UNIT 8 MANAGEMENT OF COURSEWARE DEVELOPMENT AND ARCHIVAL

Structure

8.1 INTRODUCTION

The earlier units focused on development and delivery of courseware. Development and delivery of courseware (the term courseware has been used synonymously with the terms instructions and programme) are major activities of open and distance learning (ODL) institutions and involve complex operations. This explains the reason for discussing management of these processes. Since you are a learner of Indira Gandhi National Open University (IGNOU), and IGNOU produces courseware for different media on a mass scale, we have contextualised the discussions to the practices adopted at IGNOU. You will also find that this unit begins with a description of the types of courseware. This will help you to visualise the 'management' of development and delivery of courseware. Thereafter we have discussed the management of courseware at pre and post production stages. Since quality assurance is integral to management, this aspect has also been included.

8.2 OBJECTIVES

After studying this unit, you should be able to:

● describe how courseware production is managed at the pre-production stage;

● explain the mechanism of production control; and

● describe the management of courseware at the post production stage.

8.3 ODL COURSEWARE

For understanding the management of courseware development we need to understand the approaches to media use for delivering courseware. We also need to understand the model of courseware development. This section explains these aspects.

8.2.1 Approaches to Media use for Course Development

The earlier units of this course state that courseware is developed and delivered through print and audio-visual media. Web based delivery is also becoming common. Even though different media can deliver courseware, an institution decides the medium/ combination of media for delivering courseware. Therefore an institution usually has a policy that guides the approach to media use. Ideally the pedagogic potential of a medium vis a vis the nature of the content should be the main criteria for the choice of media. However in comparison to courseware development for audio and video media that for the print medium requires lesser investment in terms of time, money, technical facilities and other resources. Further learners can easily access print medium. Therefore, these factors are also considered by the institution while deciding its 'approach' to media use, especially when they use multiple media for delivering instructions. The various approaches to media use are:

Supplementary media approach: Print is the master medium. Audio and video programmes represent and reinforce the content, which is already covered in the self learning material (SLM) in the print medium (Khan, 2006). Audio and video media therefore perform a supplementary role in the instructional system. The assumption underlying this approach is that learners who do not get access to audio-video programmes will not be deprived of the 'core content'. IGNOU and several open universities of India follow this approach.

Complementary media approach: The audio/visual media present content, which complements that taught by the print medium. For example to complement the printed explanations of the pedagogies used for teaching language to elementary level children, videos are used to show how children should be taught.

Integrated media approach: It is somewhat similar to the complementary media approach, but in this case, the audio /video components provide cross references and additional content for enriching the content covered through the print medium. For instance a section in the print instructs 'now listen to the audio programme and then read the next section '. A video may impart the instruction 'you have seen how we should counsel children, now read about it'. The integrated media approach works when print and audio/video programmes reach students as cohesive multiple/ multimedia learning packages.

Independent media approach: In this case, the content of audio/ video/ print/web based material is stand alone content and content in one medium is not linked to that in another. For example

a series of radio /television programme can be the main learning resource for teaching a course.

8.2.2 Course Development Models

Open Distance Learning **(**ODL**)** institutions follow various course development models. Panda (2004) says that in ODL, we come across three main models, which are as follows:

Course team model: The course team model involves a nodal person who is the course coordinator, and the course team comprises of experts including subject matter experts (SMEs), educational technologists, media experts and others. There are some other variations of this model, for example Coordinator-Writer-Editor Model which has been adopted by IGNOU for most of its courses. This model fits into the overall framework of course team model as the course coordinator (a teacher) plays a pivotal role as a 'manager' who has to make sure the course is developed on time. For this purpose, s/he uses the services of SMEs, who are course writers, and write units for the course. The course coordinator first edits the content written and thereafter an SME is engaged for editing the course.

Existing material model: This model saves resources including time as an existing courseware is adopted/ adapted. Many state open universities and other universities of India are using IGNOU's courseware in this way. Management of courseware in this case involves identifying suitable courseware and procuring it from the institution producing it, adapting/adopting the content as per the institutional needs and delivering it to learners.

