning as it may lead to an important area of useful research in a subject. Project work enriches the knowledge of the learner in a specific area of any subject. Project reports serve as resources for both learners and teachers to carry out further research. Open Universities, such as IGNOU have many programmes, which have project work as a compulsory component.

Since 1993 learners of MADE Programme have been submitting their project proposal and getting approval from the faculty. Thereafter, they would start their research work and submit
their final project reports in the Student Evaluation Division (SED) for evaluation. This arduous process is time-consuming.

Generally, students submit hard copies of their project report. The project reports are stocked up in the library or stores. Sometimes maintaining physical copies of projects becomes very difficult, which may not allow the students and teachers to use these resources as references.

Taking into account these conditions, the innovators decided to design a suitable digital environment to address the issues.

The Creative Process

The creative process involved the assessment of the overall situation of the process of project work submission, and the related gap areas were identified. Thereafter, the technological components were identified or designed, wherever needed, to address the gap areas.

About the Innovation

a. Description

This web-based environment for evaluation of project report has the following novel features:

i. online student registration and authentication  
ii. online evaluator authentication  
iii. automatic allotment of project report to evaluators  
iv. automatic updating of student record and  
v. quick feedback.

The software has been placed in the following URL:

http://learnerprojects.ignou.ac.in/

To access this software, the following steps should be followed:

1. Click on the following URL

   http://learnerprojects.ignou.ac.in/

2. The screen will open containing the message “Online Project Report Submission and Evaluation System” (Fig. 1). It will contain information about the Courses, viz. ES-315, ES-316, ES-317, ES-319, etc. There will be two Logins, one for students and the other for the evaluator.
3. In case of the login for the learners, the students will have to enter their username and password following which a new window will open (Fig. 2a and 2b). In this window, they (learners) have to provide information regarding enrolment number, programme and date of birth, and submit it. In case the details provided by the learners do not match with the database, a new window will open for new user registration.
4. In case of evaluator login, they also have to enter their username and password (Fig. 3a and 3b). Now there are two options for the evaluator; whether they want to download or upload the student project report. Clicking on any one of the options, a new window will appear containing details of the students, such as enrolment no, name, project title, etc. The evaluator can download a project, evaluate it and upload it.
This web-based environment is expected to be a system that can be used for any other project report submission at IGNOU. Digital report availability shall save a lot of physical space and administrative efforts, and finally, online library of project reports can be made available, which will help in reducing plagiarism and duplication of work.

**b. Novelty**

The system consists of the following novel automated features:

1. Automates all functions of the workflow pertaining to web-based project evaluation system.
2. Automatic tracking between all stages of the workflow.
3. Automatic mail generation at every submit point between learner and evaluator to draw their attention.
4. Approving authorities’ name, time and date will be endorsed from the terminal.
5. This automation would really reduce the time of submission and evaluation of Project Reports.
6. Each transaction will have a unique ID, which will be used for tracking and status viewing.
7. The system automatically chooses the evaluator based on the theme area and their expertise.
c. Usefulness

This web-based project evaluation system helps to increase communication between the learner and the university. Also, it saves their cost and time by way of manual report preparations, printing cost, postage charge, delivery times, etc. This application also helps the evaluator to download the reports, evaluate the soft copy and upload the report with their critical comments. This application helps the university to develop an online repository of MADE project reports on distance education.

d. Reach

Learners, teachers and institution get benefit from this project as the motive was to create a repository of project reports of the programme.

e. Cost effectiveness

This project was made in-house with zero budget.

f. Scalability

Yes. This web-based project evaluation system can be extended to other programmes as well.

h. Sustainability

There was a problem while setting up automated e-mail arrangement for this online project evaluation system, so this project did not sustain, but can be taken up further with little effort to implement and sustain as the internet faculty is far better as compared to that in the year 2007.

Implementation and impact

At the time of development of the web-based project evaluation system for the MADE programme, the automatic e-mail responses were limited. This was the only reason for not implementing this system into a live system.

Future Application

The application is available till date and minor modification can be done to implement for project submission and evaluation for MADE programme. The application can also be extended to other programmes, which have project report as a component.

An important aspect

Since this application is an in-house development, this can be scaled up to other programmes of the University with the investment of minimum manpower.
About the Innovators

Dr. G. Mythili is Deputy Director in Staff Training and Research Institute of Distance Education (STRIDE), IGNOU. She has contributed for development of human and training resources through academic workshops and by developing training materials in IGNOU. She has published articles in refereed journals. She is an efficient resource person for training of various kinds with special reference to computer related training on basic computing, multimedia development and online, web-based training (Web 2.0).

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Dr. Sanjaya Mishra is presently Education Specialist (eLearning) at COL, Vancouver, Canada. Prior to this Dr. Mishra was Director, CEMCA, New Delhi, India, and Reader in STRIDE, IGNOU, New Delhi, India. A leading scholar in open, distance and online Learning in Asia, has over 25 years of experience in design, development and management of open and distance learning programmes. With a blend of academic and professional qualifications in library and information science, distance education, television production and training and development, he has been promoting the use of educational multimedia, eLearning and use of open educational resources (OER) and open access to scientific information around the world. The present work was done by him and his colleague at STRIDE, IGNOU.

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Didactics of French as a Foreign Language in Open and Distance Learning in India: Hindi as a Pedagogical Tool (French Learning)

With the increasing demand for foreign language teaching-learning, the Open and Distance Learning system faces the challenges of offering courses in languages, which have traditionally been considered the domain of the conventional system of education. Indeed, there are didactic challenges in offering language programmes through the ODL mode. However, the School of Foreign Languages (SOFL) at the Indira Gandhi National Open University (IGNOU) successfully overcome the challenges and developed a Certificate in French Language Programme, which is being offered across the country and abroad. This article presents the innovative aspects of the programme.

Introduction

Foreign language programmes in India have since long been integral part of the university system. However, all courses are being offered in the conventional mode through face-to-face teaching. Methods have remained largely stagnant, promoting unspoken elitism, as foreign language classes frequently resorted to code-switching techniques using only English and the target language (French). This has led to dual learner alienation for the adult non-Anglophone learner leading to frequent dropouts, lower self-esteem and insufficient competence levels.

In India, following economic liberalisation in 1991, the entire paradigm of education and learner focus underwent a dramatic change. On the one hand the Open and Distance (ODL) models of teaching-learning had already begun to tow new lines, and on the other hand, economic liberalisation coupled with the forces of globalisation had begun to define fresh learner profiles, demand larger adaptability in skill management and actively promote the spirit of lifelong learning.

Emergent dynamics of global mobility and exchange implicitly brought countries and people in closer interaction with each other and demands of the job market brought in definitive changes in the way people perceived acquisition of foreign languages itself. Combined with the increasing mobility within the country as also outside, and prospects of enhanced employability associated with knowledge of foreign languages, gave the much needed impetus suddenly making ODL models very attractive.

With this background, in 2007, the Indira Gandhi National Open University (IGNOU), the single largest National University of Open and Distance Learning in India, started its School of Foreign Languages (SOFL). Along with other languages, the Certificate Programme in French was launched by the author at its helm. The Programme contained several innovative elements, which are presented below.

Background

With the massive arrival of the multi-national companies and foreign collaborations plus the boom in the tourism and hospitality industries, it is interesting to see that job prospects attracted a whole new group of personnel coming from varied backgrounds very often representing the non-anglophone. This change in the profile of learners led to further changes in didactic practices and fresh methods and new techniques of teaching-learning foreign languages were imperative.
The SOFL at IGNOU launched the Certificate Programme in French as a priority within 4 years with support from the Embassy of France and experts from other Indian Universities apart from the in-house team at IGNOU. The material developed and instructional design perform the dual task of

a. Addressing the needs of the Indian learners having a unique linguistic repertoire, and

b. Establishing international standards of French Language teaching/learning as laid down by the common European Framework of Reference for Languages (CEFR) on the one hand and the UGC on the other.

For beginners in India, this was the first model for the French language to be put into practice through the ODL teaching-learning mode. The material prepared was a trilingual one with French, Hindi and English. The inclusion of the mother tongue as a formal pedagogical tool was aimed at developing a fresh model, with innovation, inclusivity and favourable communicative competence being core principles underlining the structure and design of the self-learning materials.

The Creative Process

Adult foreign language instruction, especially in the Indian context is one subject that seems to be facing a continuous dilemma partly due to the perception that a language can only be learned in the presence of an instructor, and not through the ODL system. Here, one cannot ignore either, issues related to the basic access to technology, gender-specific traits regarding responsiveness to modes of delivery, learner isolation due to monotonous, and impersonal course delivery patterns, etc. In the long run, these are central to examining the teaching-learning of foreign languages (in the present context, French) and need to be studied in detail.

As a consequence, it does become important to identify what pedagogical factors and considerations educators need to have before them in order to facilitate their decision-making process when designing curriculum for language courses or programmes in the ODL mode.

It means that:

a. The methods would have to be extremely learner-centred,

b. They would have to be inclusive in nature,

c. They would have to be rooted strongly in the unique socio-cultural linguistic realities of the Indian context.

Considering the above factors, the author created the curriculum of the Certificate Programme in French. In the domain of ODL, this creativity sees the following breakthrough within the programme structure.

In developing a successful study material package for the contemporary learner in the ODL mode, there are four basic pillars on which the overall efficacy of the approach/design depends. These are:

a. Openness and flexibility
b. Use of technology

c. Accessibility, and

d. Quality.

