



Professional Development of Employees in ODL Institution: A Case of IGNOU

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ABSTRACT

Training and development is the fastest growing industry as a result of replacement of industrial workers with knowledge workers. An effective and sustainable organizational training produces significant results such as improved employees' skills & productivity, enhanced retention & morale. Training and continuing professional development is an integral component of Open and Distance Learning (ODL) system, which is characterized by division of labour where the teaching and learning is performed through use of media and technology. However, in contrast to the above, lack of appropriate training has been identified as a significant barriers in ODL institutions and there is an immense need of continuous professional development activities in these institutions. This study highlights the professional development activities for the technical staff of Indira Gandhi National Open University (IGNOU) engaged in web-based application development. The study aimed to identify if the training outcomes could be utilised in the routine work followed by the barriers to implement them in the work environment. The results indicate mixed responses that knowledge and skills gained during the training were useful majorly for their learning and development, routine work, front-end and back-end activities. The barriers faced by the respondents to implement the learning gains in their work place were identified as pertaining institutional (unavailability of training, infrastructure and internet) and individual (lack of motivation and time). The ODL should plan and implement well structured trainings followed by mitigating the barriers to implement the knowledge and skills gained during the training.

Keywords: Barriers on implementation, impact of training, training and development, ODL system, utilisation of training

The term 'Professional Development' can be referred as different types of knowledge and skill enhancement activities, which may include conventional teaching learning, domain specific standardised training for the target stakeholders to improve their knowledge, competence, skill, and effectiveness (Professional Development, 2013). These activities may be performed in-house at the work place or may at different places and may be at various levels, starting from basic to advanced.

However, in industrial terms the professional development could be defined as "Process of improving and increasing capabilities of employees through access to education and training opportunities in the workplace, through

outside organization, or through watching others perform the job" (Professional Development, 2017). Professional development, through in-house training activities, helps to improve and sustain the productivity of the organization, inculcate staff motivation and job satisfaction, reduce their attrition rate.

Training is a process that involves the acquisition of knowledge, comprehending concepts and rules for sharpening of skills and changing of attitudes and behaviours to enhance the performance of employees. Training and development is the fastest growing industry because of replacement of industrial workers with knowledge workers. In United States, for example, according to one estimate

technology is de-skilling 75% of the population. This is true for the developing nations and for those who are on the threshold of development (Roopa, 2012).

According to Gutteridge, *et al.* (1993) and Tanskyen & Cohen (2001) organizational leaders perceive that significant results can be derived through organizational staff development activities. These results included improved employees' skills & productivity, enhanced retention & morale (McCarney, 2004).

Woodside *et al.* (1990) & Zakarevicius *et al.* (2015) proposed five models of staff development, which are (a) individually-guided staff development, (b) observation/assessment, (c) involvement in a development/improvement process, (d) training, and (e) inquiry. As per this model, the participants get multiple ideas by the way of reading article, having the discussion with colleagues, participating in various seminar and experiment with new instructional strategies, among other activities.

Staff development model is defined as the processes that improve the job-related knowledge, skills, and attitudes of employees (Sparks & Loucks-Horsley, 1989). The participants in staff development activities may include all the levels beginning from top level decision makers to executives at bottom level (Gutteridge & Leibowitz, 1993). Every organization focuses on staff development through various trainings, workshops and seminars to develop the knowledge and skills of the employees. This improves the productivity of the organization. With reference to Open and Distance Learning (ODL) system, training and continuing professional development is a vital component for success of this system (IGNOU, 2012).

ODL system is an industrialized form of education and it is characterized by division of labour where the teaching and learning is performed through use of media and technology. This system consists of people with specialized skills and profession to perform their specific role (Peters, 2002). All these specialist functionaries have very significant roles to perform for the development of ODL system. Therefore, Training and continuous professional development of these ODL functionaries are important for success of open and distance learning system.

Research finding suggested that the one of significant barriers to use technology by the staff of ODL

institution is lack of appropriate training (Panda & Mishra, 2007) (Awadhiya and Miglani, 2016). To remove these barriers the institutional training team should to use appropriate training methods and deploy motivational factors followed by the training for its staff. A systematic training will enable them to perform their duties better and learn more about upcoming technology in their field.

