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DEVELOPING SKILLING CONTENT FOR INDIAN LEARNERS

Guidelines, framework, and methodology to source, develop, and publish skilling content

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Cover concept: Skilling as a process involves significantly influencing learners across the three overlapping domains, cognitive (knowledge), psychomotor (manual and physical skills), and affective (attitude). The tools available for such a process have to be embedded into the content that is being developed for the purpose. The cover and back cover attempt to capture this phenomenon. While the spanner represents the manual and physical skills domain, the pencil stands for knowledge, and attitude is in the multiplication of these two. The various terms involved in the content development process described in the volume are used to visually construct the spanner and pencil.

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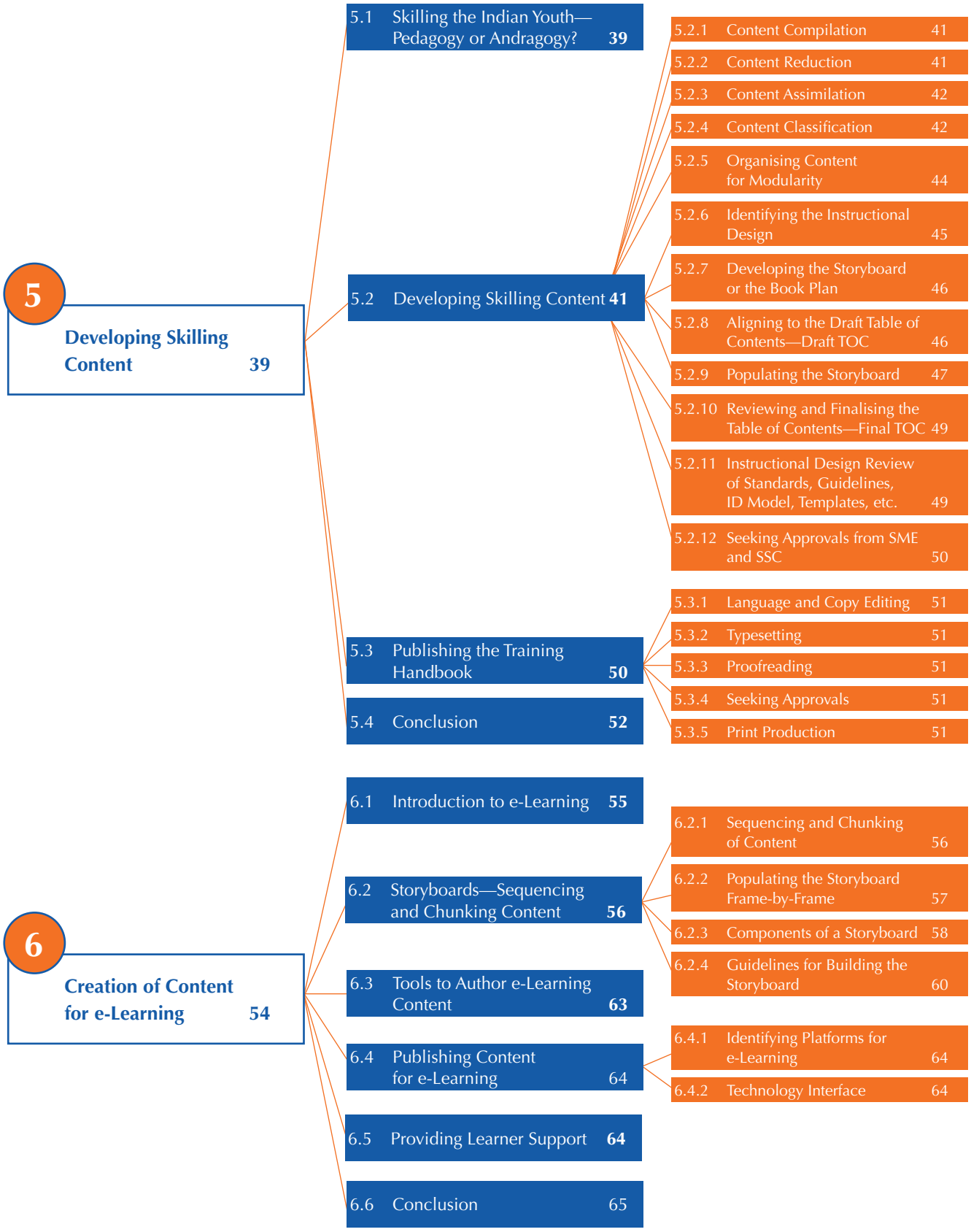
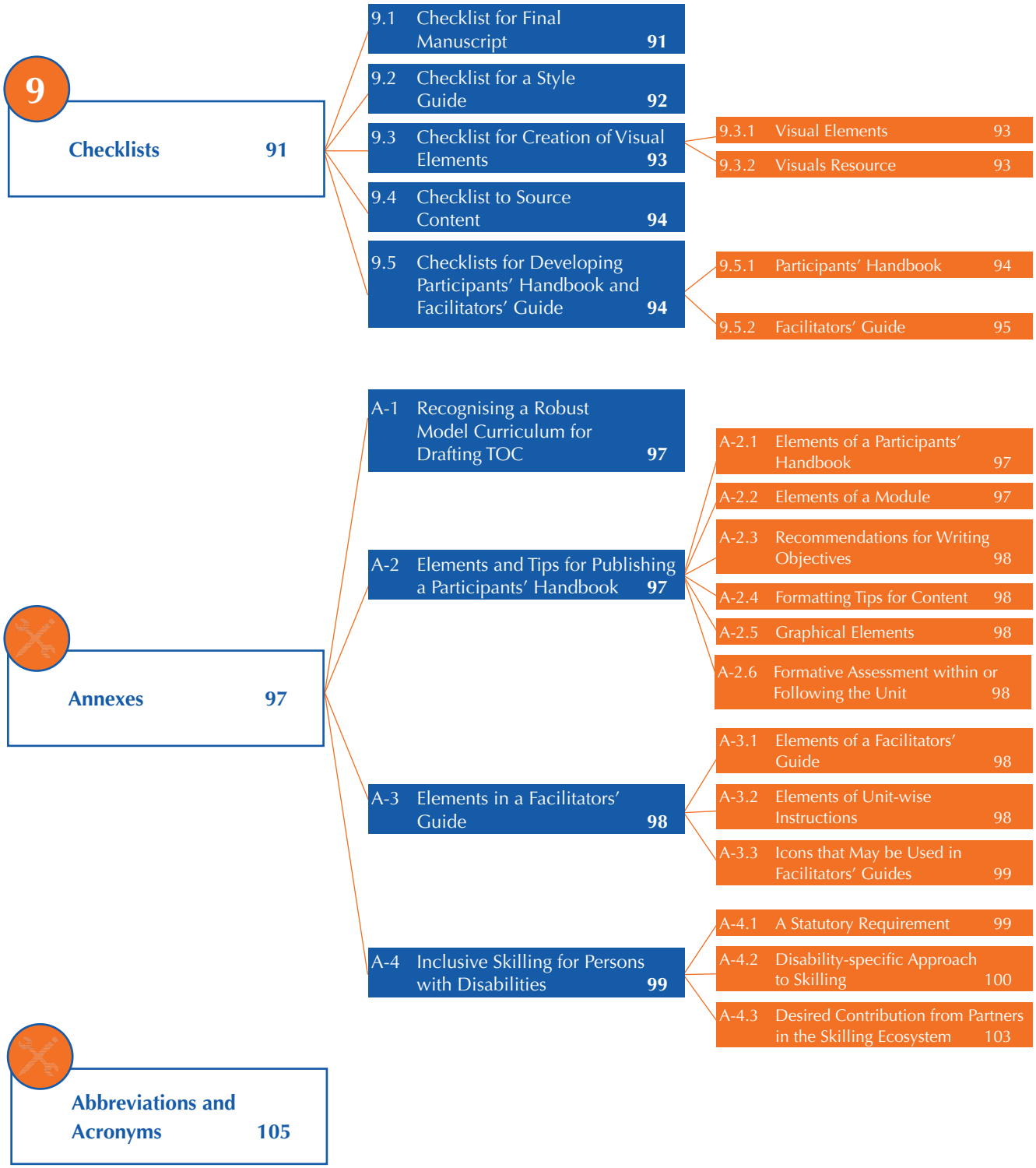
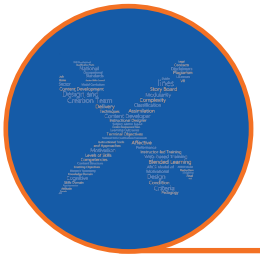
Chapters in the Book

Book Navigator
What is Covered and Where to Find it

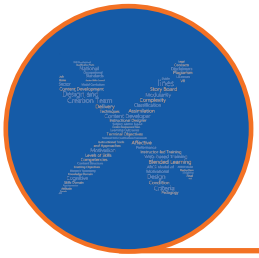

5
Developing Skilling Content 39
5.1 Skilling the Indian Youth—Pedagogy or Andragogy? 39
5.2 Developing Skilling Content 41
5.2.1 Content Compilation 41
5.2.2 Content Reduction 41
5.2.3 Content Assimilation 42
5.2.4 Content Classification 42
5.2.5 Organising Content for Modularity 44
5.2.6 Identifying the Instructional Design 45
5.2.7 Developing the Storyboard or the Book Plan 46
5.2.8 Aligning to the Draft Table of Contents—Draft TOC 46
5.2.9 Populating the Storyboard 47
5.2.10 Reviewing and Finalising the Table of Contents—Final TOC 49
5.2.11 Instructional Design Review of Standards, Guidelines, ID Model, Templates, etc. 49
5.2.12 Seeking Approvals from SME and SSC 50
5.3 Publishing the Training Handbook 50
5.3.1 Language and Copy Editing 51
5.3.2 Typesetting 51
5.3.3 Proofreading 51
5.3.4 Seeking Approvals 51
5.3.5 Print Production 51
5.4 Conclusion 52
6
Creation of Content for e-Learning 54
6.1 Introduction to e-Learning 55
6.2 Storyboards—Sequencing and Chunking Content 56
6.2.1 Sequencing and Chunking of Content 56
6.2.2 Populating the Storyboard Frame-by-Frame 57
6.2.3 Components of a Storyboard 58
6.2.4 Guidelines for Building the Storyboard 60
6.3 Tools to Author e-Learning Content 63
6.4 Publishing Content for e-Learning 64
6.4.1 Identifying Platforms for e-Learning 64
6.4.2 Technology Interface 64
6.5 Providing Learner Support 64
6.6 Conclusion 65


9
Checklists 91
9.1 Checklist for Final Manuscript 91
9.2 Checklist for a Style Guide 92
9.3 Checklist for Creation of Visual Elements 93
9.3.1 Visual Elements 93
9.3.2 Visuals Resource 93
9.4 Checklist to Source Content 94
9.5 Checklists for Developing Participants' Handbook and Facilitators' Guide 94
9.5.1 Participants' Handbook 94
9.5.2 Facilitators' Guide 95
Annexes 97
A-1 Recognising a Robust Model Curriculum for Drafting TOC 97
A-2 Elements and Tips for Publishing a Participants' Handbook 97
A-2.1 Elements of a Participants' Handbook 97
A-2.2 Elements of a Module 97
A-2.3 Recommendations for Writing Objectives 98
A-2.4 Formatting Tips for Content 98
A-2.5 Graphical Elements 98
A-2.6 Formative Assessment within or Following the Unit 98
A-3 Elements in a Facilitators' Guide 98
A-3.1 Elements of a Facilitators' Guide 98
A-3.2 Elements of Unit-wise Instructions 98
A-3.3 Icons that May be Used in Facilitators' Guides 99
A-4 Inclusive Skilling for Persons with Disabilities 99
A-4.1 A Statutory Requirement 99
A-4.2 Disability-specific Approach to Skilling 100
A-4.3 Desired Contribution from Partners in the Skilling Ecosystem 103
Abbreviations and Acronyms 105



Where to Find the Exhibits

Where to Find the Tables



Why the Book was Written

Gainfully skilling the youth is an imperative for India. One of the core requirements for a robust skilling ecosystem is a responsive and vibrant content development sub-system. In India such a skilling content development sub-system is at a nascent stage, especially for job roles outside traditional manufacturing and a few service segments such as IT, ITES, retail, and nursing that have been actively training resources over the years.