On all these parameters, the present initiative in the teaching of French as a Foreign Language in the Indian context, scores high and shows dedicated attention to inclusiveness and creativity.

a. Openness and flexibility are amply adhered to as for these learners, enrolled in the programme, the minimum age for enrolment into the programme is 18 years and he/she needs only a minimum qualification of 10+2 under the Indian school system. Since the French learning can be accessed in both Hindi and English, no mandatory knowledge of English is required. The six-month programme is offered twice a year with a maximum period of two years allowed for completion.

b. Use of technology has been ample with a compact disc (CD) included in the main SLM. This has been done with a view to optimise the oral/spoken component and improve pronunciation of learners. One CD has been prepared exclusively for the academic counsellors to instruct and guide them about the usage of the SLMs. For future batches, plans to include more audio video material on the ex-French colonies of India (Pondicherry and Chandennagar) are underway with the Electronic Media Production Centre (EMPC), IGNOU.

c. Accessibility of the programme has been twofold – in terms of access to the pedagogical material provided and has been taken to streamline the progression of each block and unit in a way that the communicative approach and actional approach both combine to minimise gaps while learning the target language. Also, for the non-english speakers, Hindi as a tool creates cognitive as well as an effective motivator in learning basics of the French language. In terms of physical accessibility to the centres where the programme is offered, it is expanding every session with priority areas being those with large industrial belts, tourist zones and service sectors. Availability of the academic counsellors is also ensured through frequent interactions with the embassy of France in India, other institutions in France, as also other regional and state universities in the country having French departments.

d. Quality assurance and standardisation of pedagogical content and form have since the outset, been treated as high priority. This was incorporated strongly in the curriculum design into the structure of the content and the progression in the SLM provided to the learners. On the one hand, the syllabus structure followed by conventional universities under the University Grants Commission (UGC) of India was considered, along with it, course designers also incorporated the salient features of the Common European Framework of Reference for Languages (CEFR) which was pertinent to the Indian context. These two factors, plus involvement of Indian University teachers with experts from the Embassy of France, helped accord excellent quality checks on the innovative design developed for French teaching in the ODL mode in India. Above all, it reflected inclusivity and professionalism in the SLM, which had a larger global
acceptance and pertinence in terms of skills imparted. Intercommunication, being at the base of all innovation in language learning, especially in ODL, has been strengthened and used strategically to maximise learner autonomy. Through the present method, there has been minimising of the transactional distance through a “guided didactic conversation” that exists between

a. learner-teacher,
b. learner-content,
c. learner-learner, and
d. learner-self

As an innovative initiative, mother tongue as a formal pedagogical tool has been included to teach French. The inclusion of the mother tongue was aimed at developing a fresh model, with innovation, inclusivity and favourable communicative competence being core principles underlining structure and design of the self-learning materials.

Creative pedagogical techniques taking cognisance of learners’ resources in terms of learner profile, prior cognitive knowledge and linguistic/cultural background have also been adopted.

**About the Innovation**

**a. Description**

The programme of 12 credits is of 360 hours and is spread over approximately 26 weeks. Its objectives are to develop the communicative competence in French by honing skills in the four skills – reading, writing, listening and speaking.

Out of the 360 hours allotted to the programme, 72 hours are allotted to weekend contact classes where attendance is compulsory. Tutoring is implemented as significantly different from teaching and this incorporates skillful coordination of time as well as developing a sense of autonomous learning for the student.

The actual nature of the innovativeness of the material is such that there has been a conscious effort to draw examples from the culture/context of the Indian learner.

Secondly, the usage of Hindi as a pedagogical tool, use of devnagri to explain the French phonetics, and use of pictures and graphics from India in the study material ensure a steady cultural and linguistic sustainability reflected throughout.

In the English-French learning material, in discussions on “Les Jeux des Francais” (Games Played by the French), there is a specific activity where the learners are supposed to speak about the games in India. Similarly, elsewhere in discussions on favourite pastimes of the French, there are activities that ask the learners to conduct a mini-survey in the class about their pastimes and present it. There are fill in the blanks exercises where names of Indian actors (such as Abhishek Bachhan) from Bollywood feature, followed by pictures of the Indian leaders such as Indira Gandhi and Pratibha Patil, which are to be written in French.
Such structuring is conscious and favourable cognitive and effective bridge between the mother tongue and the target language, which remains in the learners subconscious for a long time. Zero language loss is assured in this model.

Additionally, audio been integrated completely with the study material package and given as Compact discs (CDs) to the learners. This serves to develop the two major components of language learning, i.e. listening and speaking. The audio recordings are developed and adapted to the activities mentioned in the SLMs so as to let the learner hear the sound of a native French speaker. As the CD is sent to the learners along with the study material, it serves as the chief aural link between the learner and the foreign language. One CD is also provided at the regional centres to be used by the academic counsellors, guiding them about the usage of the SLMs and how to conduct weekend contact lessons.

Apart from these, video conferencing sessions are organised between the regional centres and the headquarters to create direct face-to-face interaction between learners, teachers and academic counsellors.

**b. Novelty**

The ODL model to teach French to adult beginners was being used for the first time in India at such a large scale within a university curriculum. The unique linguistic background of the Indian learner in terms of didactics of a foreign language (French in the present case) is complex with the presence of nearly 30 regional languages and more than 1500 dialects across the country. All foreign language teaching-learning, whatever be the mode of delivery, operates in an essentially bi/multilingual context.

In such a situation, it would not only be difficult, but erroneous to negate the influence of the pre-existing cognitive structures of the learners “Les Connaissances Prealables”. This is what underlines the principal creative breakthrough or springboard wherein the given SLMs, “Learner Resources” have been used as the prime building blocks for pedagogical purposes.

1. Innovative use of mother tongue has been optimally utilised to teach French to the Indian learner in the ODL mode.

2. Every Unit has a unique component of Phonetic sounds in the French language which have been clearly explained via the “Devnagri” script.

This is a major breakthrough in the method as the learners’ mother tongue is taken as principal support for facilitating pronunciation in the Target foreign language. In the ODL terminology, it is termed as “scaffolding” by the educational psychologist Lev Vygotsky. This is what has been developed, using Hindi as well as English, creating a “zone of comfort” for the distance learner.

**c. Usefulness**

In the face of new realities and challenges before the learner groups, communication in both written and oral forms constitutes now a very large part of acquiring skills in a foreign language.
The usefulness of the innovation lies in its didactic process, which is extremely learner-centred and rooted in the unique socio-cultural linguistic realities. The Programme has a:

a. A unique learner-centred approach using learner resources for generating new knowledge and skill in a foreign language and culture,


d. Reach

This programme has a massive potential for learners who wish to learn French. The programme reaches out to those learners who get absorbed into allied industries such as tourism, Business Process Outsourcing (BPOs)/Knowledge Process Outsourcing (KPOs) or other multi-national companies with French clientele.

e. Cost effectiveness

It has been possible to create a cost effective self-learning package (print material, audio/video support, and face-to-face contact classes) at Rs. 5500/- only. In comparison to the other French language skill-based programmes, the IGNOU Programme is a breakthrough for all categories of learners providing international quality training at affordable costs.

f. Scalability

Innovative skill enhancing programmes such as the Certificate in French language, hold enormous potential for learners across the country and more so, coupled with inclusive teaching techniques such as the use of mother tongue, sends a motivating message to learners about possibilities and democratic attitude of the institution. This helps to generate learner enthusiasm and increase enrolments.

Also, the communicative competence that the learners derive from the programme, which helps promote employment, has the potential to expand not only the numbers of learners in the programme but also include learners from all categories, regions and age-groups. In the long run, these factors will be central to examining the growth of this area, enrolments and adaptiveness to new learner demands.

g. Sustainability

Very often, the field of foreign language learning is seen to alienate the learners from their own roots and subsequently such them into the new language context. The learners often forget and immerse themselves into the target language culture. This kind of "plucking off" can be seen as "unsustainable".

But the present method is not only counter to this, but at the same time helps the learner to understand his/her own language and context, even better as the instructional design has promoted "intercultural dialogue" between India and France.

The sustainability of the innovation, thus represents in itself the very first instance of formal acceptance of linguistic diversity of the Indian learner and its direct pedagogical reflection in the course material developed for teaching French in the ODL mode.
More importantly, this sets a fresh Self Generational Model that could be possibly adapted similarly into other regional languages of the country in later years.

**h. Implementation and impact**

The present programme showed in the pilot phase itself approximately 400 enrolments covering only three Regional Centres.

The present innovation not only approaches French teaching-learning in a new way but also impacts significantly the overall domain of the ODL system on larger issues of:

a. inclusiveness,

b. removal of linguistic elitism (in spirit with the tag of the "People's University"), and

c. providing simultaneously modern, contemporary training in a foreign language that matches international quality standards.

**Future Application**

The case of the French language programme for beginners at the IGNOU is at a still nascent stage where solid conclusions about efficacy or failure of any teaching technique will need a longer gestation period to settle. What is imperative in the given situation is to remain conscious of actual performance and empowerment of the learner through the strategic blending of modern tools of pedagogy and optimum space for developing autonomous learning.

In an age of cooperative learning and increasing in mobile and varied learner groups, the global interaction between peer groups, teachers and the larger context is what imparts effectively designed distance education high potential in the educational arena. Language instruction delivered in a distance education format can be just as effective as any other type of instruction and at this juncture when the world is looking at the emerging power of Asian countries, it is upon us as educators to find, compare and evaluate existing strategies in pedagogy which help in what is called a "sustainable didactic approach" tailored for instruction of a European Language within an Asian context.