Indira Gandhi National Open University (IGNOU) in is the largest Open University in India and falls in the category of Mega Open University. It has a wide employee-base comprising of academics, administrative, technical professionals belonging to Computer, ICT, media, engineers etc. (Pulist, 2017). IGNOU provides in-service training to the staff since 1986 through Staff Training and Research Institute of Distance Education (STRIDE) and other Schools / Units/ Divisions to develop the skills and knowledge for the purpose of improving the performance of present holding position with assigned job responsibilities. It promotes the professional growth of individuals (Biswas & Mythili, 2004).

IGNOU undertakes all types of collaborative activities involving Open Distance Learning (ODL), e-learning & new knowledge creation. IGNOU organizes various trainings and workshops towards staff development for State Open Universities, DEIs and IGNOU as well. IGNOU provides various technology based trainings to the teaching and non-teaching staffs of Open Universities and DEIs. The technical training includes like e-learning, social networking, Web 2.0 tools, development of on-line courses and Teachers training on technology enhanced learning etc.

The clients of the staff development programmes are academics and non-academic including the technical staff. Apart from its own staff, IGNOU organize trainings and workshops to staffs of various State Open Universities and DEIs. Technical staffs are part of the non- academic staffs and they have significant role to play in making distance education programmes and the institution a success. They have to support a wide range of activities related to software application design, development, testing followed by support services.

IGNOU has developed and implemented in People Soft applications like Leave Management System, Medical-bill Claim, LTC etc financial

applications. To facilitate the students IGNOU has also implemented the Online Admission System, Re-Registration & Re-Admission system, Assignment and Result processing system etc in latest dot NET technologies. To ensure these development, support and maintenance activities the SRD, SED and Computer technical staff skills need to be upgraded and utilised on efficient way. Providing high level infrastructure, motivation, follow up training and appropriate guidance would enable them to reduce the manual interventions, job satisfaction and application maintenance and support activities in smooth manner.

To motivate the technical staffs and ensure the application development at in-house, IGNOU conducted various technical training programmes during the period of 2011 to 2013. These programs included specially designed trainings on 'Web Application Design and Development of Database Interface' for the technical staff working in these domains.

For any institute in general and higher education institute in particular the dissemination of updated information is crucial task which is done through website updates at regular intervals. This task needs understanding of various design patterns and meeting the requirements of the stakeholders (Sruti, 2017), therefore the development team need to focus on:

- ❑ Creation of user-friendly and inclusive User Interfaces as per the requirements of the stakeholders,
- ❑ Facilitating appropriate and user-friendly navigation of websites,
- ❑ Adopting appropriate technological framework for application design, development and deployment.
- ❑ Ensuring the appropriate website user load and hits
- ❑ Enforcing adequate procedures while coding and encryptions to protect the website against security and data threats (Huang and Mak, 2001).
- ❑ Deploying appropriate and updated security mechanisms throughout the Software Development Lifecycle (SDLC).

- ❑ Following the national and international best practices for long-term goals.

Vathoopan *et al.* (2016) explained that, delivery of the software product is followed by maintenance and support as a part of the software development life cycle. This is broadly classified under the following categories:

- ❑ **Correction:** It includes the activities performed to troubleshoot and fix the bugs identified by the team, users or from error reports (Prokhorenko *et al.*, 2016).
- ❑ **Adaptation:** This is to keep the software up to date through modifying and updating the software on regular basis (Huang and Mak, 2001).
- ❑ **Perfection:** It is the maintenance done keeping in mind the long-term goals.
- ❑ **Prevention:** Ensuring that bugs and glitch do not reoccur anytime in the future and so taking preventive actions now in this regard (Prokhorenko *et al.*, 2016).

Back Ground of the Training

In IGNOU, there are five divisions which have the staff with technical skill and they work on various software applications. These departments include Student Registration Division (SRD), Student Evaluation Division (SED), Regional Services Division (RSD), Material Production and Distribution Division (MPDD) and Computer Division (CD).

The training on 'Web Application and Development of Database Interface' was designed for technical staff of SRD, SED and CD. The SRD is responsible for maintaining the database of over two million active students on roll with IGNOU. The SRD technical staff plays a significant role in maintaining the learners' details successfully. They support a wide range of technical activities, such as Student Registration process, Re-Admission process, Credit Transfer Process, Walk-in Admission process, On-line admission process, Authorization of Change of Student Master Data from RCs and Maintenance and Monitoring of Student Registration Records.