This volume aims to provide a comprehensive and standard process to develop skilling content.

In developing this volume, the endeavour has been to make the content **accessible** to all stakeholders in the skilling content development sub-system, with the primary goal of bringing together diverse concepts and processes that complete the content development jigsaw.

The framework is **actionable** for the users. Wherever possible, complex decision-making involved in the skilling content development process has been presented in tables, flowcharts, and exhibits, expanded from first principles, or explained through examples.

Effort has been made to avoid a one-size-fits-all solution. The guidelines are **flexible**, accommodating the diverse needs of the content creation and/or commissioning bodies (including SSCs). It offers space to individual sectors, subject matter experts (SME), content developers (CD)/instructional designers (ID), etc. to customise the content development process according to the needs of the job role and potential learner.

The volume also suitably emphasises **learner-centricity** throughout the skilling content development approach for any job role. This helps to balance focus on all three learning domains—cognitive, psychomotor, and affective.

The development process also emphasises the core need for **effective communication** through printed words as well as e-content.

The entire volume has been articulated after choosing every word carefully and crafting every sentence purposefully. As is the wont of any synthesis document, we cannot claim that all the thoughts and ideas are absolutely original. However, utmost care has been taken to keep the volume free from plagiarism and copyright violations. All sources have been diligently cited and suitably acknowledged. However, if there are any oversights we encourage readers to share their feedback with LRTTeam@NSDCIndia.org, and if found necessary, we shall make suitable amends in a subsequent edition.

The Learning Resources & Technology team at NSDC acknowledges the role of Lucid Solutions, New Delhi (www.lucidsolutionsonline.com) in researching, authoring, designing, and publishing the original volume, *Developing Skilling Content for Indian Learners* (December 2019).

– Learning Resources and Technology, National Skill Development Corporation, New Delhi

What Each Chapter is About

The skill ecosystem in India, is witnessing significant reforms and policy interventions that are reinvigorating and re-energising the country's workforce—preparing the youth for job and growth opportunities in India and abroad.

The guidelines, framework, and methodology to develop skilling content for specific job roles will benefit all stakeholders in the ecosystem by offering a comprehensive and streamlined process.

Domain-specific skills that help us earn our livelihood provide us with an identity built on our capabilities. The emphasis in these skilling programmes is equally on life skills and their enablement.

An effective skilling programme ensures that the participant bridges the gap between pre-skilling capabilities and those demanded by a job role. It imparts key skills along with the underlying knowledge and motivation. At the core of any such programme is the effective skilling content that the programme will deliver. Such skilling content supports outcome-oriented training and can help minimise variance in the quality of skilling output across diverse skilling initiatives nation-wide.

This also requires that the skilling content be developed in line with the best practices for such content development. However, the work scenario today is extremely dynamic—new job roles emerge every day and old roles require new skills (re-skilling). The content development process must therefore, be nimble and responsive. To make sure that the best content is developed deploying the limited resources available with the sectors, it is also mandatory to innovate in order to effectively transfer the skill and knowledge to learners.

This volume has been prepared to provide guidelines, framework, and methodology to source, develop, and publish skilling content to assist content creation and/or commissioning bodies (including SSCs), training partners, content developers, and other related stakeholders in the skilling ecosystem.

Chapter 2 outlines the content creation process starting from the key learning outcomes (KLOs) desired for a job role as defined in its Qualification Pack–National Occupational Standards (QP–NOS) by the sector. It explains what a model curriculum (MC) consists of. It also explains how the MC is used to develop a content structure (table of contents or TOC) for the participants' handbook or facilitators' guide as the case may be.

Instructional design plays a vital role in skilling content development. It evolved from content-centric early models such as the Analysis, Design, Development, Implementation and Evaluation (ADDIE) Model to learner-centric contemporary models such as the Attention–Relevance–Confidence–Satisfaction (ARCS) Model of motivational design. Chapter 3 has been dedicated to share the underpinnings of a couple of key instructional design models. This will help the content development team (CDT) identify a suitable model to develop content for a specific job role.*

* A committee in the form of Content Development Team (CDT) is formed during the initial stages of the project. This committee comprises of content developers/instructional designers, SSCs, and industry experts/practitioners (SMEs).

Without identifying the various roles within a CDT, assigning specific responsibilities would not be possible. Therefore, an outline of typical roles and their responsibilities has also been shared in Chapter 4.

Chapter 5 on developing skilling content, outlines the key activities in content development. The activities are broken into 13 sequential steps for the benefit of the CDT. These steps will lead to the development of units, modules, and NOS for a particular job role from raw content sourced or created for the purpose.

Today much of the skilling content needs to be shared through online and digital means, using the latest tools of e-Content development. This expands the reach of the skilling content, ensuring that no learner is left out due to lack of access to skilling content. Chapter 6 on e-Content development shares an outline for the CDT.

Plagiarism and copyright violations form an area of increasing concern in the publishing world today. The implications for sourcing and publishing content, that has been adapted for skilling in a specific job role, are discussed in Chapter 7. This is of significance to the creation and/or commissioning bodies (including SSCs) for them to protect themselves from any infringement.

To put together all this in a time-bound manner deploying limited resources, creation and/or commissioning bodies (including SSCs) will need to anchor, plan, and manage the entire content development process. Chapter 8 on planning and managing content development provides the managerial perspective on each set of content development activities, cross-referenced against the rest of the volume. It also outlines the process flow in a single chart that also indicates resource responsibility.

This volume closes with checklists for ready reference in Chapter 9, that content creation and/or commissioning bodies (such as SSCs) will find handy. Also annexed are some inputs on inclusive skilling of persons with disabilities. These aim to help them to build livelihood skills by enhancing access to skilling content in a disability-specific way, using assistive tools and techniques.

Above all, effective content must follow the principles of good communication, which begin with knowing the audience. This volume begins by elaborating on how to learn about the audience before developing content for the targeted participants in Chapter 1. It also offers a list of possible instructional tools and approaches for the CDTs to make aware choices on these and provides an outline of levers that may be deployed to motivate learners.

Let us begin...

1 Knowing Our Audience

Chapter purpose: Analysing the audience, profiling the learner, understanding the National Skills Qualifications Framework (NSQF), and building tools and approaches for various NSQF levels.

Before we think of developing content for a job role, we need to have a sense of who that content is for. The consumer of content is the potential candidate who joins a programme to acquire skills and seek a career out of the learning.

Note:

Unless mentioned otherwise, audience, candidates, learners, participants, students, trainees, etc. are used interchangeably in these guidelines to refer to the participant who is attending a skill development programme. It may also be noted that this volume has been developed for the benefit of all stakeholders belonging to the skilling ecosystem involved in preparing content.

Qualification Packs and National Occupational Standards (QP–NOS) are developed by Sector Skills Councils or SSCs, based on planned job roles for a sector. They are the starting point for two intermediate goals for content development:

- Developing curriculum for delivering training
- Developing instruments and tools for assessment and certification of learners

The validation and endorsement of QP–NOS nationally, broadly marks the initiation of the content development process for a job role. The first milestone in the content development process is the Model Curriculum (MC), a distinct and definitive document prepared by the SSCs according to MC guidelines of NSDC. The MC serves as the base for developing skilling content for a job role. However, once the job role has been identified and the learning goals understood, we cannot directly jump into developing skilling content without knowing whom we are designing it for. The first step in this direction is to know the audience (learners).

1.1 Audience Analysis and its Usefulness

The gap between the entry profile of learners and the exit profile of workers that the industry is willing to absorb, will tell us what our audience needs to learn. The skilling content development process must bridge this gap as accurately as possible. By the end of the training programme, it is expected that the skilling content will enable the learner to perform new tasks or previously known tasks with greater efficiency using new techniques. For example, if a manufacturing company automates the inward and outward logistics for their plant, one set of workers may need to learn incremental skills on known systems, while another set may need to learn completely new skills on new

systems. These additional skills for existing systems or new skills for new systems are the learning objectives for the two sets of job roles.

The exit profile captured in the QP–NOS defines the skills that need to be learnt by candidates joining the programme. However, the entry profile of potential candidates needs to be built from scratch as the first step in content development.

Apart from the demographic and educational background of learners, we also need to understand their motivations and behaviour patterns. This awareness will help us chunk and pace the content appropriately. A better understanding of the potential candidates will also help refine the skilling programme delivery techniques and assessments.

Understanding learners will help develop a suitable entry profile that the skilling content under consideration will address. What the typical trainee pool looks like in terms of age, gender, education, socioeconomic background, prior skills, motivations, etc. determines how we build the training content. As the skilling Content Developer (CD), we need to define a content scope and approach for every job role that will be able to take maximum learners along.

It is desirable that the CD/instructional designer (ID) develop a deeper understanding about the target audience for the course. This may be done through interviews with the subject-matter expert (SME), the content creation and/or commissioning body (including the SSC), and other individuals involved with the development of QP for that job role. The CD/ID may also consider talking to a few practitioners and their immediate supervisors, as well as to potential candidates, facilitators belonging to the sector, and master trainers involved with comparable job roles.

Knowing the potential candidates will help the content creation and/or commissioning body (including the SSC), SME, and the CD/ID to align on identifying the learning need gaps. They can then make a suitable choice of instructional design, deploy the most suited techniques to deliver the skilling content, and identify better assessment tools.

1.2 Profiling Potential Learners—the Entry Profile

How knowledge and skills are acquired has much to do with the socioeconomic conditions and psychographics of the learners. Any gap in formal education (such as dropping out of school) before joining a skilling programme often results in loss of previous knowledge. For instance, someone who has discontinued school after class VIII may not remember the formula for the area of a circle or a triangle. It may take much more than an exercise or two to re-introduce the formula, if the knowledge is critical to the skill, such as, in the case of masonry.

Furthermore, psychomotor abilities may take primacy over the knowledge component, especially in the case of entry-level roles with low educational requirement. Therefore, while the profiling of the learner may begin with demographics and educational background, it needs to go beyond these primary parameters.

1.2.1 Primary Parameters

With respect to the primary parameters to build a learner profile, the most obvious starting point is the demographic and psychographic profile of the potential candidate. Table 1.1 lists the key parameters. Some of the parameters may be captured in terms of most probable range, instead of a precise entry. For example the household dynamics of two parents and a child may be different from two parents and two children. However, a joint family with multiple couples and multiple sets of cousins may not be too different, regardless of whether there are 8 members or 15. Therefore, household size may be recorded as ranges of '3 or less', '4–6', '7–12', and '13 or more'.

TABLE 1.1 Primary Parameters for Entry Profiling of Participants

Demographic profile
- Age
- Gender
- Ethnicity
- Geography

Educational profile
- Literacy
- Languages (read)
- Languages (spoken)
- Languages (written)
- Digital literacy
- Qualification(s), certifications, etc.