**An important Aspect**

Looking at an institution that has evolved and grown around the basic philosophy of innovation and inclusivity in education, and development of learner-centric course models, there are three crucial axes on which conclusions can be drawn with respect to these aspects in the French language programme, which are:

A. Integration

B. Interrelation and

C. Performance

It is to be understood that the Indian context due to its multilingual structure does present a rather challenging task for effective teaching/learning of French or for any other foreign language
as such. This then highlights the indispensability of dealing with the multitude of “Pre-existing Corpus” of knowledge, language skills and meta-cognitive structures of the adult learner as well as “Certain Gaps” related to access to Information and Communication Technologies (ICT) facilities and infrastructure, basic digital literacy of learners as well as teachers, inhibition/inability to attending classes in person, etc. which may influence strongly the acceptance or non acceptance of the mode of instruction.

An effective blend of contact classes, self-study or teleconferencing sessions, etc. would form the crux of exploring the first aspect mentioned above, that of integration of the learner with the learning situation/context. This in itself would draw the learner into the learning process where inclusivity would become a constant process rather than a one-time prefixed target.

The other aspect, that of intercommunication should be strengthened and used strategically to maximise learner autonomy at the same time minimising the transactional distance in the didactic dialogue that exists between :

- a. learner-teacher,
- b. learner-content,
- c. learner-learner and
- d. learner-self.

The third parameter defining success of a language programme should be linked to performance, often considered the ultimate test of competence acquired. The famous didactician Merril Swain brought this out in great detail when she discussed the Output Theory way back in the 80’s. It is here somewhere that the learner begins to negotiate meanings and becomes an autonomous learner.

About the Innovator

**Dr. Deepanwita Srivastava** has been a faculty in French language at the School of Foreign Languages (SOFL), IGNOU for the past 9 yrs. An alumna of the Centre of French and Francophone Studies, Jawaharlal Nehru University, New Delhi. She has extensive teaching and research experience at other universities including Jamia Milia Islamia New Delhi, Delhi University, Indian Institute of Foreign Trade, New Delhi.

She is an appointed expert for the first Hindi French dictionary by the Central Hindi Directorate under the Ministry of Human Resource Development. She has been awarded doctoral fellowship for carrying out a field study in France by the ICSSR, New Delhi. She has successfully guided Ph.D research in areas of didactics of French, Translation and Interpretation studies in French language. She has books and Publications in didactics of French and Tourism Studies.

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A Monitoring Process for Enhancing the Quality of the Certificate Programme in Diabetes Care for Community Worker

Feedback, monitoring and evaluation are essential tools in a university for ensuring quality outcomes and cost effective processes for effective learning outcomes and satisfaction of learners in open distance education. The teaching-learning activities in the Certificate Programme in Diabetes Care for Community Worker were evaluated using information communication technology and feedback obtained to help in designing the monitoring format to scrutinise the activities at the study centre. This monitoring process helped in providing evidence for revision of the implementation strategy of theory and practical courses and counselling sessions; modify various norms; strengthening learner support, modify programme guide and design log books. The process also provided the evidence for convincing statutory bodies for approvals to re-start the programme with a revised implementation strategy.

Introduction

India has the largest number of diabetics and potential diabetics. The Ministry of Health and Family Welfare is carrying out a pilot project in the districts to train doctors and nurses in non-communicable diseases. But in rural and remote areas health workers are not available to motivate diabetic patients to continue the treatment for controlling diabetes and prevent complications. Therefore, it is important to have trained people at the community level who will create awareness, motivate and help individuals and families for prevention and treatment of diabetes. A Certificate in Diabetes Care for Community Worker (CDCW) programme was developed by the School of Health Sciences (SOHS) at the Indira Gandhi National Open University (IGNOU) to train the community level workforce.

Maintaining the quality of teaching and learning in the Open and Distance Learning (ODL) system is essential. It is an ongoing process that brings improvement in the processes, products, outputs and usefulness to the society. The systems approach in management highlights that the quality of the input process has a positive impact on the quality output and had an impact on outcomes. Continuous monitoring and programme evaluation are essential for quality assurance and revision of the programmes of study in the ODL system.

The focus of programme evaluation is on how well a particular educational programme, curriculum or teaching method works, how it might be improved, and how it compares with the alternatives.

Evaluation is a tool for decision making and it helps to assess the quality of programmes. It also helps to assess the achievement of objectives and implementation of programmes. Further, it helps to maintain the quality of the input, process or products, and outputs of the programmes.

Roger Kaufman had proposed an Organisational Elements model which provided the system elements in a sequence based upon their occurrence within an educational programme. The modified version of his model is presented in Fig. 1.
Organisational Efforts | Organisational Results | Societal Impact
---|---|---
Resources and teaching learning methods designed by educational institution for delivery of the programme | Appropriate implementation for end results, i.e. enrolment, pass out results; specific knowledge, attitude and skill acquired; public awareness of the programme; use of local learning resources; and increased participation of learner in community programmes | Outcomes, seen as an impact that outputs have for society, determine the utility of organizational efforts and results. This will help the emergence of new initiatives in the community, provide solution to community problems and increase community participation.

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Process</th>
<th>Products</th>
<th>Outputs</th>
<th>Outcomes</th>
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Figure 1. The Modified Organisational Elements Model.

At IGNOU, the implementation, monitoring and evaluation efforts include theory and practical Self Instructional Materials (SIM); programme guide; academic counsellor manual, which provides the details of the content of course; teaching-learning activities with instructions; and a strategy for delivery of the programme and its evaluation. Orientation is given to the programme in-charges and academic counsellors to implement the programmes; and induction training is given to the students for instructional delivery, evaluation and other details. The Student Registration Division, Student Evaluation Division, Regional Services Division and the Regional Centres are responsible for enrolment, examination, maintaining the records of the students, providing support services to students, contributing to the successful implementation of the programmes, and publicising the programmes. Evaluating the outcomes is a challenge as studies for outcomes need to be conducted at the community/society level.

At SOHS, there was no monitoring process in place for the programmes of study in the discipline of nursing. There were no quality assurance guidelines available for ensuring the outcome of the programmes. Most of the issues remained unresolved and it had a negative impact on the satisfaction and support services to learners. It was not feasible for the Programme Coordinator to monitor activities at the study centres established all over the country. To bridge this gap, the author took the initiative to develop a monitoring mechanism for the CDCW Programme using Information Communication Technology (ICT). ICT can be used as an informative tool which provides vast data in various formats. It is a constructive tool which enables data analysis. It is a communication tool, which removes communication barriers of time and space and solves real world problems. It helps in sharing information and knowledge and improves the quality of education by facilitating learning. It also facilitates monitoring of progress of the learners. It is cost effective.

**Background of the Innovation**

The author had the previous experience of being a programme officer of various health programmes in the health department of Delhi. Being a member of various committees for planning,
implementing, monitoring and evaluating health programmes provided her the vision to conceptualise mechanisms for obtaining continuous feedback and monitoring for enhancing the quality of the teaching-learning of the CDCW Programme.

It was observed that most of the programmes of SOHS do not have an inbuilt feedback and monitoring process in programme delivery mechanism from the initial stages; which had an impact on the process, output and outcome of the programmes. In many situations, gaps were observed in designing, implementation of the programme which had an impact on the output.

Therefore, when the CDCW Programme was launched in July 2009, the author as the Programme Coordinator took the initiative for regular feedback and monitoring activities from the SOHS, using Information Communication Technology (ICT) from the initial stages of implementation of the programme.

The Creative Process

At the outset, a review of literature was conducted and it was found studies were available on quality assurance in ODL institutions through ICT. A few studies were available regarding monitoring of programmes using ICT. Following this, a proposal for monitoring was finalised and discussed with the then Director (SOHS), faculty members and all programme in-charges (PIC). A positive response motivated the author to implement monitoring activities, which included monitoring the delivery of the programme, identifying the problems faced by programme in-charges, academic counsellors and learners, and trying to find solutions for implementation of the programme (Fig. 2). It was not feasible to travel and monitor activities of the programme. Therefore, the alternative solution to use ICT was adopted.

![Figure 2. Methodology for planning the monitoring process.](image-url)
A mutual understanding and partnership between PIs/ACs and Programme Coordinator was effective and helped in supporting each other for designing the monitoring activities and revision of the implementation strategy of the programme.

Studies have highlighted that education evaluation plays a vital role in justifying the programme, improving practice and projecting into future. Based on the feedback and monitoring information, the justification for revision of implementation strategy is to be proposed for approval to various statutory bodies to re-start the programme.

**About the Innovation**

**a. Description**

The detailed process of monitoring is presented in Fig. 3. Briefly, the process included obtaining initial feedback from various stakeholders followed by the analysis of the feedback. This was followed by the planning of the monitoring activities for implementation.

Orientation of PICs and ACs as per policy of University but it was conducted through teleconference; session edited and uploaded at You Tube, link sent to PICs and DVD of session sent to PICs and DVD of session was sent to PICs.

Feedback from PICs using telephone/mobile and e-mail Helped in sending induction training PPT for reference of PICs and ACs at PSCs.

Initial problems faced by PICs/ACs/learners provided the vision for strengthening learner support and line of action for guidance to PICs. This further helped in designing feedback form after review of literature and pilot.