Fast track model: Fast track model comprises workshop and seminar models. Course team members assemble and write the course content. The content editor and format editor carry out editing of the courseware so that at the end of the workshop/seminar, the courseware is ready. Management in this case involves organizing the workshop, inviting SMEs as participants, and coordinating the workshop activities.

8.2.3 Management of ODL Courseware

Now you have an idea of the approach to media use for delivering courseware and also about various models of course development. IGNOU uses the course team model, and has supplementary media approach to media use. We shall use these as the perspectives for discussing management of courseware development. But what is management? Management is the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected goals (Koontz & Weihrich, 2005). On the basis of Henri Fayol's (Henri Fayol [1841 – 1925] was a mining engineer and management theoretician)14 principles of management, the acronym POSDCORB (Planning, Organizing, Staffing, Directing, Coordinating, Reporting and Budgeting) was coined by Luther Gulick and Lyndall Urwick (Mulder, 2018) for describing the processes of management. We have used POSDCORB as a framework for discussing the management of courseware production. Further, courseware production comprises two stages, which are- pre production, and post production stage. In the post production stage the courseware is ready and we plan its delivery. We have covered this aspect in the previous unit. However the courseware is not only delivered but also stored and we shall discuss this in this unit.

8.4 MANAGEMENT DURING PRE-PRODUCTION STAGE

After reading the earlier units you know that courseware has a pre-production, production and delivery stage. Unit 7 is about courseware delivery. In this section we shall discuss the management of the pre-production stage in terms of the following processes:

Planning: According to the well known management authors, Koontz & O'Donnell (1964) planning is deciding in advance what to do, how to do it, when to do it, and who is to do it. This bridges the gap from where we are, to where we want to go. Therefore, we need to plan the courseware we would like to develop**.**

Planning begins with setting objectives for courseware development as well as an appraisal of external and internal resources available and the constraints (Dewal, 2008). It also involves the development of strategies and action plans for developing the courseware in the light of institutional policies. For example IGNOU has the policy of using multiple media approach, the policy of using print as the master medium, a recent policy of delivering courseware through e-gyankosh, and so on. Apart from institutional policies, planning also factors in the outcomes of need assessment carried out for a course (see Unit 2).

The plan for programme development is expressed as a concept note (see units 4,5). It mentions academic rationale and social relevance of the programe, the programme structure, theory and practical components, curriculum outline, the number of audio and video programmes required, duration of the programme, credits (IGNOU requires 30 hours of academic work relevant to the course for 1 credit), mode of delivery, study centers, ways to support learners, resources available and that required for programme developmnet, the number of learners likely to enroll, budget with estimated cost of programme development and delivery, assessment mechanisms, and the time required for developing the programme. Means of assessing learning through term end examination, projects, practical, viva, assignments and so on are also planned.

During the next phase of planning the curriculum is planned in details as per learners' learning needs. The course and unit structure are planned with the help of SMEs. The detailed planning of courses leads to conceptualization of units and even their sections and subsections. The content to be covered through print, audio and video is also visualized. This phase like the previous one when the concept note is developed is therefore crucial as quality of the courseware is determined to a great extent by the instructional designing and the curriculum designed.

You have read (units 4 and 5) that every aspect of audio and video programmes is planned. Hence data collection procedures for constructing target audience profile, instructional objectives, content to be taught and its structure, format, locale for recording, tools for editing and schedule are planned. You have also read that development of multimedia content requires good and realistic planning, expressed as a storyboard (see unit 6). Concept note and story board are thus the outcomes of planning but they also concretise the plan and guide future actions. In case of an online course apart from these aspects the tool like LMS/platform to be used for hosting and delivering the course has to be planned. Further, the daily/weekly schedule for delivery of modules and assessment is planned (see unit 7 for details).