Skills profile
- Sector associated with previously, if any
- Acquired or practiced skills, if any
- Skills used for earning, if applicable
- Communication skills (simple)
- Negotiation skills (simple)

Motivational profile
- Desires and aspirations
- Beliefs and commitments
- Drive and energy

Social and familial influences
- Household size
- Household income
- Sibling influence
- Peer influence
- Role models

1.2.2 Other Parameters

Parameters beyond demographics may also be useful in developing effective content for a skilling programme. Aspects such as knowledge and exposure to the job role and familiarity with words and expressions used in the sector are not known from demographic profile alone. Therefore, these must be often repeated formally in the content and informally while delivering lessons to ensure comprehensive learning. Motivating learners to overcome difficult topics, finding learning support outside the training centre, mixing classroom content with self-learning modules, etc. are other important markers for content development. Table 1.2 identifies some of these with suggested descriptors.

TABLE 1.2 Subjective Parameters for Entry Profiling and Suggested Descriptors

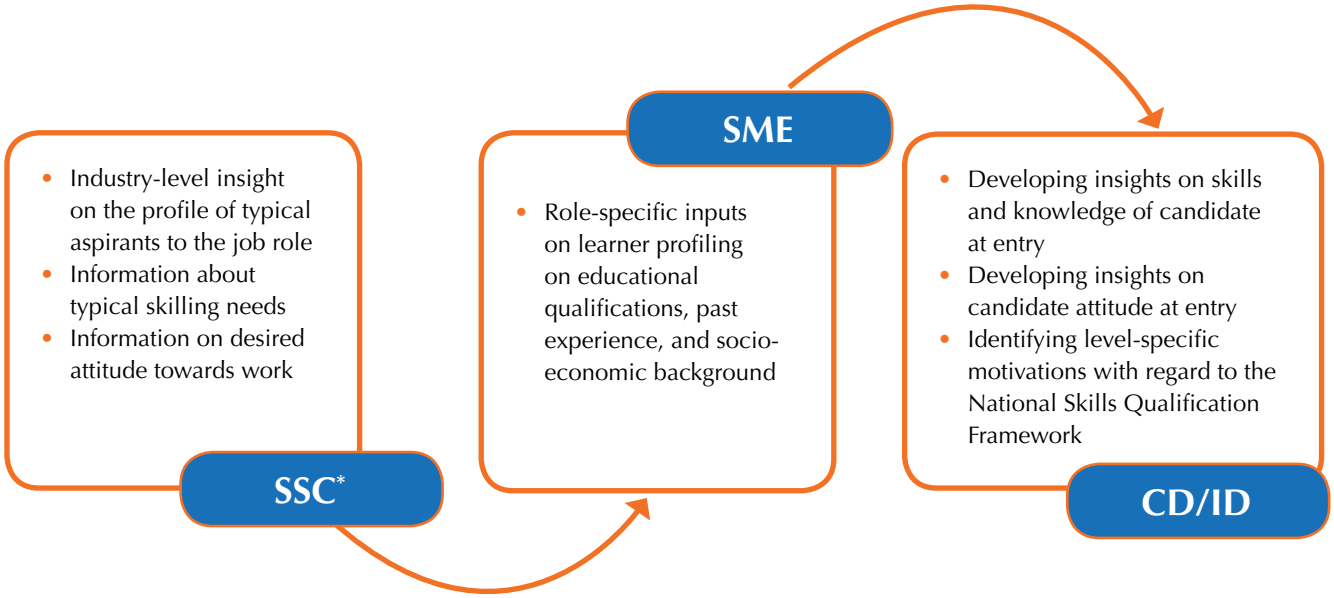
Parameter	*Suggested Descriptors*
Job role knowledge abilities (ability to grasp the basic ideas and principles)	Uninitiated
	Aware
Job role-apt psychomotor abilities (skills and process orientation)	Basic
	Deft
	Average
	Subpar
Learning ability for specific job role (general ability to grasp and apply learning)	Rapid pickup
	Slow pickup
Mental make-up (self-motivated or neutral towards learning and picking up skills)	Improvement oriented
	Bound and limited
Attitude (ability to overcome difficulties)	Offsets or overcomes inabilities
	Does not offset or overcome inabilities
Socio-economic background (social conditioning)	Privileged
	Neither privileged nor underprivileged
	Underprivileged
Familial and social support (support from social circle)	Transformational support
	Passive support
	Negative influence

1.2.3 Drawing Up an Entry Profile

The content development team—led by the CD/ID, supported by the content creation and/or commissioning body (such as the SSC), and the SME—may draw up a usable entry profile of candidates using the parameters to understand participants. While the educational background does form the foundation, care must be taken to ensure that it does not remain the only one.

By the end of this exercise, a comprehensive set of usable inputs about the potential candidates on various performance criteria (PC), skills, knowledge, and attitude attributes needs to be arrived at (Exhibit 1.1).

Exhibit 1.1: Building an Entry Profile for Candidates



* Content creation and/or commissioning body (including the SSC)

While knowing the audience may include dimensions outside the QP–NOS, the content development process must refer to the terminal objectives and PCs described in the document. The PCs given in each NOS need to serve as the leading lights for content development to navigate the raw candidates outlined in the entry profile to their destination—skilled and knowledgeable qualified workers.

A useful exercise is to map each PC with the most probable entry level description of candidates in a specific job role. For instance, the work of samplers in mines is aimed at taking onsite samples, either in open-cast or underground workings. So the sampler should be able to throw out from the passing car or wagon every third, fifth, or tenth shovelful of ore for a sample. Psychomotor skills of aspirants training to be 'samplers in mining' have to meet the required benchmarks to ensure hazard free and efficient operations (just as, for instance, 'operators of industrial sewing machines' have to). The entry-level description for candidates training to be samplers must therefore focus more closely on psychomotor skills even while drawing other inferences based on their knowledge, attitude, and motivations. The content may be accordingly modular, self-contained, concise, and precise. The content and instructional design should be able to drive perceptible change in capabilities. It must include knowledge which the skilled worker needs to apply at the workplace after training and avoid too much theory.

Contingencies, emerging situations, possible errors, and remedial action must also form an integral part of content development. These aspects must be built upon at this stage while understanding the gap between entry and exit profiles of candidates.

How detailed the skilling content should be is a function of the job role-specific criteria of assessment identified by SSCs. The supporting material and comprehensiveness of the content must remain proportional to the importance of PCs in the NOS.

By precisely identifying demonstrable, measurable, and assessable outcomes linked to PCs and mapping these to the entry profile of candidates on related parameters, sharper, more efficient, and effective skilling content can be developed.

1.3 Exit Profile—Terminal Objectives in NOS

The exit profile is an expression of the learning that students will acquire mastery over on completing the training programme successfully. These are expressed as learning outcomes—statements that describe what the learner has learned and what he/she will be able to demonstrate at the end of the training programme. An effective exit profile must have the following characteristics:

- Should be concise
- Should be measurable and assessable
- Should be drafted in collaboration with other stakeholders, such as industry bodies and domain experts
- Should evolve in line with changes, such as revisions in the QP
- Learning outcomes should be attainable and realistic
- Learning outcomes should define what students will be able to do to demonstrate learning

Given below are some samples of learning outcome statements:

- 'Can perform specialised masonry works, such as arches, staircase, manholes and walkways.'
- 'Can plaster internal and external masonry structures.'
- 'Can plaster Reinforced Cement Concrete (RCC) structures.'
- 'Can prioritise work activities to achieve desired results.'

Knowing the gap between the trainee's current competencies and desired competencies for the job role is central to knowing the audience for which skilling content is to be prepared. Where the trainee is placed now in terms of abilities as opposed to where he or she needs to be at the end of the programme tells us how to carve the path to the end goal.

1.4 National Skills Qualifications Framework

While we acquire information pertaining to the learner's demographic and group characteristics, aspirations, prior knowledge, motivation, attitude, and learning preferences it is also important to keep in mind the National Skills Qualifications Framework (NSQF) level the QP is pegged at. The NSQF is a quality assurance framework that organises qualifications according to a series of levels of knowledge, skills, and aptitude.

Each of the ten NSQF levels represents different degrees of complexity, knowledge, and autonomy required to demonstrate the competence commensurate with that level. Each NSQF level is defined by a set of descriptors expressed as learning outcomes—the extent of demands made on the learner in terms of professional knowledge and professional skills, core skills and responsibilities.

The NSQF level descriptors provide cogent insights into what the learner should know and understand, the kind and complexity of skills, the nature of working relationships, and level of responsibility. For example, level one represents the lowest complexity while level ten represents the highest complexity.

Table 1.3 gives a brief description of the nature of work at each of these ten NSQF levels and the suggested instructional tools and approaches at each level.

Important note for Table 1.3: The 'possible instructional tools and approaches' are not NSDC's recommendations. The table indicates a possible combination of tools and approaches to define an instructional strategy for a specific job role. All content creation and/or commissioning bodies (including SSCs) are discouraged from using the table below as NSQF level-specific standardised set of tools and approaches without sufficient consideration to the audience, sector, learning domains, and ID model (discussed in following chapters) to be used.

The content creation and/or commissioning bodies (including SSCs) and the CD/ID identified for content development must apply their collective minds to arrive at a particular set of instructional tools and approaches that they believe is most suitable for the purpose of content development for a specific job role. The content creation and/or commissioning body (including the SSC) needs to be convinced about the suitability of the tools and approaches recommended by the CD/ID, based on the profile of potential candidates who are expected to join the specific skilling programme, the NSQF level, and other factors.

TABLE 1.3 NSQF Levels and Corresponding Possible Instructional Tools and Approaches[1, 2]

NSQF Level	*Nature of Work*	*Possible Instructional Tools and Approaches (Emphasis on those in bold)*	
1	Work is routine and repetitive, with a few closely supervised tasks. Often such workers help semi-skilled and skilled workers by completing minor jobs within an activity. People in such job roles are referred to as '**helpers**'.	• **Modelling** • **Real-life objects** • **Hands-on learning** • **Direct instruction** • **Non-linguistic representations** • Basic vocabulary, job role-specific jargon • Field experience, field trip, or field study	• Flexible/strategic grouping • **Peer teaching/collaboration** • **Role play/simulations/drama** • Cues, questions, activating prior knowledge • **Reinforcing effort and providing recognition**
2	Work is routine and repetitive, with a limited number of closely supervised tasks. The individual is not expected to deal independently with activities which affect the work. People in these roles are '**assistants**'.	• **Modelling** • **Real-life objects** • **Hands-on learning** • **Direct instruction** • **Non-linguistic representations** • **Basic vocabulary, job role-specific jargon** • Field experience, field trip, or field study • Flexible/strategic grouping	• **Peer teaching/collaboration** • **Role play/simulations/drama** • Cues, questions, activating prior knowledge • **Graphic organisers**[i] • Identifying similarities and differences • **Reinforcing effort and providing recognition**
3	Job holders are responsible for carrying out a limited range of jobs, reporting to a more experienced semi-skilled or skilled worker. Their activities may involve completion of several related tasks. People in these job roles are described as '**partly-skilled workers**'.	• **Modelling** • **Real-life objects** • **Hands-on learning** • **Direct instruction** • **Non-linguistic representations** • **Basic vocabulary, job role-specific jargon** • **Field experience, field trip, or field study** • **Flexible/ strategic grouping**	• **Peer teaching/collaboration** • **Role play/simulations/drama** • **Cues, questions, activating prior knowledge** • **Graphic organisers** • **Identifying similarities and differences** • **Reinforcing effort and providing recognition**
4	These roles cover a range of jobs, usually forming at least one comprehensive trade within a sector. Some of these require making approach-related choices. Job holders are expected to learn and improve their practices and efficiency on the job. This group consists of '**skilled workers**'.	• Modelling • Real-life objects • **Hands-on learning** • **Direct instruction** • Non-linguistic representations • **Word wall** • **Field experience, field trip, or field study** • Flexible/ strategic grouping • Peer teaching/collaboration • **Role play/ simulations/ drama**	• **Cues, questions, activating prior knowledge** • Graphic organisers • **Identifying similarities and differences** • **Discovery/ Inquiry-based learning** • **Reinforcing effort and providing recognition** • **Project-based learning** • **Goal setting**