Feedback form mailed/posted to PIC/AC/learners, few were returned due to wrong postal/e-mail address Continues follow up done for few months. Forms received were complied and data was analysed.

Based on the issued which was affecting the implementation of programme and learner motivation decisions with approvals were taken to translate term-end examination question paper into Hindi also, approval was not given to translate material in Hindi therefore medical and nursing experts were identified for teleconference in Hindi to cover all the theory blocks and few practical demonstrations. Sessions were edited and uploaded at You Tube, links sent to PICs and DVD were sent to local PSCs, FAQs and SMS messages were mailed to Student Support Centre.

Helped in planning for monitoring using ICT Review of literature and finalize the monitoring format.

Collected theory and practical time schedule/rotation plan from all PICs. Review it and planned monitoring activities.

In local PSCs monitoring was done through informed and un-informed visits during theory, practical sessions and practical examination, telephone and e-mail. Programme coordinator participated/induction training, practical activities and practical examination as a academic counsellor.

In PSCs outside Delhi monitoring was done through e-mail/telephone/mobile.

This helped to get feedback regarding time schedule is followed or not, number of learners present, academic counsellor conducting session or not, theory units and practical skills covered, motivation and interest of learners and ACs, problems faced by PICs, ACs and learners and discussion with PICs.

Feedback and monitoring data analysed, status report prepared and planned for review committee meeting.

Decisions taken on revision of implementation strategy, revision of norms and future strategy for revision.

Background material with minutes were prepared for approval of statutory bodies for re-start with revised implementation strategy.

**Figure 3. Process adopted for feedback monitoring, revision and approval to re-start the CDCW Programme.**
b. **Novelty**

The uniqueness of the monitoring format is in its design, which includes several considerations, such as key questions, feedback from stakeholders and the use of ICT to reduce cost and time constraints. The use of ICT provided the opportunity to monitor all study centres and learner activities from IGNOU headquarters. Monitoring during theory and practical sessions by the Coordinator provided an opportunity to collect the evidence of what was being implemented and what was not implemented. In the local study centres, meeting the PICs, the academic counsellors (ACs) and the learners, and participating in practical theory counselling and practical examination provided the opportunity to discuss various issues and critically analyse the learning outcomes.

Monitoring helped to collect the evidence to review the programme implementation strategy for the enhancement of its quality. It provided the evidence that if stakeholders participate and contribute in providing timely feedback many issues can be solved, help in motivation, and be of interest and satisfaction to all stakeholders. It also provided the information and evidence for future quality interventions.

c. **Usefulness**

Quality assurance in programmes is a burning issue in the ODL system and revision of programmes is a challenge. Therefore, this unique attempt was made towards monitoring quality.

The feedback and monitoring format provided data from the stakeholders in the following areas:

1. problems faced by PICs/ACs and the learners, and the reasons;
2. design of monitoring format using ICT to monitor Programme Study Centre (PSC) activities;
3. evidence for learner support and learner satisfaction; and
4. revised implementation strategy for quality outcomes.

This monitoring process is compatible with the existing implementation strategy of the programmes. The monitoring process is useful in enhancing the teaching-learning activities and the delivery of the CDCW Programme. It has an impact on the learners’ training and their pass percentage.

This learner-friendly, innovative strategy will enable the learners to complete the programme with minimum hours of contact sessions without disturbing their routine and it reduces the number of leaves they have to take to attend the contact sessions. The Programme Coordinator, PICs and ACs will be able to implement the programme in a systematic way with minimum issues and challenges.

This will ultimately have an impact on the care of the diabetic patients to make them self-reliant and their families more involved in their care.
d. **Reach**

The immediate beneficiaries of this innovative process were the enrolled learners; programme in-charges and academic counsellors. In future, the beneficiaries will include the potential learners. The indirect beneficiaries will be the diabetic patients, their families and the community.

e. **Cost effectiveness**

The cost of feedback and monitoring can be reduced by use of ICT and various other media. No financial implications were involved in designing the formats except some cost was incurred for photocopy and postage. Monitoring was done through e-mail, personal phone outside Delhi and office landline for local PSCs the local conveyance was provided for visit, but an effort was made to integrate activities during induction, theory, practical counselling and practical examination. This helped in saving extra cost and time for feedback and monitoring.

The Review Committee meeting expenses were supported by the SOHS as per the university norms. The material was e-mailed to the experts beforehand. Therefore, it was possible to discuss issues and take decisions in one day. The programme guide was re-designed by the Programme Coordinator and sent to experts online. The pilot testing was done during visits to PSCs, which helped in saving time for organising separate meetings.

These examples illustrate the cost effectiveness of the innovative process.

f. **Scalability**

This innovative strategy can be modified suitably as per the need and can be replicated by any School of Studies and Regional Centres.

g. **Sustainability**

It is a sustainable model in the ODL system. It can be repeated over a time period for all programmes for feedback, monitoring, revision and quality assurance.

h. **Implementation and impact**

The approval of the university statutory bodies has been sought to implement this innovative strategy to re-start a revised and quality-enhanced programme.

**Future Application**

As per the revised norms, the approval of UGC (Distance Education Bureau) will be sought to re-start the programme. With quality assurance mechanisms becoming extremely important, such innovative monitoring mechanisms should be in place.

This innovative process is being replicated for the revision of the Diploma Programme in Nursing Administration of SOHS.
An Important Aspect

Feedback and monitoring are a challenge, and it needs the support of programme in-charges, academic counsellors, learners and administrators along with motivation, interest and time of Programme Coordinator, to bring in quality outputs and outcomes.

There are certain questions, such as will all stakeholders be partners in feedback and monitoring? Some might think it is for quality, but others might think it is to keep watch on them. Therefore convincing the stakeholders and obtaining their support is a challenge.

Data is collected but the question arises as to how to validate the data. The interpretation of the data itself is a challenge because the evidence needs to be strong to bring any change and to take decisions within institutional policies.

It is easy to measure outputs in terms of how many learners passed, but it is difficult to measure the outcomes in terms of the satisfaction of learners with the quality of experience and skills they had obtained.

About the Innovator

Ms. Neerja Sood is at present working as Assistant Professor, School of Health Sciences, (Nursing discipline), IGNOU. She completed her Ph.D with specialisation in Public Health from JNU. She is the Programme Coordinator of Diploma in Nursing Administration (DNA) Programme and CDCW and CAHC Programmes. She has a wide experience in state and national health programmes and has been a resource person for training of doctors and nurses in the Department of Health and Family Welfare, Directorate of Health Services, Delhi.

She has published several research articles in national and international journals. She has been a resource person in various projects. She was the first Registrar of Delhi nursing Council.

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**A Web-based GIS Application for Learner Support**

A novel web-based Geographic Information System (GIS) based application was created at the Inter University Consortium (IUC), Indira Gandhi National Open University (IGNOU) to facilitate the learners to locate their nearest study centres, obtain university related information from the study centres and identify the shortest route to reach the study centres. This is a very useful and an informative application and is envisaged to be highly beneficial for the learners of IGNOU.

**Introduction**

The Geographic Information System (GIS) is a simple but extremely powerful and versatile tool, which is useful in solving many real-world problems of mapping, monitoring, planning and management. The use of GIS in education can be a great boon to educational planning, both at the micro and the macro level. It is an important tool that aids Schools/Universities/ Organisations/ Institutions in answering personal and community questions with local to global implications.

The GIS can facilitate in improving educational quality and facilities through the following:

- Increasing access to people living in under-served areas.
- Promoting the equitable distribution of educational benefits within and between different regions and populations.
- Optimising the efficient use and dissemination of existing capital, human and infrastructure resources.
- Organising, coordinating and rationalising efforts in education at different levels.

Use of GIS in education can be a great boon for educational planning. It is an important tool that can aid a University to:

- Distribute its educational facilities and centres among regions.
- Identify under-served areas within the region.

The Indira Gandhi National Open University (IGNOU) has a huge network of regional centres and study centres across India. It is therefore very important for the IGNOU learners to know about study centres in their vicinity along with other detailed information. Map based learner support services by IGNOU are extremely essential for efficiently guiding the learners.

Keeping this need in view, a web-based GIS application was created by the Inter University Consortium (IUC-TEFED) at IGNOU with the following objectives:

- To provide the learners a means to locate IGNOU regional centres and study centres in the region.
- To provide a means to enable the learners to locate the shortest route to the study centre from a given location.
To provide the learners relevant information available at the study centre, such as the programmes offered, the name of the in-charge of the study centre, address, etc.

**Background of the Innovation**

It was observed that the learners want to avail of the services of their nearest IGNOU facility, such as the regional centres and the study centres. They need help to find out study centres-related information and in identifying directions (shortest route) to reach the IGNOU facilities. Since IGNOU is a mega university with regional centres and study centres spread across the country and abroad, it is very important to map these centres for visualisation. Visualisation of the data in the form of map is a very important aspect which shows new dimensions of the data. This web-based application has been developed keeping in mind those learners who are spread across the country in various regions and need help.

**The Creative Process**

After the needs of the learners were thoroughly assessed, a methodology was conceptualised for development of a GIS-based application tool to facilitate the learners. The GIS is a powerful computer-based decision-making tool, capable of integrating, storing, editing, analysing, sharing and visualising geographically referenced data from diverse sources. In a more generic sense, GIS is a tool that allows users to create interactive queries (user-created searches), analyse spatial information, edit data, maps and present the results along with their physical, social and geo-political contexts for better understanding. It is unique since it can manage both spatial and non-spatial datasets on a single application by linking them.