Organizing: You have read about task analysis for organizing content in unit 2**.** Organizing involves conceptualizing the sub-processes of the tasks to be performed

and structuring the roles to be performed by the employees, as per their expertise. It requires defining the activities to be carried out, allocating responsibilities, and clarifying who does what. Therefore the roles to be performed are delegated to those with the expertise. For instance, for printed courseware unit writing, printing, cover designing, developing illustrations, content editing; for audio and video programmes, scripting, recording and editing; for online courses designing web pages, hosting courses and the like are delegated to those with expertise in these areas. Thus organisation helps to visualize the role of individuals as well as departments/ units of the institution having the expertise for the role. Organising thus makes clear who would be doing what and when.

Staffing: An organization plans its manpower and recruits staff for performing the tasks that will fulfill the goals of the organization. Staffing is thus closely linked to planning and organizing. For courseware production institutions therefore recruit teachers who are subject matter experts; the staff for printing SLM; those with expertise in producing audio and video courseware; those with expertise in web based instructions, and for other necessary functions. Further the staff is oriented to the needs of courseware production, and trained for their role.

Directing: This is usually carried out by the management of the organisation. Organisational leaders have a stake in courseware production processes as the reputation of the institution depends to great extent on the quality of the courseware produced. The management of an organization therefore delegates responsibilities, provide the staff with a sense of direction, facilitates the processes involved in courseware production, eliminate barriers and bottlenecks in production through quick, effective, clear and transparent decisions. Further, managers need to monitor the mechanisms installed for quality control for production and delivery of courseware.

Coordinating: Academic programmes usually have a coordinator. The coordinator orchestrates the activities carried out by various individuals and in fact the working of the entire course team. S/he ensures that processes like course writing, script writing, recording, editing and the like are on time. S/he also coordinates the activities of audio and video production for the course. This is because for producing audio and video programme, contacting artists, subject experts, cameramen, technical experts and editors, getting clearances and permissions for shooting, preparing production schedules, and the like require coordination, which is important for the timely production of quality programmes. According to Khan (2008) when an academic programme or course is developed, all efforts and resources are directed towards the preparation of print material, whereas courseware for other media takes a backseat and their production gets delayed. To deal with this problem production of courseware for print and other media should be taken up simultaneously as parallel and coordinated processes.

Reporting: This involves keeping the authorities informed on the progress of coursework production. In IGNOU this is carried out during meetings of statutory bodies as Action Taken Reports.

Budgeting: At IGNOU while developing the concept note for a programme a budget is prepared. It includes the cost of holding meeting of experts for designing and developing the courseware; cost for writing and editing units; and the cost for printing courses. Similarly while developing audio and video programmes the cost involved for recording, editing and other heads is estimated. For an online course if an LMS is to be procured its cost, is added to the cost of content development and the other expenses involved. The fee is also calculated on the basis of the enrolment expected, and the cost effectiveness of the programme is thus evaluated.

8.4.1 Managing Production Teams

Now you are aware of the various aspects of management of courseware production. However managing a team is also important for courseware production and delivery. In a classroom, an individual teacher can teach an entire course but for distance learning a team is involved in developing and delivering a courseware. For instance, for courseware production for the print medium the team comprises SMEs who help to design curriculum; unit writers; language, content and format editors; proof readers; graphic designers and those, in-charge of printing the SLM. The coordinator of the programme has to manage the working of the team.

Audio video and multimedia content production also require teams with individuals performing various roles like instructional designing, content selection, script writing, recording, editing, and so on. Video programme however requires larger team, comprising the producer of the programme, who leads the team and is responsible for transforming the script into an effective video programme, production assistant, who assists the producer throughout the production, floor manager who takes charge of all activities on the studio floor, camera person(s) and sound recorders. These are the core members of the production team beside other crew members who assist in various ways. You will agree that teamwork and therefore team spirit is required and this needs to be ensured by the programme/course coordinator. Excellence in one area cannot compensate the lack of quality in other areas. For example in a video programme with excellent camera work factual errors in content and poor presentation, will affect the achievement of the desired objectives. A book with too many printing errors cannot have high quality even if it has a good graphics and cover design. Hence the entire team must contribute effectively.