NSQF Level	*Nature of Work*	*Possible Instructional Tools and Approaches (Emphasis on those in bold)*	
5	Job holders should be able to make choices about the best procedures to adopt to solve problems. They are the 'go to' persons for solutions when the teams working under them face professional and personal challenges. These fully skilled workers are called '**supervisors**'.	• **Hands-on learning** • **Project-based learning** • **Integration of content areas** • **Field experience, field trip, or field study** • **Role play/simulations/situation analysis** • **Cues, questions, activating prior knowledge** • **Discovery/inquiry-based learning**	• **Advance organisers**[ii] • **Concept mapping**[iii] • **Goal setting** • **Group discussions** • **Caselets (short case-studies)** • **Targeted feedback** • **Effective questioning**
6	Job holders are expected to carry out a broad range of tasks that require a variety of specialised technical skills backed by clear practical and theoretical knowhow. They are the '**master technicians**' and '**trainers**'.	• **Hands-on learning** • **Project-based learning** • **Integration of content areas** • **Field experience, field trip, or field study** • **Role play/simulations/situation analysis** • **Cues, questions, activating prior knowledge** • **Discovery/inquiry-based learning**	• **Advance organisers** • **Concept mapping** • **Goal setting** • **Group discussions** • **Caselets (short case-studies)** • **Targeted feedback** • **Effective questioning**
7	Job holders are responsible for performance, output, and development of a workgroup within an organisation. They are likely to be graduates, usually referred to as '**managers**' or '**senior technicians**'.	• **Project-based learning** • **Integration of content areas** • **Field experience, field trip, or field study** • **Role play/simulations/situation analysis** • **Cues, questions, activating prior knowledge** • **Discovery/Inquiry-based learning** • **Advance organisers** • **Concept mapping**	• **Goal setting** • **Group discussions** • **Case studies** • **Targeted feedback** • **Effective questioning** • **Critical thinking** • **Summarising and note taking** • **Self-assessment** • **Learning centres**
8	Responsible for managing the work of a team and developing the team, such professionals deal with unforeseen exigencies at work. Their job demands comprehensive knowledge and understanding of the occupational field and a commitment to self-development.	• **Concept mapping** • **Advance organisers** • **Project-based learning** • **Integration of content areas** • Field experience, field trip, or field study; • **Discovery/Inquiry-based learning** • **Goal setting**	• **Group discussions** • **Case studies** • Targeted feedback • Effective questioning • **Critical thinking** • **Summarising and note taking** • **Self-assessment** • **Learning centres**
9	Work will demand complex decision-making in unpredictable contexts; shouldering higher-level organisational responsibilities; and mastery over routine and emerging issues with an ability to innovate.	• **Critical thinking** • **Concept mapping** • **Integration of content areas**	• **Summarising and note taking** • **Discovery/Inquiry-based learning** • **Group discussions**
10	Such workers engage in strategic decision-making in the complex and unpredictable work context. In-charge of an entire or a significant part of an organisation, they provide leadership.	• **Case studies** • **Targeted feedback** • **Self-assessment**	• **Learning centres** • **Generating and testing hypotheses**

Note: For more information on 'Nature of Work by NSQF Levels', refer to http://www.nsda.gov.in/nsqf.html.

i. Like the concept map, the graphic organiser is also a visual display that demonstrates relationships between facts, concepts or ideas.

ii. An advance organiser is a cognitive instructional strategy or tool used to introduce a new topic to learners and demonstrate how it is related to what they have already learned. The advance organiser, by linking new information to old information, ensures that the new topic is learnt more easily and remembered for longer.

iii. A concept map or conceptual diagram is a graphical tool that shows to the learners how the different concepts they are being introduced to are related and linked to each other and are part of the whole. It is a powerful tool often used by instructional designers, engineers, and technical writers to organise conceptually complex and interrelated training material.

1.5 Bridging the Entry–Exit Profiles of Participants

Assessing the abilities of a participant before joining a skilling programme vis-à-vis the complexity of the job role is critical to taking decisions on the extent, depth, and character of the skilling content that should eventually go into the handbooks and other collaterals. A more nuanced understanding of the context and constraints of the learners may help develop more effective skilling content. Interviews and discussions with those who have previously conducted such training could offer the necessary insights.

1.5.1 Using Motivational Levers to Facilitate Learning

Enhancing the willingness and enthusiasm of participants about their chosen vocation, sector, and job role, makes learning simpler and easier. Effective tools to enhance motivation may include certain simple techniques in content development. Techniques to enhance learner motivation and reduce negative influences are listed in Table 1.4, to encourage thinking on these lines.

TABLE 1.4 Enhancing Learner Motivation

Objective	*Approach*	*Levers and tactics*
Use known audience motivations	Encourage goal-oriented approach through positive influences	Use elements in the content that will encourage the learner to: • identify role models; • develop personal aspirations; • build self-reliance; • focus on growth and future plans; and • aspire for rewards after completing work (pot of gold at the end of the rainbow).
	Reduce barriers to learning (reduce impact of negative influences)	Create content that will: • lower barriers related to complexity of learning; • demonstrate the value of perseverance in difficulty; • encourage self-control in adversity; and • promote initiative and a problem-solving approach.
	Create a sense of belonging	Create content that will encourage the learner to: • identify with the purpose; • feel one with a group; and • not feel isolated
	Focus on happiness	Highlight: • short-term happiness (through humour, prizes, etc.) and • long-term happiness (achievements, fulfilment, etc.).
Include effective tools to enhance motivations	Generate enthusiasm, tickle inquisitiveness, and arouse curiosity	• Show outcomes through audio-visual success stories. • Narrate success stories.
	Make learning easy	• Build attention to detail. • Develop content that is easy to learn from. • Build confidence to ask questions and seek clarifications.
	Demonstrate success to create enthusiasm	• Demonstrate small successes to build confidence. • Reinforce self-confidence.

Objective	*Approach*	*Levers and tactics*
Leverage motivations to actively influence training content and instructional design	Enhance involvement in the skilling process	• Reiterate and link participant motivations to the programme objective. • Use positive thinking to motivate in every word, sentence, sub-units, NOS, etc. • Create action-oriented positive objectives at the beginning. • Keep the tasks and lessons tight in terms of language.
	Promote visual orientation to help easy memorising. Visuals can teach even when words are not understood. Visuals may excite the participants about the depicted workplace.	Ensure that tasks are depicted through visual elements—the greater the capacity-deficit of the participant, the higher the visual content should be
	Focus on theoretical and practical exercises	• Create opportunities to practice and improve cognitive abilities. • Ensure greater practice in application of skills. • Promote understanding through doing.
	Encourage inquisitiveness	• Reinforce concepts in response to learners' questions. • Demonstrate practical significance of a task or lesson. • Clarify doubts.

1.5.2 Deciding the Visual–Text Ratio

A picture paints a thousand words—the idiom is strongly applicable to developing skilling content. Visual elements such as photographs of the actual workplace, machines, and implements, sketches or photographs of steps of an activity, visual contrast between verbally confusing situations, graphs, charts, schemas, flow diagrams, maps, tabulated presentation of information, and other innovations suited to skilling communication can complement the written word. Deciding the visual–text ratio, based on the audience capability and expectation, is crucial.

1. Before content creation is undertaken the visual–text ratio needs to be identified and a clear expectation from the ID and SME may be set up.
2. A 90:10 (average page area) share in favour of visual storytelling (captioned photographs in the form of a frame capture, graphic novel, or a comic book) is recommended for situations where the entry and exit profiles of candidates show maximum gap.
3. A 30:70 (average page area) ratio between visual and textual storytelling (key visuals to support the skilling lessons presented as text matter) is recommended for situations where entry and exit profiles of candidates show minimum gap.
4. Based on parameters relevant to the participants for a job role, visual elements and text–visual composition may be chosen.
5. Where the educational attainment of participants is low, there should be greater dependence on visual content followed by captioned text to support the visuals.
6. Where the educational attainment of participants is high or participants have previous skill sets within the skill domain, there could be greater infusion of text with lesser dependence on visuals.
7. Where the participant is already a trained practitioner of a skill, lesser visual content but greater inclusion of reference and reading material may be provided to offer flexibility in learning as per individual propensities.

1.5.3 Developing Appropriate Exercises

1. For NSQF levels that predominantly depend on skills, exercises should focus on hand–body–mind coordination—especially, how to hold implements, how to operate dials and knobs, how to manage oneself, how to manage the space, etc.
2. Exercises following the core lesson need to test the newly acquired skills and either recommend more work or direct the learner to the next topic depending on the outcome.
3. Testing of rote knowledge should be minimised, unless critical to the job role.

4. Exercises should not be treated only as tools to test acquisition of skills but also a learning opportunity to perfect precise movements, action, efficiency, etc.
5. For NSQF levels with high knowledge content such as those in the IT domain where skills also require significant knowledge however, exercises must also test knowledge acquisition thoroughly.

1.5.4 Pitching at the Correct Level of Skills Competency[3]

There are five levels of competency ranging from 'performing a specific task' to 'transferring the skills and new knowledge to emerging workplace situations' (Table 1.5). Knowing the exact learner skill-deficit based on the entry – exit profile gap helps the CD/ID know the level at which to pitch the content.

TABLE 1.5 The Five Levels of Skills Competencies

Dimension	*Description*	*Example*[4]
Task Skills	Performing the task/job to the required standard	The nurse is able to use the appropriate equipment to draw the blood safely from the adult patient.
Task Management Skills	Doing more than one thing at a time and managing tasks correctly	In addition to drawing blood, the nurse knows how to dispose of the used syringe.
Contingency Management Skills	Responding appropriately to irregularities and breakdowns in routine within a job or workplace	If the syringe breaks while the nurse is drawing blood, the nurse knows how to handle the situation.
Role and Job Environment Skills	Dealing with the responsibilities and expectations of the work environment	In addition to drawing blood, the nurse is able to alert colleagues in case the patient feels very ill.
Transfer Skills	Transferring skills and knowledge to new situations	The nurse is able to transfer his/her skills in drawing blood from an adult patient to drawing blood from a baby.

1.6 Conclusion

The exercise to know our audience before setting out to develop content is crucial. While as trained SMEs, CDs, and IDs we may have strong knowledge on 'what' needs to be included, 'how' and 'why' of that content will be shaped by knowing the audience. Knowing the audience also helps us to be objective about suitable methods of knowledge and skill acquisition. Else, we might be driven primarily by our own mental make-up and preferred techniques without appreciating the challenges of the potential candidates.

Going forward, knowing our audience and the gap in their entry and exit profiles will be the single most important point of reference in the entire content development process. The success of content development will depend upon how we are able to leverage this information to shape meaningful content, empower skilled and motivated future workers, and thus help build successful careers.

Notes and References

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2 Creating Content Structure

Chapter purpose: Understanding Bloom's Taxonomy, developing key learning objectives, understanding the model curriculum, and creating content structure.

By knowing our audience, we have become aware of the person at the centre of the content development exercise—the participant. The skills and knowledge needed for a QP, form the core of the content that we are attempting to develop. Since participants come from diverse educational, socioeconomic, and attitudinal backgrounds, the task of content development also includes streamlining these diversities. Therefore, the skilling programme also must be able to impart certain additional capabilities beyond skills to the worker. These will help them transition from a non-working life to a vocation such as communication, record-keeping, working in teams, customer care, entrepreneurship, etc.

The first step in the content development process is to define a content structure. Through this chapter we discuss the various tasks for creating this structure. By following the suggestions in this chapter, the CD/ID will be able to understand and use the model curriculum (MC) to develop a table of contents (TOC) for the participants' handbook or the facilitators' guide, while anchoring the entire content development process.