This web-based application was developed creatively using free online GIS tools that were linked with the information available on the various websites of IGNOU headquarters, regional centres and study centres.

![Figure 1. Location map of IGNOU study centres.](image)
About the Innovation

a. Description

This application is a mashup or webpage that collates the functionality of Google Maps and ancillary data of IGNOU study centres, such as the name of the study centre, its code, programmes offered, In-charge, address, etc.

The application contains the following features:

- It facilitates learners to find nearest IGNOU study centres and the shortest route to reach a particular study centre.
- It can be easily launched on the web through which it can be accessible to learners across the country.
- It contains the built-in features of zoom-in/zoom-out, pan and highlight features for ease of use.
- The administrative staff of the regional centres and study centres can be easily trained in developing this application for their areas as it does not require any programming or database-related knowledge.

b. Novelty

The application has not yet been explored in any distance education institute in India so far. Not even a single Central/State Open University of India is currently using such an application as part of their learner support services.

c. Usefulness

A step-by-step route information is very effective to guide learners to reach the centre of their interest. The learners can use this application to locate the nearest regional or study centre and reach there using the shortest route.

The application is useful in providing relevant information regarding the regional or study centres, thus helping them to map the centre of their interest.

This application has a huge potential to become an integral part of the Students Support Services (SSS) Unit of the University. It can drastically reduce the number of queries made by students regarding location and direction of study centres, thus helping the university officials to serve the students in a better way. In this way, it can reduce the number of man hours invested to answer such queries at the Regional Services Division, regional centres and study centres of IGNOU.

This application is also informative for the decision makers to identify the underserved areas and areas where new study centres can be established.

d. Reach

This application has taken only the area of Delhi into consideration at present.
e. **Cost effectiveness**

There is no expenditure involved in the purchase of software or its updating since the application has been prepared using free tools available online. Also, there is no need to purchase any plug-in either. However, Internet connectivity is required by the users to access the map.

f. **Scalability**

The application is scalable. It can be extended to other regional centres of IGNOU spread over India, and other countries as well. It can be easily implemented at the regional centres and the study centres with some basic training to the administrative staff of these centres.

g. **Sustainability**

Low cost is one of the parameters that makes the application sustainable. The application can be expanded as per the needs of the institution. It is also sustainable because it can be easily launched on the web through which it can be accessible to learners’ across the country.

h. **Implementation and impact**

This innovative idea is in the prototype stage and is yet to be implemented by IGNOU.

**Future Application**

This application has a huge potential to become an integral part of the learner support services offered by the University.

**About the Innovator**

**Dr. Anshu Miglani** is currently working as Assistant Director (R&D), Inter University Consortium for Technology-Enabled Flexible Education and Development (IUC). She has been a meticulous researcher and has done PhD in Botany, which involves application of Remote Sensing and Geographic Information System (GIS) in crop studies.

**E-mail : anshu.miglani@ignou.ac.in**
Imparting Software Skills in Geospatial Technology through Online Lectures

This article describes a novel initiative of delivering online lectures/practical training/software demonstration to learners of Geospatial Technology through remote access with the help of a freeware tool, which provides an online environment that resembles a normal face-to-face classroom.

Introduction

There is a high demand for courses on geospatial education in India. Although many conventional Universities and Institutes offer these courses, there is a need to offer these courses as the numbers of learners wanting to pursue these courses are on the rise. Offering these courses through the Open and Distance Learning (ODL) system could solve this problem and educate a huge number of learners in an effective, innovative and economical manner.

As geospatial education is a professional and skill-based course, it requires a lot of teacher-student interaction and practical demonstrations based on software. So, it seems to be a real challenge to teach such courses through ODL. Virtual classroom is one of the techniques which is getting very popular among learners and can play a vital role in offering these courses through ODL. An effort has been made by the author in this direction.

Background

At IGNOU, there are several courses related to the geospatial technologies on offer at the certificate and research level programmes. The courses at the level of diploma, graduation and post-graduation are in the developmental stage.

The author found that there was a need to cater to the learners of the geospatial courses of IGNOU through the use of online teaching using a virtual classroom. The author also found that there was the need to:

- cater to the dearth of trained geospatial counsellors at few study centres;
- facilitate the counselling sessions even from the tutor’s home during holidays, or from their department during working days and they need not come to the study centres to give training to the learners;
- enable bulk of students to attend such lectures or presentation or software demonstration from the study centres (where there is a dearth of trained counsellors) where they could be connected with the tutor stationed at headquarters; and
- bridge the gap between the conventional face-to-face mode and distance mode of education as communication is possible from both ways, that is, from the tutor’s and the learner’s side.

The Creative Process

After the needs were identified, the appropriate methodology was developed and the software tools were identified. Thereafter, the software was customised appropriately to be used as a virtual classroom.
This software was pilot tested in a workshop conducted by the School of Biological Engineering at Shobhit University, Meerut on March 6, 2017. Altogether 34 students and 3 faculty members from different branches of Engineering were given training on "Awareness of Geospatial Technology and its Applications". The workshop was carried out in multiple modes by the author. The sessions of the workshop and the mode in which the instructions delivered are summarised in Table 1 below:

Table 1. Summary of the sessions of the workshop and mode of instructional delivery.

<table>
<thead>
<tr>
<th>Session</th>
<th>Virtual Classroom mode through Team Viewer Desktop and Video Sharing</th>
<th>Face-to-Face Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>—</td>
<td>Brief interaction with Students</td>
</tr>
<tr>
<td>Remote Sensing</td>
<td>PowerPoint presentation, Video</td>
<td>—</td>
</tr>
<tr>
<td>GPS</td>
<td>PowerPoint presentation</td>
<td>Fieldwork, Video</td>
</tr>
<tr>
<td>GIS</td>
<td>QGIS software demonstration</td>
<td>PowerPoint presentation, Video</td>
</tr>
<tr>
<td>Feedback</td>
<td>Feedback form distributed to students and responses collected after the workshop</td>
<td></td>
</tr>
</tbody>
</table>

Finally, feedback from the participants was taken through questionnaires arranged as feedback form. The results were finally compiled to get an overview of the efficacy of delivering courses related to geospatial technology through different modes.

About the Innovation

a. Description

The novel intervention developed is essentially a virtual classroom that employs a proprietary software named TeamViewer. The geospatial software could also be a freeware or open source or a paid software, which bought by the IGNOU headquarters could be used to teach the learners stationed across India.

To give or attend presentations, both tutors and learners need to install a similar version of TeamViewer software on their computers. Both tutor and learner need to have a TeamViewer user id through which the tutor or the presenter would start the meeting and invite the learner to attend the presentation. After the learner accepts the tutor’s invitation, the entire desktop of the tutor along with tutor’s video as well as audio is visible to the learner. The learner’s video or audio is also available to the tutor, however, it should be muted so as to avoid any obstruction during the tutor’s presentation. When the learner is allowed to ask questions, the tutor should unmute learner’s audio thus allowing them to ask questions.
The entire session can also be recorded with the help of S Recorder, which is also an open source software and is easily available. Figure 1 provides an idea of the virtual class taken.

Figure 1. Screenshot of virtual class taken. 1. Presenter, 2. Learners at distance, 3. Presenter’s screen visible to learners, 4. Recording of lecture session, 5. Desktop of presenter.

Figure 2. A collage of the virtual classroom session taken during workshop. 1. Desktop of tutor/presenter, 2. Desktop shared with the students at different place.
b. **Novelty**

Web conferencing exists in ODL institutions around the world as well as IGNOU too. However, at IGNOU, it is not done so frequently and lots of learners are not enrolled for such virtual classes due to lack of technology or awareness. This novel initiative just simplifies the tedious process of giving lectures or software demonstrations for certain skill-based courses with the help of TeamViewer, which is very simple to use and is also cost effective.

c. **Usefulness**

As team viewer software is user-friendly, it is easy to install on any system. There are no complications involved. Only one thing needs to be taken care of that the same version of the software is installed at the tutor and learner end. Although at IGNOU, we use Adobe Connect for web conferencing, a lot of technical problems have arisen in the past as sometimes either the audio or video or the tutor's desktop is not properly shared with the learners. Team viewer is relatively simple and enables flawless presentations at their platform.

d. **Reach**

As today, the internet is available in almost every nook and corner of the country as well as around the world, this innovation can have a worldwide reach. Anyone having internet connectivity or proper computer system with audio-visual facilities can be benefitted from this. If the internet is not available to learners from some remote areas, they can come to nearby study centres and attend these virtual classes.

e. **Cost effectiveness**

The TeamViewer software is very cost effective as it is a freeware for personal/non-commercial use, so maintenance of the software is minimum. Even with a single license, one can remotely support as many computers as one likes. There is no cost per customer. The counterpart can simply use the free version of TeamViewer.

f. **Scalability**

This initiative can be scaled up for the learners at different study centres as IGNOU has a huge network of study centres. As mentioned earlier, at IGNOU, there are some courses dealing with geospatial technology and a few courses are being developed as per the Choice Based Credit System. So all learners enrolled in these courses could be benefitted.

g. **Sustainability**

This solution is sustainable as virtual classes are useful for ODL organisations. This innovative intervention employs a cost effective software, which aids in its sustainability. It is needed by IGNOU where the main aim is to reach to the masses and bring quality education to their doorsteps.

h. **Implementation and Impact**

The novel method was used in a training workshop and the feedback received from the participants indicates the positive impact of the innovative intervention. About 50 per cent of the participants
had liked the sessions in which instructions were imparted in a virtual classroom mode through the TeamViewer software. More such sessions are required to fully understand the impact of this innovative idea.