The SED is responsible for the developing various for activities related to the assessment and evaluation. These software application tools are used for

entrance exams, term-end examinations, internal assessment, tutor Marked and Computer Marked Assignments, Evaluation of the Term end papers through Evaluators, Processing the Term end marks and declare the result, Distributing the grade card and provisional certificates for successfully completed students followed by conducting the University Convocation for award of diplomas and degrees.

The CD is taking care of the technical activities such as Network Services, Server Room and Data Centre Operations, Software Development, Website and Applications Interfacing, Developing and managing Enterprise Resource Package and User Support etc.

The technical staffs of SRD, SED and CD had been working on FoxBase/ FoxPro platform. However major admission and evaluation processing application software have been developed in web-based technology with ORACLE database by Computer Division. Therefore to bridge this technology gap and improve the efficiency of SRD, SED and CD technical staff a systematic training was planned and conducted. These trainings are listed in Table 1.

The trainings were conducted for the technical staff to engage in ongoing learning and to keep them up-to-date with the latest technology to ensure the continuity of existing services. These trainings will also help them to learn from each other in peer groups and understanding complete development cycle of the application, its updates and further enhancements.

Table 1: List of Technical Trainings Conducted for SRD, SED and CD Technical Staff

Sl. No.	Title of the training	Duration	No. of Participants
1	Workshop on Post Examination Processing using Latest Technology for Data Processing Assistants	5 days	22
2	Specialised Training on System Administrator, Oracle PL/SQL and .NET skills.	10 days	20
3	Workshop on MS-Access and .NET technology for SRD and SED staff	5 Days	16
Total number of participants			58

In the context of the above background of the training a study was conducted to analyse the ‘Impact of above training programmes on technical employees’ performance’.

Objectives of the Study

The objectives of the study were to:

- Analyse the demographic profile the participants
- Analyse the impact of training
- Identify the barriers for non usages of skills and knowledge learned
- Provide the recommendations if any.

Methodology and Sample

A mix mode research approach was adopted to conduct the study. A questionnaire consisting of close-ended and open-ended questions was designed to collect quantitative and qualitative data. This questionnaire was validated by the expert for content validation followed by reliability testing through test-retest method. The survey was administered to all the 58 participants to assess if they have implemented the learning gained from the training. Total 49 participants responded the questionnaire. Data received from these respondents was entered in the spreadsheet and analysed.

RESULTS AND DISCUSSION

Discussion of the findings received from 49 respondents is as follows.

Demographic Profile

Table 2: Gender Profile

Gender	Number of Responses	Percentage
Male	36	73.5%
Female	13	26.5%
Total	72	100%

Table 2 indicates the gender profile of the respondents. Out of 49 respondents, 73.5% were male, while 26.5% were female. This indicates less female participation in the technical domains.

The Table 3 below demonstrate the Age profile of the respondents. Maximum respondents (49%) were found to be in the age group 41-50 years followed

by 41% from age group 31-40 years. Total 6% respondents belonged to the age group 51-60 years and the minimum respondents (4%) were from age group below 30 years.

Table 3: Age Profile

Age (in years)	Number of Responses	Percentage
< 30	3	6.12
31 -40	20	40.82
41 -50	24	48.98
51 -60	2	4.08
Total	49	100%

The Table 4 indicates that around 55.10% respondents had bachelor/ master degrees from various discipline like Arts, Humanities and Social Sciences followed by 38.78% from commerce and management. However, only 6% participants were from core computer science/ Information Technology background.

Table 4: Educational Background

Subject Domain	Number of Responses	Percentage*
Arts, Humanities, Social Sciences	27	55.10%
Commerce and Management	19	38.78%
Computer Science & Information Technology	3	6.12%
Total	49	100%

Note: All the participants have Post Graduate Diploma in Computer Applications (PGDCA) which was the minimum eligibility criteria to become the software professional at IGNOU.

Along with these degrees all the participants had a Post Graduate Diploma in Computer Application which was the essential qualification to enter as software professional.