2.1 Introduction to Learning Objectives and their Purpose

Several stakeholders contribute to designing a course. It is critical to ensure that all of them work towards a common goal. A content structure works as a reference point guiding these stakeholders. It answers important questions: What is the purpose of the course? What will each NOS, module, or unit deliver to the participants? How do these elements fit into the overall skilling content? What will skilled participants know or be able to do at the end of the course? This is a document that outlines individual units in the context of the overall course structure.

So, what is our starting point? To begin with we have a job role description in the QP–NOS. This document offers a general outline of the learning goals that the trainees must meet within the skilling programme for a job role. The various NOS to be met by the aspirant for that role are defined by the industry. The task for us therefore is to break down the various NOS into sharp, specific, focused, unitary, learning objectives in simplest terms. To take the learners towards specific and measurable outcomes, a key step is to define learning objectives for the programme. When a participant meets all the learning objectives for a unit, module, NOS, and the entire QP for the job role, he/she becomes 'job ready'.

Let us recall any training programme or presentation that we have previously attended. In all likelihood, the objectives were laid out at the start of the programme or the presentation. So, what role do learning objectives play in a skilling programme?

The gap that the skilling activity needs to bridge may be accurately defined by 'what the participant could do before skilling' vis-à-vis 'what the participant should be able to do after skilling'. The learning objectives are directly linked to the latter.

Therefore, learning objectives form the basis of instructional activities that include:

- Choosing instructional strategies
- Creating and identifying instructional materials
- Identifying and developing content to be taught
- Designing assessments to evaluate whether learning outcomes have been achieved

For example, in a training course on hand embroidery, the module titled 'Types of Embroidery Stitches', will have learning objectives such as:

- 'Execute flat stitches such as back stitch, stem stitch, and Kashmiri stitch.'
- 'Execute loop stitches such as chain stitch, button-hole stitch, and fishbone stitch.'
- 'Execute knotted stitches such as French knot, double-knot, and bullion knot stitch.'

Setting learning objectives early will help the CD or ID select appropriate content from what was shared by the SME. Knowing these objectives well in advance also enables them to use relevant material to arrive at an appropriate instructional strategy. Once learning objectives are set, developing assessment tools, tests, and evaluation instruments to measure the quality of the trainee's learning outcomes can be more thorough.

2.1.1 Distinguishing Learning Objectives from Learning Outcomes

A learning objective is set by the trainer before the programme and a learning outcome is what the trainee can achieve after the programme. The former describes an intended state (what we hope our trainees will learn), whereas the latter expresses a present or observed state (what our trainees learned).

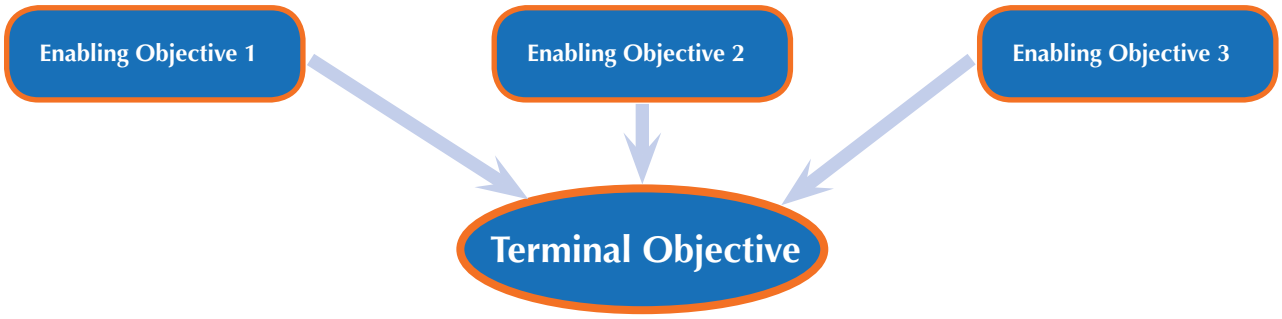
A learning outcome defines 'what the trainee is able to do at the end of the instruction'. The learning outcome attained by the trainee is a sort of mirror image of the learning objective set by the trainer. In some cases, to meet one learning objective may entail mastery over several learning outcomes.

For instance, the training for a Hand Embroiderer sets the following learning objective as: 'At the end of this module, the trainee should be able to execute flat stitches such as back stitch, stem stitch, and Kashmiri stitch.' The three learning outcomes attained by a trainee undergoing this training module are thus stated as:

- 'At the end of the module the trainee will be able to: (1) execute back stitch; (2) execute stem stitch; and (3) execute Kashmiri stitch.'

2.1.2 Terminal and Enabling Objectives

Objectives may broadly be categorised as terminal or enabling. Many enabling objectives support each terminal objective.



A terminal objective measures what a learner will be able to do after completing the learning activity. Terminal objectives often describe results and therefore require multiple actions to complete. Example: 'Demonstrate fitting operations on metal components using hand tools and manually operated machines.'

Enabling objectives help break the terminal objective down into manageable parts that describe the process. These are detailed, specific objectives that support the high-level objectives. Enabling objectives describe a series of learning activities undertaken during the instruction phase of delivering a lesson. These are not outcomes (results) but without enabling objectives, terminal or performance objectives (learning outcomes) are not attained. Examples:

- 'Identify safety regulations to be followed while performing die fitting operations.'
- 'Rectify incorrect information in job specification documents as per organisational procedures.'
- 'Mark out templates for tracing/transferring the specified features on the work pieces as per job specification.'

2.2 Bloom's Taxonomy to Set Learning Objectives[1]

Benjamin Samuel Bloom, an American educational psychologist, was perhaps the first to propose a structure for practices around curriculum, instruction, and school education. He chaired a committee that looked into the learning domains and offered a framework to classify educational objectives. These later came to be known as Bloom's Taxonomy. His most significant contribution to pedagogy was the *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*.[2]

2.2.1 The Three Learning Domains in Skilling

Bloom's framework identifies three fundamental overlapping learning domains:

1. **Cognitive:** Mental skills (knowledge)—K
2. **Psychomotor:** Manual or physical skills (skills)—S
3. **Affective:** Growth in feelings or emotional areas (attitude or self)—A

The cognitive, psychomotor, and affective domains can be further categorised into learning behaviours from the simplest to the most complex level. The levels are successive, so that one level must be mastered before the next level can be reached. This taxonomy of learning behaviours may be thought of as 'the goals of the learning process'. That is, after a learning episode, the learner should have acquired new knowledge, skill, and/or attitude. While the taxonomy developed by the committee focused primarily on the cognitive domain, later researchers built on the other two.

2.2.2 Learning Objectives in the Knowledge/Mental Skills Domain (Cognitive)

The committee chaired by Bloom divided the cognitive domain into six levels. With a primary focus on educators, the taxonomy initially was described by a set of nouns. These were arranged hierarchically from the simple (basic learning) to the most complex (advanced application).

1. **Knowledge:** As the first step in learning, the learner should at the very least be able to **remember** the instructional content. Can the participant remember and recall what is being taught?
2. **Comprehension:** At the next stage we ask, can they ***understand*** the content being taught? This level engages learners in grasping concepts and restating in their own words what they have learnt. In attaining this level, our learners have listened, read, remembered, and understood what the facilitator is imparting.
3. **Application**: Are the trainees able to ***apply*** what they are learning in a variety of contexts? Learning must now mature to the level that the trainees can apply their newly acquired skills in different contexts. All workplace situations cannot be anticipated and tutored in the training room. Unless the trainee learns to see the patterns and apply new learning to evolving situations, the learning hours are wasted.
4. **Analysis:** Can the trainees ***analyse*** the information and identify its constituents, components, interlinkages, and dependencies?
5. **Synthesis:** Would the trainees must be able to ***combine*** the various information chunks they have mastered to create something new that is in character significantly value-added beyond the sum of its parts?

6. **Evaluation:** Are the trainees able to relate what they are learning to what they knew before and offer perspectives, opinions, decisions, and judgments about the learnt material?

In 2001, Lorin W. Anderson (a former student of Bloom) and David R. Krathwohl (a colleague who served on the original committee chaired by Bloom), revised the taxonomy. They revised three of these levels and interchanged the last two levels (categories). Their work, *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, ordinarily referred to as 'Revised Bloom's Taxonomy',[3] also replaced the nouns defining each level with a verb. For each cognitive level there is a set of verbs recommended for precise communication (Table 2.1).

TABLE 2.1 **Action Verbs for the Cognitive Domain**[4, 5]

Bloom's Level [REVISED]	*Description*	*Verbs*	*Examples of Objectives*
Knowledge [REMEMBERING]	The learner will be able to use rote memorisation and recall certain facts.	Choose, catalogue; cite; define; find; how; identify; label; list; match; memorise; name; omit; pick; quote; recall; recognise; record; relate; repeat; reproduce; select; show; spell; state; tell; what; when; where; which; who; why	*Recall* the nine major types of embroidery in India and the states in which they originate without error. *List* at least eight common health issues faced by persons working in the construction sector.
Comprehension [UNDERSTANDING]	The learner will be able to read course content, understand, and interpret important information and put other's ideas into own words.	Alter; classify; compare; contrast; convert; demonstrate; describe; discuss; expand; explain; express; extend; give examples; identify; illustrate; infer; interpret; locate; outline; paraphrase; qualify; recognise; relate; rephrase; report; restate; review; show; summarise; translate	*Explain* what positive body language includes by citing illustrative examples.
Application [APPLYING]	The learner will be able to apply new concepts to another situation.	Apply; arrange; build; choose; complete; compute; construct; demonstrate; develop; discover; dramatise; experiment; explain; identify; illustrate; interpret; interview; make use of; model; modify; operate; organise; plan; practice; predict; prepare; produce; put into action; relate; schedule; select; show; sketch; solve; translate; use; utilise	*Demonstrate* how negative body language can impact teamwork.
Analysis [ANALYSING]	The learner will be able to take new information and break it down into parts to differentiate between them.	Analyse; appraise; associate; assume; calculate; categorise; classify; compare; contrast; criticise; conclude; contrast; discover; dissect; determine; represent diagramatically; differentiate; discriminate; distinguish; divide; estimate; examine; experiment; infer; inspect; list; motive; order; outline; point out; relate; search; separate; simplify; subdivide; survey; take part; test; theme	*Differentiate* between a macule, papule, and pustule and outline how providing 'facial massage' to a client may be restricted due to the presence of each.
Synthesis [CREATING]	The learner will be able to *take* various pieces of information and *form* a whole *creating* a pattern where one did not previously exist.	Adapt; assemble; build; change; choose; combine; compile; compose; construct; create; delete; design; develop; devise; discuss; elaborate; estimate; formulate; generate; imagine; improve; integrate; invent; make up; manage; maximise; minimise; modify; organise; plan; predict; prepare; propose; produce; rearrange; reorganise; revise; rewrite; set-up; solve; suppose; tell; test; theorise; write	*Develop* a workflow chart for the team and assign timelines to each stage. *Organise* the project schedule and create a team plan.

Bloom's Level [REVISED]	*Description*	*Verbs*	*Examples of Objectives*
Evaluation [EVALUATING]	The learner will be able to look at someone else's ideas or principles and see the worth of the work and the value of the conclusions.	Agree; apply (criteria); appraise; assess; argue; award; choose; compare; conclude; contrast; criticise; decide; deduct; defend; determine; disprove; discriminate; discuss; estimate; evaluate; explain; influence; interpret; judge; justify; mark; measure; opine; perceive; prioritise; prove; rate; recommend; rule on; revise; score; select; support; think; value; weigh	*Assess* the impact of alternative refrigerants on ozone layer depletion. *Compare* the Bureau of Energy Efficiency Star ratings of different air conditioners and recommend an appropriate model based on the client's needs.