**Future Application**

This innovative intervention can be scaled up to a lot more regional centres or study centres and web conferencing can be given to learners spread across India as well as across the world at a single time.

**An Important Aspect**

This type of teaching matches the concept of ODL to a great extent. The various components of the ODL system are well addressed as this kind of online teaching is like a virtual classroom/lab where practical training is given in the form of lectures, presentations having all audio/video components and also has a white board for highlighting things while teaching. Some files can also be shared with the learners.

**About the Innovator**

**Dr. Satya Raj** is a faculty in the discipline of Geography, School of Sciences at IGNOU. Her specialisation is in the field of Political Geography, Urban and Environmental geography and geospatial applications for sustainable management of resources. She is the coordinator for various courses in the School of Sciences at diploma and graduation level. Prior to IGNOU, she has worked as a GIS engineer in several reputed GIS companies and has been a resource person for a number of workshops related to geospatial technology at various organisations. Being a faculty at IGNOU, she strives at inventing innovative ways of teaching and learning.

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ICT Enabled Examination On-Demand in IGNOU

IGNOU has developed an innovative scheme of On-Demand Examination. The unique features of the scheme include online submission of registration fee, issue of online hall ticket, online attendance record, etc. The core component of the scheme includes a software – Winex which can generate a large number of unique and parallel question papers exactly in accordance with the design and blueprint provided by the faculty. The innovative features of this scheme are described in this article.

Introduction

With the advancement of ICT not only the instructional system, but the examination system is also being influenced to a great extent. In Open and Distance Learning (ODL), the examination On-Demand has become the need of the hour making ODL more flexible and learner friendly. NCIDE developed a comprehensive ICT enabled system of ‘examination on-demand’ which provides the learners to appear as per their preparation and convenience.

It provides opportunity to the learners to appear in the examination whenever they feel prepared for examination after completing the minimum eligibility criteria.

The use of ICT in implementation of this scheme reduces the possibility of malpractices in the examinations as each student may get different set of question paper.

Most of the facilities for the students as well as for the Regional centres are online and thus reduces the use of papers.

It will minimise the fear of failure in the examination and thus saving the distance learner from frustration and depression.

It may also reduce the load on the term and examinations of the University.

The target group for the scheme of on-demand examination includes all the learners of IGNOU all over the world. Presently, the facility is available in about 120 courses through 15 RCs of IGNOU in different parts of the country.

The most important impact of the scheme is that it is making the examination on demand which is the basic concept of the open and distance learning system making the continuum of On Demand Learning to On-Demand assessment as per the need of the learners.

Background

As most of the distance learners in Higher Education are working people; they normally do not get leave from their organisations for several days at a stretch for term end examinations, so fail to complete their courses in stipulated time limit. The examinations being institute centric are conducted in a fixed time frame and therefore many of the students appear without proper preparations which lead to the lower percentage of results in many subjects. Moreover, the faculty is all the time engaged in making arrangements for term end examinations take too much
of the valuable time of faculty which otherwise they could have effectively devoted to concentrate in academic matters. Taking cognisance of these issues, the NCIDE developed this scheme.

**The Creative Process**

Recognising the need of developing a scheme of on-demand examination in the University, the Vice Chancellor called a meeting of the Directors of Schools on 21\textsuperscript{st} July 2008 and asked the Coordinators to give a presentation on the design, development and implementation of the innovative scheme. The scheme of on-demand examination has mainly three components – Winex software to generate question papers and online registration of the learners for examination; bilingual question bank, and the physical conduct of examination on demand at the selected Regional Centres of IGNOU. The process introduced in the scheme included development of software by a team of technical experts, which could generate instant and individualised question paper by selecting suitable questions from the database of various types of questions. The scheme was launched on the Foundation Day of the University, i.e. 19\textsuperscript{th} November 2008. In order to feed the software, a bilingual question bank was developed in about 200 courses. The first on-demand examination was taken by a student who works in the Indian Forces and was not able to appear in his examination for last two-three years because of one reason or the other. The day when he appeared in on-demand examination, he was travelling from Jammu to Kochi. Thereafter, the scheme got extended to about 200 courses through 18 Regional Centres of IGNOU.

**About the Innovation**

**a. Description**

It has basically three modules – Question Paper Generation Module, Online Registration Module and Regional Centre Module. All these modules have multilayered security features, well defined accessibility and provisions for scalability. ICT enabled monitoring of the conduct of on-demand exam under web camera surveillance ensures fair and smooth conduct of on-demand examination. This unique features of the scheme included the following:

1. Students need not wait for the six-monthly term end examination,
2. Choice of deciding the date of exam lies with students,
3. Multilayer security system to maintain confidentiality and secrecy of the entire process,
4. Students can register online for On-Demand Exam any time from anywhere,
5. Online issue of Hall Ticket mentioning the date, venue and time of examination,
6. Multi-mode registration-fee payment system including online payment through Credit Card or payment through bank draft,
7. Automated online clarification of doubts and information to the students,
8. Individualised question papers for different students generated on the day of examination,
9. Encryption of the Question papers immediately after their generation,
10. Exam conducted under web-based closed circuit camera surveillance,
11. Online submission of attendance on the day of exam, and
12. Online submission of the awards and marks by the examination superintendent.

b. Novelty

The innovative features of the programme are as given below:

It is a completely flexible and ICT enabled system of examination independent of the traditional fixed time frame, the student need not to wait for the six monthly examination.

The registration for On-Demand Exam is completely on-line. After ensuring the eligibility and receipt of registration fee, Hall Ticket indicating date and time is issued on-line.

There is inbuilt mechanism for checking the authenticity of the student’s data, eligibility for the exam, validity of the admission, etc. which insures that only genuine learners are benefited.

It makes use of ICT to solve problems which arise due to human limitations; it makes possible instant generation of parallel question papers, and facilitates authorised data entry at different points, leaving no chance for human interference. It reforms the system of evaluation without abrupt changes.

The entire scheme of ICT Enabled examination on-Demand is an objective, reliable, valid and practical system. It is safe and secured and truly transparent.

It is not only simple and user friendly but it is also cost effective and saves time and effort in setting question papers, in data base management and in data transfer.

It is capable of generating individualised question papers on the day of examination picking up the questions randomly from the question bank as per the blue print and design.

Though each student may get a unique question paper, the various question paper, the various question papers are of comparable difficulty level.

The question papers as it is generated on the day of on-demand exam in encrypted form which are made available online to the RCs and can be decrypted by the authorised person using a specific decryption software and unique key generated along with the question paper which is different for different RCs.
The decrypted question papers cannot be saved in the hard disc of any system.

Each question paper has unique bar code and a unique question paper code having date and time of generation with the help of which students’ question paper and answer sheet can be matched at any alter instant, if required.

Marking scheme for each question paper is also generated along with the question paper which can be accessed only after 24 hours.

It has an inbuilt provision of backup of the data base such as question papers generated and printed, changes made in the data base etc. Log files are created indicating the date, time and the IP address of the system from which the server is accessed.

Date wise list of students registered for OD-Exam, attendance sheets and blank award lists can be downloaded by the concerned RC.

It has centralised control on the whole exam system starting from the registration to the declaration of result.

It has facility for multi mode registration-fee payment which includes on-line payment through credit card, through bank draft and cash challan.

The in-built security mechanism of software takes care of the security of the question banks and data base.

c. **Usefulness**

The scheme of on-demand examination is highly useful for those who because of one or the other reason are not able to appear in the six monthly term-end examination. Those who missed one or the other courses can appear in the on-demand examination immediately after the term-end examination and pass without losing six months time. If a student is ready to take her examination after completing minimum eligibility criteria, can appear in her examination at any time from any of the selected examination centres without waiting for the June or December term-end examination. This scheme is very useful for the working people who may not get leave during the normal term-end examination. The scheme gives a very relaxed environment for examination as per students’ preparedness and ease of appearing in the examination.

d. **Reach**

As the on-demand examination has reached about 18 Regional Centres of IGNOU, students from any part of the country could appear in the exam as per their convenience. The registration for on-demand examination is online, so anybody from anywhere could register and select the date and venue for the examination from their place. As the scheme is flexible and simple, it could be started at any Regional Centre or Study Centre under controlled conditions, such as Web-based CCTVs, etc. The scheme of on-demand examination can reach any part of the country with very minimum information of one computer, printer and CCTV. All the students of IGNOU can be the beneficiaries of this scheme.
e. Cost effectiveness

The scheme of on-demand examination is cost-effective. There is mostly a one time investment in creating the infrastructure at the Regional Centres, development of question bank and the software. The only need will be to update the software and question bank from time-to-time. In view of the benefits and student-friendly features, the cost involved is quite optimum.

f. Scalability

It is an inherently adaptable system which can be easily up-scaled to any number of courses, to any number of examination centres catering to all the students of IGNOU.

It started functioning with 8 courses of two programmes through 2 Regional Centres in February, 2009, and about 15-20 additional courses are being added in every quarter.

At present 70 courses are on offer for On-Demand Exam and about 20 more courses are likely to be added in the next quarter.