Online course production is also accomplished through teamwork. Though the team is essentially similar to that for print or audio/video courseware but it involves besides the SME, instructional designer, and graphic designer, those with technical skills like that for web designing and programming. Therefore, while managing courseware development for online courses, you need to manage a team comprising (Khan, 2008) the following:

SME : SME could be the online teacher who is responsible for the course content. SME must ensure that the content, objectives, assessment mechanisms and other inputs are authentic, pedagogical appropriate and do not violate copy rights.

Instructional designer: helps in designing the instructions (see unit 1).

Web developer: Web developers help to develop online materials. They assist the SME and instructional designer to present the content, and help the graphic designer in creating storyboards, conceptualizing text screens, backgrounds, and other elements of the course. They also provide technical support for maintaining the online course, and in trouble shooting

Graphic designer: Graphics could be in the form of drawings, illustrations, photographs, navigational icons, etc. The graphic designer creates or incorporates these visual elements into the course with the help of graphic software tools.

Programmer : A programmer is involved in the programming aspects of the online course, and facilitates its smooth delivery with the help of software tools.

Different professionals are thus involved in a course development team. However, an SME is often the online teacher as well the instructional designer, and the softwares available today enable him/her to perform the other roles as well (see unit 7). For instance MOOCs can be developed and delivered by individual instructor/teachers.

However, the production team has to be managed in such a way that it has the following characteristics (Dewal, 2008) :

● Common purpose: Team members agree on the purpose of the team and commit to it as "our" goal.

● Tolerance for disagreement: Team members encourage critiques and differences of opinion and consider these as means for refining their work. They listen well and recognize and respect diverse opinions.

● Comfort: Team members trust fellow team members, and enjoy working together.

● Shared leadership: Team members' views are respected and accepted.

● Reality checks: Members assess the attainments vis a vis goals

● Consensus seeking: The team strives for consensus during decision making.

Check Your Progress 1

Answer the following questions briefly.

1. For a course on 'Water Pollution' , concepts , causes, sources of water pollution, are taught through the print medium but one of the components of the course- ' water treatment plant', is taught though a video programme. Which media approach is used in this case, and why?

2. What are the advantages of the 'Existing Material Model'?

3. Why is courseware production considered as a team work?

4. What are the factors you will consider for planning a courseware for the print medium?

8.5 PRODUCTION CONTROL

We need to follow the production process as envisaged at the planning stage (Dewal, 2008). This requires monitoring production and taking necessary corrective actions. For example if the budget does not have provision for expenditure like shooting at an outdoor locale, we cannot include it at the production stage without proper justification and fresh approval for it. Following the time line is also important during the process of production. Unless the script is written on time a video cannot be recorded and edited. Who is responsible for production control and how is it done? Usually the program coordinator(s) monitors the production processes. However, course coordinators play an important role in monitoring the production of the course they coordinate.

8.5.1 Quality Control during production

Dewal (2008) says that maintaining quality of courseware is a crucial aspect of management, and this requires an effective monitoring mechanism at each stage of courseware production. Dewal also says that quality of courseware is judged and hence controlled with respect to several parameters, like quality of content, and in case of audio and video courseware, technical quality as well. Dewal also says that consumer satisfaction is essential for quality assurance and this implies that the content should fulfill learners' needs. Therefore, even well-researched content will not be considered as quality content if the language is difficult for the audience or the content fails to satisfy the exact learning needs of the target group.

Maintaining courseware quality through evaluation

You have read (unit 2) about formative evaluation. What do we evaluate during formative evaluation? Not only the authenticity of the content, its organisation, comprehensibility of language and the pedagogic potential of the content but other factors as well. For example the content should not include a hidden curriculum. Hidden curriculum is not overt but is like an undercurrent with strong impact. For example content using images of women carrying out household chores; and men working as engineers, scientists and pilots perpetuate stereotypes. Use of s/he, people instead of man, portrayal of men and women as having equal capacity makes the content gender neutral. The content should also be checked for ensuring that it does not carry subtle messages that propagate ideologies leading to biases. Peer review and editing that are steps for formative evaluation should be processes that cross check the content and eliminate such biases.