Note: These action verbs have been drawn from various interpretations of Bloom's Taxonomy and Revised Bloom's Taxonomy.

The compiled list of verbs is merely indicative. Other suitable verbs may also be used to describe a learning objective. Some verbs such as 'apply' may reappear in multiple cognitive levels of the taxonomy. However, their meaning, interpretation, and associated learning action would be different for each context. For example, at the Application [Applying] level 'apply' may require the learner to use previously learnt information in demonstrating acquired knowledge, while at an Evaluation [Evaluating] level the same verb may require him/her to 'apply' a set of criteria to understand if mastery has been achieved.

2.2.3 Learning Objectives in the Manual or Physical Skills Domain (Psychomotor)[6]

Psychomotor skills range from manual tasks such as digging a ditch or washing a car, to more complex tasks, such as operating an intricate piece of machinery or dancing. While the committee led by Benjamin Bloom in 1956 produced detailed analysis of learning outcomes in the cognitive and affective domains, at least three psychomotor models were developed by later researchers—E.J. Simpson (1972), R.H. Dave (1970), and A. Harrow (1972).[7]

Simpson emphasised physical movement, coordination, and application to hone motor-skills. Harrow focused on the internal learning processes and responses to influence the psychomotor domain. The most practical evolutionary model for the psychomotor domain in an Indian learning context, however, was extended by R. H. Dave around the core skilling mechanism followed in the animal world—observation, imitation, trial, practice, and mastery. Table 2.2 outlines the various development stages suggested by Dave, with examples and verbs that describe the actions.

TABLE 2.2 **Action Verbs for the Psychomotor Domain**

Category/Stage	*Description*	*Verbs*	*Examples of Objectives*
Imitation	The learner will be able to observe and follow the behaviour pattern of another.	Observe; copy; follow; try; mimic; repeat; replicate; imitate; reproduce; trace; adhere	*Copy* this triangle. *Drill* a hole in the wall *while observing* a demonstration or with guidance and handholding.
Manipulation	The learner will be able to perform actions by memory or by following instructions.	Follow; imitate; retry; redo; re-enact; build; execute; perform; implement	Use a length of string to *remove unwanted hair (threading) after learning how to do it*.
Precision	The learner will be able to refine and practice to achieve perfection, perform solo with precision, and demonstrate to a beginner.	Demonstrate; show; exhibit; perform; calibrate; control; practise; master; perfect	*Manually mix the mortar* (cement, sand, and water) efficiently in correct proportion and adequate quantity to plaster a 10' x 12' wall.
Articulation	The learner will be able to coordinate and adapt many interlinked actions to achieve a harmonious outcome, with internal consistency.	Adapt; construct; integrate; combine; coordinate; create; solve; customise; develop; modify; formulate; master; improve; teach	*Skilfully perform a series of activities* to produce a video with music, drama, colour, sound, etc.

Category/Stage	Description	Verbs	Examples of Objectives
Naturalisation	The learner will attain mastery at a high performance level, such that it becomes second-nature (natural) and enters the muscle memory (no need to think before action).	Skilfully execute; create; design; develop; invent; manage	Swiftly and accurately *operate a laundry machine*. *Manoeuvre a car* into a tight parallel parking. *Play the piano* without looking at the keys.

2.2.4 Learning Objectives in the Attitude/Feelings/Emotional Skills Domain (Affective)[8]

The affective domain includes the way we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories are listed from the simplest behaviour to the most complex (Table 2.3).

TABLE 2.3 Action Verbs for the Affective Domain

Category/Stage	Description	Verbs	Examples of Objectives
Receiving phenomena	The learner will be aware and willing to receive.	Acknowledge; ask; be attentive; be courteous; be dutiful; follow; give; listen; understand	*Listen* with respect. *Remember* fresh acquaintances.
Responding to phenomena	The learner will particiapte actively and respond to specific phenomena. Learning outcomes may emphasise compliance, willingness, or satisfaction in responding (motivation).	Answer; assist; aid; comply; conform; discuss; greet; help; label; perform; present; tell	*Participate* in class discussions. *Present* in class. *Question* new ideas, concepts, models, etc. to fully understand them. *Know, recall (what to apply when), and practise* safety rules.
Valuing	The learner will attach importance (worth) to an object, phenomenon, or behaviour. This could range from simple acceptance to more complex commitment. Valuing depends on internalisation of specified values. Clues to these values are identifiable from the overt behaviour of the learner.	Appreciate; cherish; treasure; demonstrate; initiate; invite; join; justify; propose; respect; share	*Demonstrate* belief in the democratic process. Remain *sensitive* towards individual and cultural differences (diversity). *Demonstrate* problem-solving. *Propose* a social improvement plan. *Follow through* with *commitment*. *Inform* management on matters that you feel strongly about.
Organisation	The learner will be able to compare, relate, and synthesise values. He/she will also be able to prioritise values by contrasting options, resolving conflicts between them, and creating a unique value system.	Compare; relate; synthesise	*Recognise* the need for balance between freedom and responsible behaviour. *Explain* the role of systematic planning in solving problems. *Accept* professional ethical standards. *Create* a plan in harmony with abilities, interests, and beliefs. *Prioritise* to meet the needs of the organisation, family, and self.
Internalising values (characterisation)	The learners will be able to build a value system that controls their behaviour. The behaviour is demonstrated on all occasions and is the most important characteristic of the learner. Instructional objectives are concerned with the student's general patterns of personal, social, and emotional adjustment.	Act; discriminate; display; influence; modify; perform; qualify; question; revise; serve; solve; verify	Show *self-reliance* when working independently. *Cooperate* in group activities (teamwork). Adopt an *objective approach* to problem solving. Show *professional commitment* to persistent and consistent ethical practice. Revise judgments and *change behaviour* in light of new evidence. *Value people* for what they are, not how they look.

The overlap and interaction of these three domains with the skilling content and how learning objectives may be articulated are discussed in subsequent sections.

2.2.5 The Overlap Across Domains

In the learning process as experienced by the trainee the three domains cognitive, psychomotor and affective are not strictly discrete and distinct. In fact there is palpable overlap and the three domains are strongly interrelated in the learning experience.

For instance, a beauty therapy learner attends a training session on different allergic reactions to skin bleaches and the action to take in case the client shows such adverse reaction. While the information being presented is squarely in the cognitive or knowledge domain, the willingness of the participant to receive and assimilate this information essentially stems from their affective domain.

Similarly, whether the participant has fully understood the knowledge being transmitted (the cognitive part) can only be ascertained if the participant is willing to respond to questions, discussions, or even participate in practice sessions. This willingness to respond emanates from the participant's affective domain.

Taking the example of a trainee automotive welder, learning various welding techniques would be both in the cognitive and psychomotor domains. At the same time, when learners value the skill they are acquiring as a means of manufacturing of the vehicle (or repair), and they approach their craft with pride and passion, that is an affective domain response to what is, in the main, a psychomotor skill.

On the same lines, the three advanced stages (processes) across all three domains—evaluation (assessing, comparing, and imbibing alternate processes into one's learning), naturalisation (mastery), and internalisation of values (characterisation)—completely overlap.

The mechanisms to impart training on these three overlapping domains are diverse (Refer: Table 1.3: NSQF Levels and Corresponding Possible Instructional Tools and Approaches). It would be simplistic to rigidly couple cognitive (knowledge) with written and verbal answering of questions or cramming and recalling facts and phenomena and psychomotor (manual or physical skills) with practical exercises to perform certain actions. Therefore, care has to be exercised in identifying a proper mix of knowledge, manual or physical skills, and attitude while preparing content and imparting training to participants.

It is important to note that all three may not be evaluated for certification with the same tools. Therefore, even assessments need to lay suitable emphasis on the three overlapping domains depending upon the job role, the NSQF level, sector, etc. This also means that questions from the parallel and overlapping domain levels have to be asked while articulating each learning objective, as elaborated in Section 2.2.6 below.

2.2.6 Applying Learning Objectives to Our Skilling Content

Each objective has three facets—knowledge, skills, and attitude—forming the KSA identity. What does mastery over an objective mean for the trainee in terms of acquiring new knowledge–skills–attitude?

Each learning objective for skilling programmes may be defined using the verbs associated with levels and categories across domains (see Tables 2.1, 2.2, and 2.3). To understand the application of levels and verbs to learning objectives, let us take an example from the Mason Tiling job role.

- One of the learning objectives of the mason tiler is to know his/her tools. If the trainee mason meets this objective, he/she will know the difference between a tile scribe, tile cutter, and tile power saw. Such a learning objective is entirely in the cognitive or K domain.
- However, the mason also needs to accomplish the task of removing tile spacers from their positions once the mortar is dry. While this learning objective aims to apply the right amount of pressure to efficiently remove the spacers without chipping the tiles (psychomotor skill), the mason also needs to know when the mortar is dry

enough, whether to use nose-tipped pliers or flat-head screwdriver as his/her tool (cognitive). At the same time, the mason needs to be patient, cautious, and focused while carrying out the task (affective). A trainee mason who has met this objective has therefore acquired new learning in all three domains, albeit with greater emphasis on 'skill' vis-à-vis the other two.

- A mason is a key member of any construction project team. Therefore, he/she needs to imbibe the basic ethics of cooperation, team work, and communication—learning objectives that are entirely in the affective domain.

Each objective therefore, needs to be specific, clear, and suitably worded to communicate to the learner exactly what is expected of them at each stage. These objectives also help the CD or ID align and validate that the course meets learner requirements.

- For example, our trainee in hand embroidery needs to know where certain kinds of embroidery styles hail from in India—*Chikankari* from Lucknow, *Phulkari* from Punjab, *Zardozi* from Uttar Pradesh and so forth. This is essentially 'knowledge' level information that needs to be remembered and recalled. Therefore, a typical learning objective for this section could be, 'recall the origins of *Kantha, Pipli, Sujani, Chinkankari,* and *Zardozi* embroidery without error'.
- Here, the important verb is 'recall' which defines precisely what the trainee is expected to do.
- Hence, the CD/ ID may structure the lesson such that the learners are guided towards the objective of 'recall'.

2.3 Components of a Learning Objective

How do we develop suitable learning objectives for our training programmes? In the history of learning theory, the idea of setting learning objectives first came up in the context of school education. A significant amount of attention and research was devoted by educationists and psychologists to analysing how people learn. Their quest was very similar to ours today. How do we build our learning objectives? What is the natural order according to which our trainees will process the information we present to them through our programmes?

It would help to know the various components that form an objective. According to educational theorist Robert Mager, learning objectives have three components—performance, condition, and criteria.[9]

2.3.1 Performance

Performance indicates what the trainee should be able to do at the end of the learning activity. Since a learning objective is trainee-centric and performance-based, the performance component of the learning objective should include a measurable action verb that best describes what the trainee will be able to do. For example, 'At the end of this module, the trainee assistant beauty therapist will be able to remove all superfluous unwanted hair from a client's upper lip with least discomfort to the client, within ten minutes, using lengths of thread.' In this case action verb is 'remove'.

Such action verbs should be specific, identifiable, and measurable. Those listed in Table 2.1, 2.2, and 2.3 are a good starting point.

2.3.2 Condition

Condition specifies circumstances under which the participant must perform. The conditions under which the task will be performed typically addresses time, place, resources, and circumstances. In the previous example (Section 2.3.1), 'using lengths of thread' describes the condition.

Other examples could be:

- 'The trainee field engineer will be able to check voltage **using a voltmeter.'**
- 'The trainee field engineer will be able to choose the correct location for the installation of a split AC **based on the performance–distance diagram**.'
- 'The trainee mason will be able to cut the tile trim at 45-degree angle **using mitre box and clamps**.'

2.3.3 Criteria

Criteria indicate the bases which will be used to evaluate the performance of the trainee. Criteria should communicate the level of proficiency that is expected. It might describe how the learner will be able to perform in terms of quality, quantity, and time measurements.