Initially the On-Demand Exam started at two Regional centres in Delhi, within three months it was extended to five more Regional centres and in next three months demand was from five more Regional centres. Thus, in less than one year it has been extended to 15 Regional Centres of IGNOU.

The extension of the facility of On-Demand Exam to new Regional Centres is very cost effective with one time very nominal investment for providing necessary infrastructure i.e. one computer, one printer, chairs and web based CCTVs.

The software developed by the NCIDE for On-Demand exam can be easily installed online at the Regional Centres without any additional expenditure and special arrangements.

g. Sustainability

It does not require specially skilled or trained manpower to handle the entire process of on-demand examination at the exam centres. It is highly user friendly programme.

The training of the personal involved with the On-Demand Exam at Regional Centres is also done online. Hence, there is no problem in making these facilities available in any corner of the world.

After an initial investment on developing infrastructure, the running cost on the entire On-Demand Exam process will be substantially reduced. The same infrastructure will be used for On-Demand Exam in other courses to be introduced from time to time.

The scheme can be extended to all the courses in the University without additional expenditure except that for the question bank development.

The scheme of examination on-demand can be easily replicated in any educational institute at school as well as at higher education level.

The on-line registration module can be customised for any registration purpose be it examination related or otherwise.
The On-demand-exam module can also be used for generating quality and parallel question papers for term end exams in no time, specially in case of emergency and where the number of examinees is very less which will reduce the burden of question paper setting and thus will reduce the burden of question paper setting and thus will reduce the cost and time of paper setting.

Developing structured and graded question banks involving objective type questions (specially Multiple Choice Questions) the software can be adapted for on-line-examinations with a provision for instantaneous result declaration.

The software can be used for individualised assignment delivery or for on-line assessment as part of Continuous and Comprehensive Evaluation.

The scheme of On-Demand Exam can be easily adapted by any other ODL system and

i. it may provide a more credible system of examinations free of unfair means with less paper work before the exam.

ii. It may provide a lot of administrative support and reduce burden on administration of evaluation in ODL system. It may also help in reducing workload on term end examination.

iii. the On-Demand Examination facility will boost the image of the University as is evident from the appreciation of the programme by the press, the educationists, the students and their parents.

iv. it may help in improving the pass percent of students in different courses.

h. **Implementation and Impact**

What started as an humble beginning as first On-Demand Exam on 11th December, 2009, with 8 courses of two certificate programmes of IGNOU at two Regional Centres, it has now grown to 122 courses of 23 programmes at 15 Regional Centres and hope to expand even faster.

In a short span of 14 months from the first OD-Exam, more than 1650 students have got registered themselves for On-Demand Exam and more than 1000 have appeared. The system has shown its strength and foolproofness as all the examinations have been conducted successfully. The On-Demand Examination is conducted on every Friday.

Each Regional Centre has been allotted with 25 sheets for each Friday for On-Demand Exam. For the last three-four months, the weekly sheets at the Regional centres Delhi-1, Delhi-2 and Jammu are being fully occupied. It indicated that more students are opting for On-Demand Exam. It is a clearly visible impact of the innovation.

As a part of the scheme, a digital question bank having more than 80,000 questions both in English and Hindi medium has been developed for about 125 course of the university and it is being upgraded continuously and regularly for many other courses.
In view of the learner friendly features of On-Demand Examination, a large number of students are requesting to start on-demand examination in other courses at the earlier. A summary of the students’ feedback on On-Demand Exam is attached herewith.

During the period of 20 months of launching of the OD-Exam portal, more than 7,80,000 visitors have visited the On-demand exam web site, which shows people’s interest towards on-demand examination. On-Demand Exam website is http://winex.ignou.ac.in/ It also indicates the impact of the innovation.

The software is being used for instant generation of the question papers for term end examination also, which has made the process of question paper setting highly cost effective and less time taking.

The success of On-demand examination is changing the mindset of Academia of higher education which will surely help to change the assessment and evaluation scenario in Open and Distance system in near future making the examination on demand.

The scheme of On-demand Exam was much talked about in the community and had a wide media coverage right from its inception as Walk-in Exam which was later re-christened as On-demand Exam. Some of the news clippings and web links are attached herewith for reference.

Very large number of students were demanding to start On-Demand Exam in other courses and at other Regional Centres. The Demand is also to start On-Demand exam for the international students of IGNOU. It also indicates the utility and impact of the innovation.

**Future Application**

In future the scheme may be extended to all the courses and programmes through all the Regional Centres. A digital online question bank may be prepared for all courses. The question bank may be used for generating question papers for all the term-end examinations as well as the Tutor Marked Assignments. It will save not only time and money of the University, but will help the faculty members to prepare questions as and when they have time, and the questions so prepared may be uploaded online in the digital question bank.

The scheme can be extended for the entrance examination based programmes as well as for the MPhil and Ph.D admissions.

**An Important Aspect**

The scheme of on-demand examination is unique in terms of time and venue of the examination. The on-demand examination can be made completely online. The question bank development may be a continuous and on-going activity by adding new questions, modifying the used ones and deleting the obsolete questions. A dynamic question bank compiled with the individualised question paper generation software may bring a revolutionary change in the examination system in the University. It may be made compulsory for all Programme Coordinators to develop question banks for all the courses of their programmes.
Author’s Biodata

Dr. Oum Prakash Sharma is presently Deputy Director in the National Centre for Innovation in Distance Education, IGNOU. He is working towards finding innovative learning and support solutions for the distance learners using new technologies.

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Designing Cardiology Programme for Open and Distance Learning

Cardiology is a residency training programme, offered by the conventional medical colleges. The training programme comprises about 90 credits (2700 hours) annually, out of which about 20 credits could be accounted as optional. The number of cardiology seats in India is about 200 per year, which is highly inadequate for a population of 1.2 billion people. Considering this huge need for trained cardiologists in the country, the School of Health Sciences, Indira Gandhi National Open University (IGNOU) designed a Post Graduate Diploma in Clinical Cardiology (PGDCC) Programme. It is a full time Programme, of a minimum duration of two years, redesigned for the Open and Distance Learning (ODL) system with a provision of 70 credits annually. Converting work environment into academic environment and integrating pedagogically compatible rotational posting of students in teaching and non-teaching institutions are the important innovative features of this Programme.

Introduction

Morbidity due to cardiac (heart related) problems is the number one cause of death in India and the developing countries. Cardiology is a branch of medicine that studies the disorders of the heart to help diagnose and treat such conditions. Cardiology is a three year training programme in India offered by the conventional medical colleges. The eligibility criteria for this programme is the completion of specialisation in internal medicine. The number of cardiology seats in India is about 200 per year. For a population of 1.2 billion, this provision is extremely inadequate. Also, as the training in the conventional medical colleges involves tertiary health infrastructure, the facility for training remains a constraint. Moreover, stringent criteria of student teacher ratio of 1:1 restrict the number of trainees. Therefore, addressing the need of trained persons in cardiology within the constraints of existing infrastructure requires an intervention through the ODL system. The present instructional design aims at solving this issue without compromising the quality of training.

Background

India had, initially, a 2-year ‘Diploma in Cardiology’ (Dipcard) programme for MBBS qualified doctors, which was stopped subsequently. This model was followed by IGNOU to meet the present demand of the nation. IGNOU started the PG Diploma in Clinical Cardiology (PGDCC) as a full time programme of 24 months in tertiary cardiac set ups. The programme was developed to create essential knowledge and skills regarding non-invasive cardiology and to equip graduate doctors (MBBS Qualification) to manage common cardiovascular diseases effectively and safely in urban and semi-urban areas of the country. This programme was envisioned to simultaneously train hundreds of medical graduates in clinical cardiology to deal effectively with the early recognition, management and prevention of common cardiovascular and associated diseases particularly Diabetes Mellitus.

The Creative Process

IGNOU, being an open university, provides flexibility in its training methodology. Moreover, IGNOU had experimented for accreditation of prior learning in professional fields, such as fine arts. Therefore, acknowledging the experiences earned in hospital setting could be accounted towards earning credits for academic purposes. The concept of ODL is based on learning while earning. Therefore, there is a compatibility of designing academic programmes that need the same work environment and the same work experience, which is solicited for full-time educational programmes.
About the Innovation

a. Description

IGNOU started the Post Graduate Diploma in Clinical Cardiology (PGDCC) as a full-time programme of 24 months in tertiary cardiac set ups. The programme was launched in 2006 in 16 Programme Study Centres (PSCs) with an enrolment of 117 students. The capacity of training increased to 435 students in the year 2013 involving a network of about 70 PSCs. As per the mandate of IGNOU, it was decided to stop admission as full-time programmes were no more allowed through IGNOU.

From the experience of cardiology training as a residency programme, the duration of training comes to about 2700 hours annually, which in IGNOU terms becomes equivalent to 90 credits (1 credit = 30 learning hours). The skills to be imparted through the programme have been classified into essential, desirable and optional category. This helped to quantify the actual time needed for hands-on-experience as a part of the training programme. With the feedback from cardiologists on the design of the Programme, it was possible to restrict the need for residency training at medical colleges (PSCs) to about 30 per cent of the total duration, which is equivalent to about 20 credits annually (Table 1). This is the duration of training, which would necessitate displacement of students from their work place.

Table 1. A model for cardiology training in an ODL institute.