Technical quality, aesthetic value of a product / programme and relevance of inputs also need to be evaluated formatively. For example images that decorate but are not meaningful in the context of the content will clutter the content without enhancing its relevance.

Peer review of units, pretesting scripts of audio and video programmes, reviewing story boards of multimedia, content and language editing by experts, preview of audios and videos are carried out as measures of formative evaluation. Further the courseware should be pretested. Constant quality check is however, required to ensure the maintenance of quality and hence formative evaluation is crucial at every stage of production. The impact of the courseware on a sample of target audience provides empirical evidence for improving the courseware and this is summative evaluation. The findings can guide future productions.

8.6 MANAGEMENT AT POST PRODUCTION STAGE

You have read about the management at the pre-production stage. Now we shall discuss how courseware is managed after it has been produced. While delivering the course is a major process that needs to be managed at the post production stage, there are other aspects like storage, duplication, and so on, which are equally important. We shall not discuss the delivery of courseware as Unit 7 describes it.

8.6.1 Management of courseware in print medium

ODL universities serve as large publication houses. You could imagine the size of operations and management in IGNOU from the number of blocks of self learning material printed in any given year. In the financial year 2018-19, 1.59 crore blocks of learning materials were printed by the University (This is as per IGNOU Profile of 2019). Material Production and Distribution Division (MPDD) of IGNOU handles the enormous task of printing of learning material. Storage and maintenance of the print materials and maintaining inventory are important tasks that have to be done by a dedicated department/unit of any ODL institution. In IGNOU, MPDD performs these tasks for the SLM in print medium.

MPDD (Materials Production and Distribution Division), IGNOU

Timely printing and dispatch of SLMs to the students is the major responsibility of the MPDD. This needs a great deal of planning and management, which performs these important functions:

- Material requirement planning for various courses and programmes of the University on the basis of number of student enrolled for a course.

- Procurement and issue of printing paper to printers for printing study materials.

- Storage of printed study materials and maintenance of inventory for study materials and other related items like programme guide, assignment, and so on for each course.

- Dispatch of study materials to learners at their mailing address.

- Sale of study materials to the educational institutions and interested learners.

Beside printing new courses, the SLM of ongoing programmes of the institution also needs to be reprinted. Other materials like programme guides, brochures, practical handbooks and so on also need to be reprinted and delivered. Assessing the existing stock of materials, and planning the printing in view of student enrolment in an academic year requires extensive 'planning' including forecasting needs. There is also 'organisation' as MPDD has cells that oversee functions like storage of SLM, printing, packaging and delivery. These activities are 'directed' and 'coordinated' by the head, and carried out by the 'staff' of various cells. 'Budgeting' is definitely required for procuring paper, printing, packaging and delivering. 'Reporting' involves communication of the number of SLM produced for different courses. Reprinting of SLM leads to their duplication. The SLM is 'stored' and 'catalogued' in stores and inventories are prepared and maintained for this.

8.6.2 Management of audio and video courseware

Once the audio/video courseware is developed, the key management issues for an institution are effective storage and delivery of the courseware. If the media approach is complementary, then the audio and video programmes have to be sent with print materials as a multimedia package. In case of supplementary media approach, audio and video programmes may be telecast or broadcast as per a schedule that has been developed in advance and shared with learners. IGNOU for instance uploads the schedule on its website before its delivery.

The final edited and completed version of an audio or video programme is called 'Master' tape or disc and this has to be stored with utmost care so that it is not damaged. A back up copy of this is made, and used for duplication and for making more copies.

8.6.2.1 Media Libraries and Resource Centres

A library usually has books, journals, and other resources in the print medium. Similarly there are libraries which store information in the electronic form. Such libraries, called media libraries, have tapes, CDs, DVDs, etc. for preserving recorded data (Kesharwani, 2008). ODL institutions need media libraries or media resource centres to store audio, video programmes and their 'Master' tapes in particular. Broadcasting organisations and media production houses also maintain media libraries for proper storage of their media. Since media libraries and resource centres have similar functions, we will use the term media library in our further discussion.