Impact of training

To analyse the impact of the training the questions of the survey instruments were divided into different categories. These questions were aimed to find out details about usefulness of the training and applications of the training in routine work of the respondents. The questionnaire also designed to find out the application of the knowledge and

skills gained during in various phases of Software Development Life Cycle followed:

- usefulness of the training in personal learning and development
- application of the knowledge and skills in Software Development Life Cycle (SDLC)

To find out the usefulness of the technical training conducted by IGNOU, a question was framed about gained the knowledge and skills are useful or not? In Fig. 1, 94% of respondents stated that gained skills and knowledge is useful and 6% respondents are responded to this question.

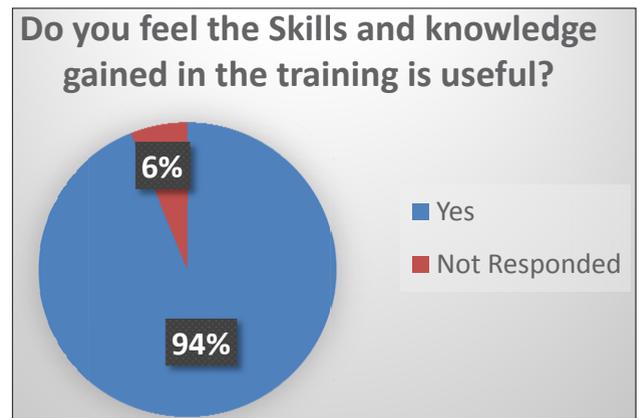


Fig. 1: Usefulness of the training

To find out the effective usage of gained skills and knowledges the investigators formulated four questions to collect the responses from the participants. The Fig. 2 shows the participants effectiveness of the training.

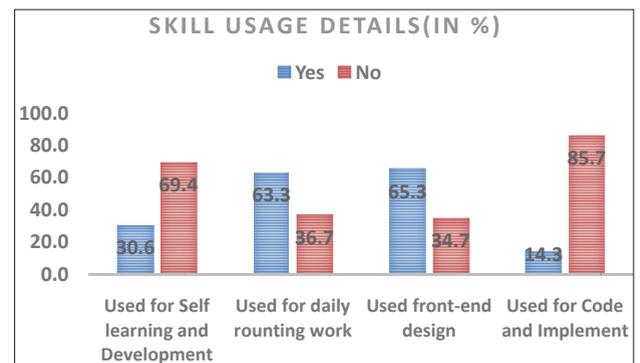


Fig. 2: Knowledge and Skills - Usage details

The Fig. 2 shows that 30.6% of respondents expressed that the training was useful for Self-learning activities. 63.3% of respondents stated that they were able to use the gained skills and knowledge for their day-to-day work. 65.3% of respondents were

able to do the Graphic User Interface (GUI) screen design, and 14.3% of respondents have been able to do the programming and their implementation tasks at their work place.

In another way, 69.4% respondents were not spent time for self learning and development skills. 65.3% respondents were not at all used their skills and knowledge for GUI screen design activities. 85.4% respondents were not able implement successfully due to various reasons. These details are discussed more in next sections.

The Fig. 2 indicates mixed responses from the participants about use of knowledge and skills gained during the training in their routine work. There may be barriers like lake of infrastructure, motivation, etc for above findings which are discussed later this section.

To find out the SDLC phase wise usage details (as part of SDLC) the investigators formulated Yes OR No type questions to collect the responses from the participants. The following table shows the participants effectiveness of the various phases on SDLC.

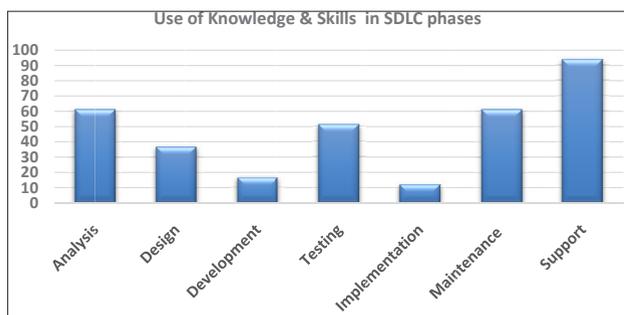


Fig. 3: Use of Knowledge and Skill in SDLC phases

61.22% of respondents were involve in software requirement and analysis phase, 36.73% were involved in software application design phase, 16.33% respondents involved in development phase, 51% respondent involved in application testing phase, 12.24% involved in implementation phase, 61.22 involved in maintenance phase and 93.88% involved in support phase.