In the same example (in Section 2.3.1), 'with least discomfort to the client, within ten minutes' describes the performance criteria.

Possible standards depend upon the sector-specific and job role-specific efficiency parameters. These could be in terms of time span, score, number of items, or any other. Some examples of such criteria are:

- 'within 20 minutes'
- 'as per industry standards of 9 per cent'
- 'the score is 80 per cent or better'
- 'assembling 15 items'
- 'in compliance with a chart'

Terminal objectives discussed in Section 2.1.2, clearly spell out all three components—performance (task), condition, and criteria (standards). Here are some examples of clearly defined learning objectives:

- 'Mark out specified features on the work pieces *(performance)* as per job specification *(criteria)* by using appropriate measuring and marking tools and equipment *(condition)*.'
- 'Set work pieces *(performance)* as per job requirements *(criteria)* using appropriate positioning and/or holding devices and support mechanisms *(condition)*.'
- 'Identify the quantity of scaffolding material and component required for erection *(performance)* based on type of scaffolds and height requirements *(criteria)*.'
- 'Illustrate appropriate dismantling procedure *(performance)* as per standard practices *(criteria)*.'

While it is essential that the objective describes what the learner performance (example: identify/ dismantle/ unlock) and the content of this performance (example: unlock castors and move the scaffold) is, it is optional that the objective defines a criterion or a minimum standard of performance (example: flatness and squareness of 0.05 mm/ angle within +/- 0.5 degree) or a condition of performance (example: using a measuring equipment such as external micrometres).

2.4 Writing Instructionally Appropriate Learning Objectives[10]

Irrespective of the taxonomy used, the terms used to describe the components of a learning objective, three basic steps are involved in writing out our learning objectives.

Step 1: Write a lead-in sentence

This is the part that precedes each learning objective. For example:

- *'At the end of this module*, we will be able to …'
- *'At the end of this unit*, we will be able to …'
- *'At the end of this course*, we will be able to …'

Step 2: Select and add an action verb

Add a precise and measurable action verb from the taxonomy to shape the objective. For example:

- 'After completing the module, we will be able to *list* …'
- 'On completion of this unit, we will be able to *explain* …'
- 'By the end of this course, we will be able to *identify* …'

Step 3: Complete the sentence by introducing the product, process, procedure, outcome, etc.

Define the product, process, procedure, outcome, etc. that describe the competency that the learner will achieve after completing the course. For example:

- 'After completing the module, we will be able to list *the steps to install a POS machine.*'
- 'On completion of this unit, we will be able to explain *the communication process.*'
- 'By the end of this course, we will be able to identify *the key steps in project management.*'

2.4.1 Important Tips on Developing Precise Learning Objectives[11]

For developing learning objectives for any job role, the SSC/ SME/ CD/ ID must understand the entire content and inputs relevant for the role. They must identify the broad learning outcomes that are expected from the training course. A few tips for writing learning objectives are listed below:

- Use specific and measurable verbs while building learning objectives.
- Set learning objectives that are appropriate for the trainee. The learning objectives we set must consider whether the trainee is an aspiring sales person, a customer service officer, a general duty assistant at a hospital, or any other.
- Understand what the participant knows before entering a course. Setting objectives that are too simplistic may cause the learner to lose interest because things are too basic. Even when the learning objectives are too complex the impact may be the same—our learner loses interest because things seem too tough. Learning objectives must appropriately challenge the learner to gain a new skill without disappointing him or her with too steep an outcome.
- Understand the ecosystem in which the learner is expected to function as a professional. For example, if the participants' handbook for the hand embroiderer devotes 60 pages to soft skills and communication skills while the handbook for the field engineer who interacts constantly with the customers has only 10 pages, it shows incorrect priorities.
- Keep the learning objectives achievable and realistic given the time span of the training course. Also ensure that appropriate support tools and resources necessary for attaining the relevant learning outcomes are accessible to the participant.
- Use simple, direct, and engaging language while articulating the learning objective. It will keep the participant focused on the task at hand.
- If there are too many learning objectives within a unit, divide them into sub-categories. This will help the participants to organise their learning outcomes better.
- Ensure that the learning assessment tools are aligned to and consistent with the learning objectives, so that the facilitator can assess exactly what the trainee is learning and how well.

2.5 Content Structuring[12]

We have explored how to write learning objectives that individually and collectively serve the purpose of a course. These objectives are grounded in the QP–NOS and the MC for that job role.

The MC is the first instructional design document that content creation/commissioning body (such as the SSC) creates for a job role. It refers to the modules, units, key learning objectives (KLOs), and activities that describe the entire skilling programme. It describes the recommended means, materials, and methodology for delivering skills (NOS) for a specific QP. Skilling content development is based on the MC.

While the QP–NOS defines the standards of a job role from the industry point of view, its MC is the 'syllabus' that the trainee must cover to attain the competence necessary to fit into the said job role. The MC is visualised, detailed out, and developed from the perspective of the participant based on the MC guidelines of NSDC.

2.5.1 Planning a Robust Content Structure

While developing a course (say, on mason tiling), we have to ensure that each **NOS in the job role is broken down into modules–units–Key Learning Outcomes (KLOs).** This should be done in a way that the **participant is able to take an incremental and graduated approach** to attaining all necessary skills. Therefore, our mason tiling course must have separate modules for tiling work, grouting, and concreting. Within tiling works, we cannot merge

concrete surface preparation with the cutting and laying of tiles. And we certainly cannot discuss laying of tiles before cutting.

The purpose of structuring is to reduce the content into **bite-sized segments** which are easy to achieve. Learners get an immense **sense of accomplishment** when they can take each short module as a milestone and tick a box on how far they have reached. A learner may lose track of the purpose of the course if modules or units are long and complex. Therefore, any long and complex **NOS may be divided into two or more modules and one module into multiple units**. For instance, the NOS related to occupational hazards and safety may be divided into the Hazards Module and the Safe Practices Module. The Hazards Module may contain fire hazards, first aid, emergency, and rescue procedures as separate units. The Safe Practices Module may include units on housekeeping practices, proper waste disposal, etc. that may even be specific to the job role or sector.

When trainees can anticipate next steps, the learning outcomes and the delivery of the course become more intuitive for all involved. Skilling content consists of many pieces of complex information. So, **a roadmap, such as a flow chart or an annotated TOC** at the beginning of the course simplifies the learning path and provides clarity to learners. It informs them where they are at any time during the programme vis-à-vis where they need to reach at the end of the course.

Participant engagement with **exercises and activities** demonstrates how well they are learning. A serious game that features the main concepts and ideas is more immersive than reviewing a bulleted list or text passage. So the course structure must create strategic space for such interactive components, say every third page in a unit with one or two capstone exercises per module. On the flip side, too many activities can distract the learner so a careful balance needs to be maintained.

2.5.2 Developing the Draft TOC

Based on the MC, the draft TOC for the participants' handbook is developed. The modules in the MC translate into modules in the TOC. A module can be defined as a segment of instruction. It is a standard unit or instructional section of our course. Modules are typically organised by concept, objective, or time sequence. The contents of an instructional module are defined by the training outcomes and learner needs. Each module is composed of logical chunks of learning called **Units.** There are several advantages to using a modular approach:

- When learners are aware of the structure of the course, they can spend more time focusing on the content and activities.
- Parts of the content can be used and reused for other job roles. For example: soft skills, communication, working in a team, health and safety, etc.
- It is easier to modify a single module than revising the entire content or one very large module.

While developing the content structure, we keep the following points in mind:

1. Develop short units to avoid cognitive overload. If a unit is too long, we risk distracting our learners. Make the learning experience concise by giving learners the information that they need. In case the subject matter is very complex, break it down into smaller units that focus on one topic or process step.
2. Select the objectives and goals for each learning unit in advance. Before we create a unit think: What would we like to achieve considering that each unit in the module has its own objectives? What are the learning activities we would use to meet these objectives?
3. Come up with a detailed outline for each unit. Think: What are the key concepts or topics we would like to cover in each unit?
4. Use content treatment strategies that support the KLOs and unit objectives. For example, if what we want to teach is very simple, we may use a bulleted list. If we have to teach a complicated process, we could use steps and images.

5. Answer the following questions: Are the KLOs and unit objectives being achieved? Do the modules and the units flow? Is the content current and in line with the MC?

A robust MC provides firm scaffolding on which the learning content may be suitably arranged, gaps flagged, supplementary content and resources brought in to create a systematically structured course.

2.6 Conclusion

In this chapter we have learnt how to define our course structure, learning objectives and outcomes. We have also learnt about the KSA domains of skill development and built our understanding of the significance of an MC in creating content for a job role based on the QP–NOS. Armed with this information, we therefore have a very clear sense of "what we need to learn". We now need to figure out "how to go about learning it". Therefore, we are ready to dive deeper into instructional design models which will enable appropriate skilling of participants in the job roles of their choice. This is the task we embark upon in Chapter 3.

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3 Instructional Design Approaches

Chapter purpose: Knowing how instructor-led and web-based training together strengthen a blended-learning approach and exploring key instructional design models.

Instructional design defines systematic approaches to developing training content that is reliable and consistent and endeavours to make learning desirable, effective, and efficient.

Early manifestations of instructional design for knowledge acquisition mostly focused on the continuum of listening → seeing → trying → adjusting → retrying → practicing → improving → understanding → improving → gathering experience → becoming efficient → mastering → imparting to others. The initial IDs were primarily meant to support pedagogy and the cognitive domain. The focus was on making rote learning content interesting for young learners. It was believed that the more effectively a teacher could deliver content using show and tell techniques, the better were the outcomes.

More structured approaches emerged in the twentieth century as knowledge-with-skills (knowledge dominated) or skills-with-knowledge (skills dominated) job roles evolved. With knowledge becoming integral (in various measures) to every skill in the IT-enabled and digital era, instructional designs started to focus on all three domains of the learning taxonomy—cognitive, psychomotor, and affective. The psychomotor domain is of critical significance for skilling that involves efficient manual/physical expertise and the affective domain is important for fostering the right attitude in the candidate.

Over the years, instructional design models evolved from teaching actions to learning processes, and eventually to learner-centred facilitation of learning. Since any instructional design is implemented through three broadly categorised modes of instructions or a combination of these modes, it would be instructive to know about them.

3.1 Modes of Instruction

3.1.1 Instructor-led Training[1]

Instructor-led Training (ILT) is imparted by one or more instructors or trainers to a small or large group of candidates in a classroom or training hall. Instructional methods may include lectures, demonstrations, presentations, discussions, etc.

If skills training is imparted by instructors, such a training hall would ideally be equipped with the basic equipment, tools, and infrastructure required. The larger the group of trainees the greater are the number of training hours delivered per instructor hour hence lower the cost per trainee. However, the attention that the instructor can pay to the individual trainee too is lower. Thus, there are certain advantages and disadvantages related to class sizes of instructor-led skilling vis-à-vis quality of skilling outcomes.

3.1.1.1 Advantages of ILT

1. The instructor is able to explain in detail, concepts that may be complex and completely new for the trainee.
2. The training room can serve as a learning laboratory where skills can be demonstrated using simple equipment such as circuit boards, embroidery kits, or tile cutters.
3. The trainer is accessible and can respond to queries easily.
4. The trainer can observe individual participants face to face and discern whether they are being able to follow, assimilate, apply, and recall the concepts being taught.
5. Without competing demands on their time, trainees can focus better on what they are learning.
6. As trainees are co-located, techniques such as role-playing, exercises, and games can be used effectively to improve learning, comprehension, retention, recall, and application.
7. This creates opportunities for peer-interaction and cross learning, sharing of ideas, and simulation of actual work environments, team building and problem-solving. Such learning experience proves more effective and longer lasting than one-on-one web-based learning.
8. Significantly, ILT brings more discipline and rigour into training than other modes that have much lower supervision by trained individuals.