Besides the audio and video materials produced by the institution, the programmes acquired from other sources, are also stored in the media library. Media libraries also maintain 'stock footage' (see glossary) of previous recordings and media archives belonging to the institution. Space is however a major issue for media libraries as the number of tapes increase with every passing year. Tapes are hence being gradually replaced by CDs and DVDs, which occupy less space, are less vulnerable to damage, heat, and dust and have longer shelf life.

Digitization of media libraries is bringing major changes in the way these libraries function. Many radio and television programme producers, have already switched over to digital media libraries where materials are stored in digital form. Digital libraries do not require as much space as other libraries and have fewer problems pertaining to protection and maintenance of tapes and other electronic resources. Media resources of digital libraries can be delivered via the Web, and through streaming media servers, and other such means. Storage servers like SAN (Storage Area Network), NAS (Network Attached Storage) and other advanced systems are in demand for this. These are basically information storage and retrieval systems that give us access to digital data and do not require tapes or CDs in physical form. Organizations such as All India Radio and Doordarshan are in the process of digitizing their programme collection which is on different tape formats. However, they will continue to have their original Masters in physical form too. EMPC library of IGNOU is also preparing for digitizing its audio and video media resources.

8.6.2.2 Cataloguing

Cataloguing means to make a systematic list of items (of the same type). In a library, the purpose of cataloguing is to ensure effective and efficient retrieval of the document or media. A library catalogue provides information such as author's/artist's name, title of the resource and subject area. Libraries follow various classification schemes for cataloguing print materials. Public libraries and libraries of universities and other institutions, which earlier had print based collection, now have media collection as well. Many of them continue to use the same classification scheme for media which they followed for their print collection. Cataloguing manually used to be a very tedious job. However, automation of libraries has made it easier now.

Media resources of any library should be catalogued as per current universal standards and practices. The catalogue must facilitate access through proper descriptions including system requirements, and classification system that provides maximum information to the user. A good catalogue should provide the users with detailed information about the content of the media so that they can determine whether the resource is likely to meet their needs (Krishnan, 2010). Generally, media resources therefore have lengthy bibliographic descriptions (see glossary) and take more time to catalogue than most print resources. Trained professionals should be engaged for this. Cataloguers also need access to appropriate cataloguing and indexing tools, playback equipment for listening or watching various media in the collection.

8.6.2.3 Storage and Retrieval

Media libraries have special facilities for storage of media resources. It is essential to ensure that the media library is air conditioned, free of dust and dampness and harsh sunlight (Kesharwani, 2008). There are certain parameters to be followed in terms of temperature, humidity etc. for good storage of tapes, spools, CDs/ DVDs, in various formats. Digitization of master tape collection of programmes will solve many problems such as shortage of storage space and maintenance. Digital libraries do not require as much space as other libraries and there are fewer worries for protection and maintenance of tapes and other electronic resources. Good cataloguing practices make retrieval of resources easy. Upgradation of the media library databases and making them web enabled, enhances accessibility of the resources.

Archival

Archives include records of old documents, photographs, films, music, audio and video programmes and so on. For instance, the documentary film made during Dandi March of Mahatama Gandhi is valuable and its archival is essential. Institutions

have their own policy regarding archival and select programmes have to be archived as tapes need physical space and proper storage facilities for their preservation. However, the problem of physical storage can now be taken care of by digitization, and thus old audio/video programmes could be digitized, and archived and easily retrieved. To know more about this topic you may visit websites like https://video4change.org/resources/activists-guide-to-archiving-video/

https://firstmonday.org/ojs/index.php/fm/article/view/1210/1130

8.6.2.4   Transfer of courseware

Programmes recorded in one format may be transferred or converted into another format for compatibility reasons since different setups could be having different playback systems. Particularly if a university adapts the courseware with a different programme format, then the transfer of courseware to the required format is definitely needed. In India, some ODL institutions are still in analog mode whereas others have moved on to digital transmission. Any exchange of programmes between such institutions will require transfer of courseware as per the required format. There are also transfers or conversions from broadcast quality tapes (on which master tapes are produced) to CDs, DVDs etc. for distribution to students and other agencies. There are many other formats that existed in the past and need to be converted in the formats required by the playback system currently in use. The transfer of programmes from one format to other needs resources and time and therefore should be planned in advance.