<table>
<thead>
<tr>
<th>Type of Learning</th>
<th>Credits</th>
<th>Training Process (Annual credit Load)</th>
<th>Institution setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual</td>
<td>Total (2 years)</td>
<td></td>
</tr>
<tr>
<td>Cognitive</td>
<td>15</td>
<td>30</td>
<td>SLM (15 credit)</td>
</tr>
<tr>
<td>Psychomotor</td>
<td>15</td>
<td>30</td>
<td>PSC Posting (15 credits)</td>
</tr>
<tr>
<td>Psychomotor (Reinforcement)</td>
<td>25</td>
<td>50</td>
<td>PSC Posting (5 credits)</td>
</tr>
<tr>
<td>Confidence Building</td>
<td>15</td>
<td>30</td>
<td>SDC Posting (30 credits)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>70</td>
<td>140</td>
<td></td>
</tr>
</tbody>
</table>

After being acquainted with a skill as a part of the residency training, it needs to be practiced under supervision. This supervisory training component was quantified to be of 20 credits. This could be practiced in any tertiary set up other than the medical colleges i.e., the cardiac hospitals that are not a part of the regular teaching activity. Once the student develops a level of confidence, s/he needs to build up his self confidence, which also needs practice in a cardiac setting. This component was quantified to be of at least 15 credits annually (Table 1). The self confidence part is a non-supervisory (self-practice) activity in a cardiac setting. Therefore, both the supervisory and self practice components can be achieved in non-teaching tertiary institutions called Skill Development Centres (SDCs).
The SDC is also the routine workplace of the students where they are normally posted as a part of the job. The job hours are usually of 8-12 hours on an average. The working doctors who enroll as students need a total of 35 credits annually from this workplace towards their academic requirement. Therefore, if academic counsellors are identified from the SDC setting, and if the students are made to undergo 20 credits of supervisory training in a structured manner, then the objective earning of 35 credits from the work environment can be achieved easily.

The 20 credits of training at PSC can be accomplished by having 3 months of full-time posting i.e., at an average of 45 to-50 hours per week. The 20 credits of supervisory training at the SDC can be done over a period of 7 to 9 months at an average of 15 to 20 hours per week i.e., about 2 to 3 hours per day. Similarly, 15 credits towards the practice for self confidence can be accomplished at an average of 12 to 15 hours of input per week over 7 to 9 months. Indeed, since the student is already engaged in the SDC, he has to manage patients of various types throughout the year there. So, coverage of credits can be automatically taken care of. But, the supervisory components for all types of skills as planned in the design have to be ensured by the counsellor.

b. Novelty

The innovative features of this Programme include:

i) converting the student-doctors’ work environment into academic environment, and

ii) integrating pedagogically compatible rotational posting of student-doctors in teaching and non-teaching institutions.

The novelty of the design is to match and integrate the work environment experiences with the academic input needed for the training package. As the work of an institution (job responsibility of the student as an employee i.e., student-doctor) should not be interrupted due to the training process, the PSC posting has to be planned carefully. The students of a PSC are divided into groups and rotated in such a manner that always fixed number of student-doctors are present both at the PSC and the SDC. In other words, the training (academic activity) and the job (patient management) goes in parallel.

The design takes care of monitoring of practice of each skill at demonstration, supervisory practice and self-practice level. Maintenance of the log-books of skill training and their cross checking by counsellors and introduction of certificate of proficiency for essential skills help as safeguards for quality assurance.

The design integrates non-teaching hospitals with academic activity. In medical training, the disease conditions of patients are the subjects of study. Thus, the patients attending the non-teaching set up become the subject of learning of the student-doctors. This helps not only in maintaining the student-teacher ratio, which is essential for such training, but also the training of large numbers of students becomes possible when more and more non-teaching hospitals get integrated into this design.
c. Usefulness

The design helps to train students in super speciality programmes through the ODL mode. It will create an academic atmosphere in hospitals beyond the medical colleges. More specialised hands in the form of student-doctors become available in peripheral health facilities. Thus, not only the quantum of training increases, but also quality of patient care improves in these hospitals.

The concept of ‘earn and learn’ also gets implemented in its true spirit.

d. Reach

The design will help to spread the academic environment to smaller hospitals. In developing countries, this design can help them to train more doctors within their limited resources. If we summarise the model of training design as mentioned below Figure 1, it will be evident that an ODL institution can provide training in a large number of institutions through pedagogic linking as discussed in the earlier paragraphs.

![Diagram](image)

**Figure 1. A model for PGDCC training.**

e. Cost effectiveness

The cost effectiveness is evident as we are able to create academic environment of a cardiology department of a medical college in a non-teaching set-up without any additional investment. Access to additional case studies (patients) and environment to practice of skills becomes available without any extra cost. So, it becomes an ideal example of optimal utilisation of resources.

f. Scalability

The utility of design assures scalability. Even if a state does not have teaching institution, the non-teaching institutions of that state can be linked to the teaching institution of other states and the training can be imparted through rotational posting. In Indian context, more than 500 doctors can be trained annually which is almost 2 to 3 times more than the present training capacity of all the training institutions taken together! The developing nations can easily be benefitted by this design to meet their manpower need.
g. **Sustainability**

As the work environment has been built into the academic environment, both the patient service and the training can run in parallel. Indeed, this arrangement may have a synergetic effect on both. Therefore, sustainability is assured. As the teacher-student ratio is maintainable, the long term quality assurance is also taken care of.

h. **Implementation and Impact**

The PGDCC Programme ran from 2006 to 2013 with the basic ODL pedagogy. This innovative model described above was approved by the Academic Council of IGNOU but admission could not be carried out due to technical reasons.

**Future Application**

The future application will depend upon the policy of a nation. If a country wants to meet its health manpower need at an affordable cost utilising available resources, then this model can deliver the goods effectively. As the design is pedagogy linked, teacher student ratio is maintained at every level of training process, patient care at work environment is not compromised, monitoring of each skill is taken care, the design can assure minimum quality standard in the student-doctor. Therefore, it can be a model for meeting the trained manpower need in future.

**About the Innovators**

**Prof. Tapan Kumar Jena** is Professor in the School of Health Sciences, IGNOU. He is a physician by education. He did his MBBS and then MD before making distance education his career. He has also done Diplomate of National Board (India) and a PG Diploma in Distance Education (IGNOU). He has designed various models for imparting health training through ODL at undergraduate, graduate, and post graduate level including training in surgical skills. He has also been actively involved in research on Indian culture for more than 40 years.

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**Innovations and Ideas in the ODL System 91**
About the Editors

Dr. Moumita Das is working as Assistant Director at the National Centre for Innovation in Distance Education, Indira Gandhi National Open University (IGNOU), New Delhi. She is interested in identifying areas of intervention for devising effective solutions in the Open and Distance Learning System. She has been awarded for her research work by the University. She has published many books and research articles on subjects, such as innovation in the ODL system, intellectual property rights, sustainable development etc.

Dr. Sujata Santosh is working as Assistant Director, National Centre for Innovation in Distance Education, Indira Gandhi National Open University (IGNOU), New Delhi. Her areas of interest include: open education, e-learning applications, digital libraries, institutional repositories, technical and software documentation, knowledge management. She also has an interest in the latest developments and innovation education in general and distance education in particular.

About NCIDE

The National Centre for Innovation in Distance Education (NCIDE) was established in 2005, at the Indira Gandhi National Open University (IGNOU), Maidan Garhi, New Delhi. It is mandated to promote, support, re-engineer, document and disseminate innovations in the Open and Distance Learning (ODL) system. It is a ground for nurturing bright minds whose ideas would lead to innovations the ODL system.

Mission

The mission of the Centre is to create and nurture a culture of continued search for innovative solutions aligned to the University’s mission to offer cost-effective, seamless and quality education to its learners.

Objectives

The main objectives of NCIDE include:

- Providing intellectual, financial and technological support to innovators.
- Encouraging innovations in ODL through collaborations and networking in India and abroad.
- Working as resource centre for prototype development of innovative learning and support solutions.
- Conducting research studies in the areas of innovation in the ODL system, enabling research based framework and guidelines for standardization and total quality management of all facets of the ODL system.
- Documentation and dissemination of the innovations in the ODL system.
- Capacity building of the functionaries for innovations in ODL.
- Development of innovative programmes, guidelines, mechanism and modalities for convergence of different systems of education for seamless access.
Innovation and Ideas in Open and Distance Learning System is based on the ideas and innovations submitted by the faculty and staff members of the Open and Distance Learning (ODL) institutions all over India for the award of the Gold Medal for Innovation in ODL by the University from 2006 to 2016 - a span of ten years. What makes these ideas and innovations special is the fact that these have originated from the practitioners in the ODL system, and thus has great value. We have endeavoured to present you with some of these innovations ideas so that these may suitably used for the improvement of the quality of the ODL system. The topics include the various innovative attempts taken and cover a wide range. Some of these are:

- Mobile application in learner support
- E-learning
- Reaching children with disabilities
- Monitoring quality of programmes
- On-demand examination
- Web-based project evaluation

Contributors include the following Gold Medalists for Innovation in ODL:

- Mr. Binod Deka
- Dr. G. Mythili
- Prof. Rekha Sharma Sen
- Prof. Manoj Kulshrestha

This book would serve as a useful reference for all the stakeholders of not only the ODL system but also for those who are in the conventional system and involved in e-learning or m-learning.
A COLLECTION OF
INNOVATIONS
AND IDEAS
in the Open and Distance Learning System

Editors
Moumita Das
Sujata Santosh