The findings in figure-3 indicates that use of knowledge and skills in SDLC is highest in support phase followed by Analysis and Maintenance phases, which is due to their expertise in these domains. However the use of knowledge and skills in SDLC is least for Development and

Implementation phases. The reason behind this may be linked to (1) programming skills of the participants in web technology, (2) availability of development and testing environment (software and hardware) followed by (3) support in their work place. These factors are discussed in more details in the following section.

Barriers to implement the knowledge and skills

The Table 5 indicates the barriers to implement the knowledge and skills during the training. The finding suggests that the most significant barrier for the above is unavailability of the facilitator (85.7%) followed by unavailability of the infrastructure (79.6%). These findings are in-line with Awadhiya & Miglani (2016) who also concluded that unavailability of infrastructure and training are the key barriers to implement the technology based learning and in the open universities in India.

Table 5: Barriers to implement the knowledge and skills

Barrier(s)	No. of Respondents	Percentage*
Infrastructure not available	39	79.6
Facilitator not available	42	85.7
Internet Facility not available	4	8.2
No Motivation from Management	20	40.8
Fully occupied and no time available	32	65.3

(* Participant may select more than one option, so percentages may add up to more than 100%).

Further that the Table 5 also indicates the other barriers which are unavailability of the times (65.3%) followed by lack of motivation (40.8%). The least significant barrier identified is unavailability of the internet facility (8%). Out this five barrier only one (lack of motivation) is individual driven however remaining four are institutional driven.

The participants also mentioned that most of them do not have the development infrastructure with dedicated desktop system with minimum 4GB RAM, Visual studio tools, database licenses etc. They are also fully occupied with their routine

work like data management activities on student admission, re-registration, assignment, examination, evaluation and convocation process.

CONCLUSION

Training and Development is a vital component for sustainable growth of an organization and it becomes more significant when the organization is driven by technologically driven human resources such as an ODL institution. Training, on one hand enhances the productivity of the institution and on other hand it imbibes the motivation in the employees.

Therefore, an institution should provide reinforcement, motivation and continuous staff development programmes to the technical staff for implementation of new technology as well as update in the software application development to facilitate support services to the stake holders. An ODL institution should have a proper training policy mentioning the well-defined training plan along with provisions to mitigate/ minimize the barriers to implement the training gains. As the distance education institutions are moving towards implementation of ICT in the teaching learning practice they should provide following facilities to their technical human resources:

- ❑ **Follow-up Training:** Follow-up training facilitates the participants for implementing their skills which was gained during the training and clears problems faced by the participants while applying the skills. Trainer can provide continues follow-up training through online or face to face training to support the participants and make sure that they should utilize the skills properly. It is highly recommended to Institutions that should support these kinds of follow up activities.
- ❑ **Training Materials:** Well-designed hand-on training material should be provided to the participants so that they can practice at their own pace. Tools and technology keeps on upgrade. Updation or latest information on tools should send to the participants through mail or blog will help the participants to enhance their skills.
- ❑ **Infrastructure:** Well-equipped Infrastructure is required for technology implementation.

To develop the web based application, the technical staff should have the dedicated desktop machine having 4GB RAM along with Visual Studio suit tools, dot net frame work 4.0, and database (SQL server or ORACLE database) licenses. The desktop machine must have Local Area Connection (LAN) and access to internet should be available to the other units, division and regional centres to utilize the web based interface technology for data sharing process.

- ❑ **Motivation:** Paradigms shift of traditional distance education to technology based education needs continuous motivation from the institutions. Institution can provide some incentive to the technical staff for better use of technology to reach unreached. Self-motivation is very important for learning and implementing new technology in education. Trainer can also motivate the participants so that they can learn more from them and can utilize the skill in their day to day work.

Conclusively professional development of the staff is an essential process for the continuous growth of an organization and it becomes more vital for the ODL institution. As ODL institutes consists of employee base of different skill set, the institution needs to have well defined need based continuous professional development plan. Also there is a need to have interdisciplinary training approach to remove the monotony of the work and increase the collaboration between employees of different skill set.

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