8.6.2.5   Language Dubbing:

The term "dubbing" refers to translating the language of a video /film into another language which is familiar to the audiences. Dubbing is the process of adding new dialogue or other sounds to the sound track of the film/video that has already been produced. Many films are dubbed in the audience's language. The key to dubbing is that the translation of the original dialogue is carefully matched to the lip movements of the anchor, interviewer, interviewee or other characters in the film or programme. You must have noted that many educational video programmes have a commentary. In this case the commentary also has to be translated and narrated by a professional commentator in the desired language. If a course is offered in many languages, then the video programme originally produced in English or Hindi will be dubbed into regional languages.

Sometimes, instead of spoken translation, video programmes or films are 'subtitled'. Subtitling means a printed translation of the commentary or dialogues are shown at the bottom of the screen in a film or a video programme. For dubbing as well as subtitling, the services of professional agencies are required.

8.6.2.6   Duplication of Courseware

Once the requirement of the media courseware is known, tapes are dubbed (if needed) and converted into the required format, then duplication work is carried out at mass level, and multiple copies of an audio or video programme are made. Duplication work may be done within the institution, depending on the technical facilities available for this. Duplication work could also be outsourced to agencies which have the duplication facilities and can execute the mass duplication. Usually institutions assign the task of duplication to the empanelled agencies so that quality control is exercised by the institution.

Check Your Progress 2

Answer the following questions briefly.

1. List three steps that can ensure quality during courseware production.

2. Why does an ODL institution need a department/unit dedicated to storage of print materials?

3. In what ways digitization of media libraries help to deal with storage of programmes?

8.7   SUMMARY

The development of the courseware for ODL is a multi dimensional task which requires systematic planning and preparation on the part of developers. It is essentially a team work involving contribution of academics as well as professionals. Approaches to media usage and models of course development are some key considerations, for management of courseware production. In this Unit, we have discussed the processes of management during the pre and production stages of courseware production. We have also discussed the methods adopted for exercising production control. Further the quality assurance measures adopted for assuring quality during courseware production have also been explained.

The cataloguing, retrieval and archival of media courseware are important aspects that need to be taken care of in a very systematic manner for optimum utilization of the same. This unit makes it clear that media libraries and resource centers are needed to store the courseware. Many media libraries and resource centres now have digitized their content for ensuring economy of space, and efficient retrieval and also to provide users with the online access to these resources.

8.8   UNIT END ACTIVITIES

1. Visit a library with media collection or a media library. Discuss with the staff the system of classification, retrieval and archival adopted. Also find out whether they have digitized their collection.

2. How can management of courseware be improved? Answer this question on the basis of your experience of using an output (courseware) such as the courseware you are studying now.

8.9   REFERENCES AND SUGGESTED READING

Ally, M. (2004). Foundations of educational theory for online learning. In T. Anderson & F. Elloumi (Ed.), *Theory and practice of online learning* (pp. 1-23). Athabasca University. Retrieved on July 11, 2007, from http://cde.athabascau.ca/online_book/ch1.html

Caplan, D. (2004).The development of online courses. In T. Anderson & F. Elloumi (Ed.), *Theory and practice of online learning* (pp. 1-16). Athabasca University. Retrieved on July 11, 2007, from http://cde.athabascau.ca/online_book/ch7.html

Dewal, O.P. (2008). Management of Courseware Development. Unit 13, MES-034, *Desiging Courseware*. New Delhi : IGNOU.

Kesharwani, S.(2008). Management of delivery and distribution system. *MES 034-Designing Courseware*. New Delhi: IGNOU.

Khan, Z. (2006). *Electronic Learning Material Production Manual for Programme and Course Coordinators* . New Delhi: STRIDE, IGNOU.

Khan, Z. (2008) Designing for digital delivery. *MES 034-Designing Courseware.* New Delhi: IGNOU.

Krishnan, J.(2010).Media resources collection organization and management–an overview (CEC Media Library – as an example). *Annals of Library and Information Studies,* 54,168-170.

Koontz, H. & Donnell,C. (1964).*Principles of management: an analysis of managerial functions*. New York, McGraw-Hill.

Koontz, H. & Heinz,W. (2005). Essentials of Management: An International Perspective. 6th Edition. Tata McGraw Hill, New Delhi.

Mulder,P.(2018). *POSDCORB*. Retrieved on 3/7/19 from ToolsHero:https://www.toolshero.com/management/posdcorb-theory/

Naidu, S. (2003). *E- Learning, A guidebook of principles, procedures and practices*. New Delhi: CEMCA.

Naidu, C.G. (2006). Print material production, *Manual for Programme and Course Coordinators*. New Delhi: STRIDE, IGNOU.

Panda, S. (2004). *Approaches to course design and development in distance education*. Pre-Conference Workshop Papers, 18th AAOU Conference , Shanghai., China Profile (2019), New Delhi: IGNOU.

Reddi, U.V. & Mishra, S. (2003). *Educational Multimedia A handbook for Teacher-Developers*. New Delhi: CEMCA

You may visit websites for knowing more about the topics discussed in this unit, like the following:

ACRL Media Resources Committee.(2012). *Guidelines for Media Resources in Academic Libraries*. Retrieved on 3/7/19 from http://www.ala.org/acrl/standards/mediaresources

Croft, W. Bruce. (November 1995). "What Do People Want from Information Retrieval?" *D-Lib magazine*. Retrieved on 3/7/19 from http://www.dlib.org/dlib/november95/11croft.html

Websites

https://video4change.org/resources/activists-guide-to-archiving-video/

https://firstmonday.org/ojs/index.php/fm/article/view/1210/1130

8.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. This is an example of complementary media approach. Just studying the SLM in print would not be enough. The student will need to watch the video to fully understand the topic.

2. Course development in ODL requires lots of efforts, resources and time. When there is a constraint regarding time and resources, and suitable materials are available, it would be a wise decision to opt for the Existing Material Model.

3. Course writers, editors, those developing audio and video programmes need to work together as a team.

4. Instructional objectives, resources, curriculum outline and structure depicting the courses, assessment mechanisms, duration of the programme, credits (academic workload), ratio of theoretical and practical component, the number of audio and video programmes required, the number of learners likely to enroll, duration of the programme, delivery modes and media, the time required for developing the programme for print medium.

Check Your Progress 2.

1. The steps to ensure quality during courseware production are :

   – an effective monitoring mechanism at each stage of courseware production.

   – use of authentic and updated content.

   – adaptation of the content to the needs and characteristics of the target audience.

2. SLM delivered through the print medium has to be printed in large number and dispatched to students. An institution therefore needs a dedicated department/ unit. These departments have to work out the requirement of course material for each course depending on the student enrollment. Storage and maintenance of the print materials and maintaining their inventory are also important tasks to be carried out by a dedicated department.

3. Media libraries which store tapes, CDs, DVDs in physical form have to incur a lot of expenditure on proper maintenance of their storage facilities. Besides, libraries are also facing shortage of space for housing these media resources. Digitization of libraries will mean that media resources are in digital form, that reduces the need for storage space and problems of maintenance of tapes. Moreover, if the library is networked the information stored in digital form can be easily retrieved via the web rather than by getting tapes issued from the library.

8.11 GLOSSARY

Bibliographic Description: The International Standard Bibliographic Description is a set of rules developed by the international Federation of Library Associations and Institutions (IFLA) to create a bibliographic description in a standard, human-readable form, especially for use in a library catalogue.

Bibliograhic Records: A bibliographic record contains the data elements necessary to help users identify and retrieve the resource, and may provide additional supporting information.

Courseware: Refers to all educational resources that are directed at or associated with teaching and learning.

Digital Repository: A collection of online resources. Users can access many digital repositories.

Stock footage: Stock footage or stock shots is a film or video footage can be re-used in many programmes. A single piece of stock footage is called a stock shot.

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