3.1.1.2 Disadvantages of ILT

1. If the trainee group is too diverse and heterogeneous in terms of age, educational and socioeconomic background, and prior experience, a one-size-fits-all instructor-led training can make it hard to provide personalised instruction.
2. As a result, the classroom sessions work at an average pace which may be unsuitable for most candidates.
3. Instructors also introduce variability in quality of input. While the upside of that is welcome, sub-optimal delivery due to inadequate skill, information, or motivation can lead to poor outcomes.
4. Candidates with a larger gap between their existing skill–knowledge–attitude levels and the levels they need to attain post-training for employability may need more handholding than the instructor-led course has budgeted for, while those with smaller gaps will tend to be disinterested in the details.
5. Candidates who are slow in bridging this gap in skill–knowledge–attitude may find it difficult to keep up, while quicker learners may tune out because they are bored.
6. The diversity of students in a classroom increases the time instructor spends on skilling compared to a homogenous group.
7. The trainee must wait for the programme to be announced and then make himself/herself available for training at the set time and place for the set duration.
8. ILT is more expensive and less useful for training large groups. Too expensive as a one-on-one training mode and ineffective for large groups, ILT is hence most suited for mid-sized groups that need skill-based training along with group work and team exercises.

3.1.2 Web-based Training

Contemporary technology can facilitate multimedia-based delivery of skilling content over the web (internet or intranet) through a web-browser. Such Web-based Training (WBT) is centralised, standardised, and broadly not constrained by any capacity except for minor technology limitations that may be overcome relatively easily. A WBT may be delivered over the following modes:

1. Synchronous or real time (instructor-facilitated)
2. Asynchronous (self-directed, self-paced)
3. A combination of synchronous and asynchronous

WBTs may be delivered through a variety of technologies and their combinations and platforms such as Windows, Macintosh and UNIX and can be accessed using Internet Explorer, Chrome, Firefox, Lynx, etc. Since the reliance on

technology can be heavy, the digital tools and online assets need to be reliable, easy to use and up-to-date for them to have a meaningful impact.

3.1.2.1 Advantages of WBT[2]

1. It is ideal for delivering standardised learning content through flexible delivery modes to a large, disparate, dissipated, but motivated and self-directed adult learner group.
2. Learners need not be co-located to be trained. Any learner with internet access can opt for WBT. Individuals can learn at a pace that suits them while collaborating online with learner groups and experts, globally.
3. Since the learning is participant-centric, adult learners remain responsible for setting and meeting learning milestones at a pace that is in their control.
4. Participants can avail of the training programme during their personal hours even if they are employed full-time.
5. WBT is therefore especially suitable for refresher training courses where experienced personnel wish to upgrade their skills for fast tracking growth in their career paths.
6. WBT courses can be conducted without travel and infrastructure costs.
7. The training can be imparted at any scale worldwide and need not be limited by the seating in the training hall.
8. The training material can be easily upgraded, revised, recycled, and repurposed without prohibitive costs.
9. Training is more standardised and not subject to sub-optimal delivery of skilling content due to capability limitations of instructors.
10. WBTs too can use animation, tests, and lab exercises.

3.1.2.2 Disadvantages of WBT[3]

1. The trainee does not actually interact with other learners or an instructor. As a result, there is no peer-learning or team work.
2. Without instructor interface, the trainee has to put in a lot more work in terms of reading and practice to prove that he/she has learned what he/she was expected to.
3. Online courses are also sometimes too far removed in terms of touch and feel from the context and milieu that a user is able to relate to.
4. Online courses are usually designed in a one-size-fits-all format. India's diversity, especially in terms of background of candidates could pose a challenge in deriving comparable outcomes from the same content.
5. For skilling needs e-learning could be insufficient to get a sense of a realistic workplace scenario thus requiring the learner to relearn the lesson to apply it.
6. WBT is unlikely to be a suitable mode for many skilling job roles that require significant hands-on or experiential content.
7. Some of the typical technology-centric challenges specific to India are:
    1. Bandwidth-related issues
    2. Unavailability of compatible or authorised software or hardware at user end
    3. Power fluctuation and connectivity issues, especially in remote and geographically difficult areas
    4. Other factors, such as having to use public computers at a cyber café, etc.

3.1.3 Blended Learning[4]

The idea behind blended learning (BL) is to use a combination of ILT and technology-led WBT to minimise costs, overcome resource constraints, optimise learning outcomes, and thus maximise benefits to all stakeholders. If applied appropriately, BL may also be able to help overcome the disadvantages posed by either ILT or WBT.

For skilling needs, this may also be split between knowledge-based modules delivered over WBT and synchronised practical lessons including demonstrations, practice, etc. delivered through ILT. Thus, the instructor's time is better utilised in learning what the theory is not able to fully explain.

'Programme flow' and 'Core-and-spoke' are two models of blended learning identified by J. Bersin.[5] The former resembles traditional training with lessons laid out on a single track one after the other with clear milestones—some of them delivered online. Since this allows clearer assessment criteria it is better suited to periodically map learner proficiencies and therefore may be deployed for certification. The latter is predominantly instructor led (online or classroom) with WBT providing optional content that are not scheduled, to supplement the primary track of learning.

3.2 Instructional Design Models[6]

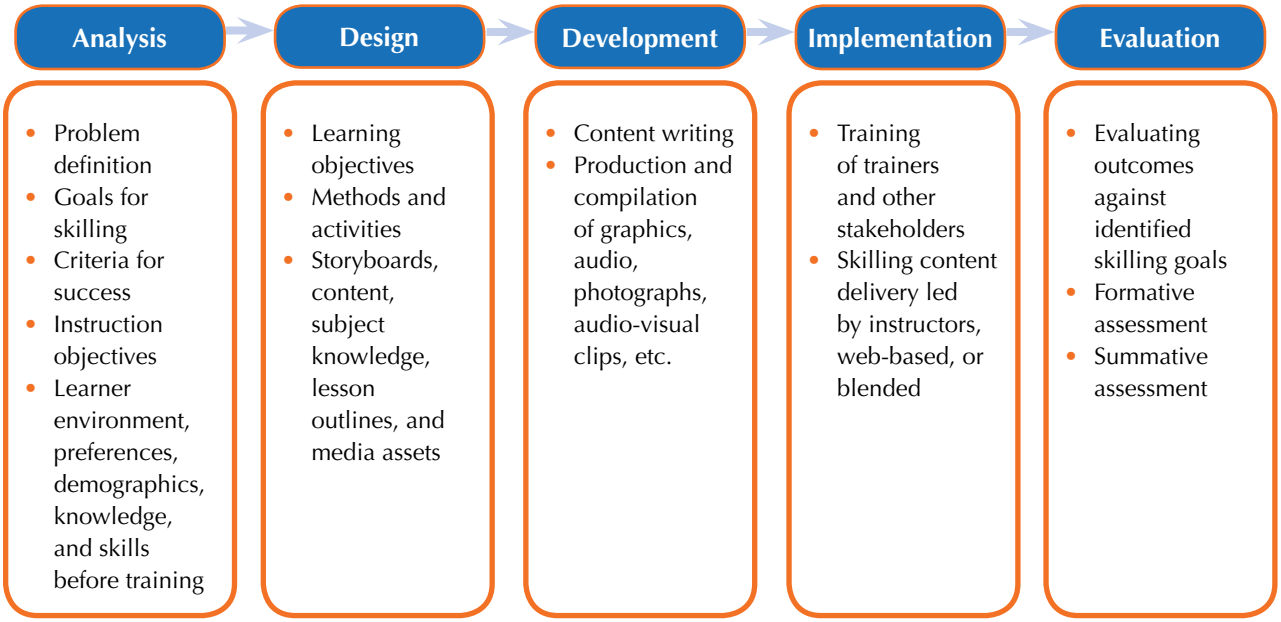
Instructional design models are applied to design learning experiences and instructional content. Knowing abstract learning theory is one thing—one would need to make sense of them and apply them to real world problems. These models enable instructional designers to organise and structure instructional activities.

Of the many instructional design models developed during the twentieth century, some are content-centric while others are learner-centric. Content-centric instructional designs focus on the process of instruction to impart skills. The learner-centric models on the other hand focus on getting the communication with the learner right to keep her/him motivated and thus maximise learning. Discussed below are two common instructional design models—ADDIE which is content-centric and ARCS which is learner-centric in approach.

3.2.1 The ADDIE Model

The model is an acronym for a five-phase content development process—Analysis, Design, Development, Implementation, and Evaluation.

Exhibit 3.1: ADDIE Model



Although predominantly content-centric, ADDIE has remained in use since it was first developed owing to its simplicity, stated logic, elegance, wide awareness, and close association with traditional pedagogical approaches. Over time it has also evolved into a less rigid methodology that allows external feedback and revisions. This has rendered it more flexible in comparison to the hierarchical development cycle it followed when it was initially introduced.

Content creation and/or commissioning bodies (such as SSCs) which are not familiar with instructional design may initially start working with the ADDIE model, even though they are encouraged to consider other models as well.

3.2.2 The ARCS Model of Motivational Design[7]

Planning and providing for learner motivation was brought centre stage by John M. Keller[8] through the **Attention–Relevance–Confidence–Satisfaction (ARCS) model** that provided instructional solutions to keep the participant motivated through the learning process.[9] In a significant departure from previous models, ARCS hinges on learners feeling motivated if they believe that they will succeed. Keller believed that along with capability and opportunity, motivation has a key influence on performance.

By offering various ways to motivate learners ARCS sets a clear direction for the content developers, master trainers, and facilitators to engage with the trainees. In the initial part of a skilling programme, this could be a strong enabler. This also allows for greater customisation of training based on participant demographics.

The model proposes four interlinked learner-centric processes to build and sustain motivation amongst learners—Attention (A), Relevance (R), Confidence (C), and Satisfaction (S). The ARCS model when properly designed could help learners:

1. Smoothly navigate the initial phase of a skilling programme to ensure maximum **attention to the key learning objectives (KLOs)**
2. Be convinced about the **relevance** of the KLOs for the skill or job role
3. Gain **confidence** through successful application of the skills and techniques that they learnt
4. Derive **satisfaction** from accomplishment and rewards of having fulfilled the qualifying criteria or achieving suitable grades during assessments

3.2.2.1 Grabbing and holding learner attention

Gaining learner attention is the gate-keeping step at the start of skilling programme, as well as at the beginning of every session, topic, unit, or lesson—whether it is instructor-led, web-based or blended.

If the attention of participants can be piqued in a manner that the skill and knowledge appears attractive, achievable, and beneficial to them, they will feel motivated and proactively participate in the learning process. They will become an asset for the class and their enthusiasm will help them not only during the skilling sessions but during their work life too. Therefore, it makes sense to emphasise this during content development, training of master trainer, and training of trainers.

3.2.2.2 Relevance of the skills and knowledge

For adults, attention is not the only barrier. Doubts and boredom could easily overcome initial enthusiasm unless reinforced with evidence of the utility of what they are learning. Relevance needs reinforcing throughout the skilling programme while delivering the units related to various KLOs. Knowing how the learning content is going to be of use at the workplace not only helps the learner ground the skill and knowledge in her/his reality but also helps to set small internal goals.

3.2.2.3 Confidence to believe in oneself

If a learner feels intimidated or suffers from lack of confidence in taking the next step it could hamper their progress. A clear set of expectations in terms of KLOs is therefore a prerequisite. Content design and individual lessons ought to make the participant believe that they can meet the key objectives and apply them. This not only demands that the facilitator ensure that KLOs are simplified to suitably bridge the skill and knowledge gap of individual learners, but also that the content is divided into units in such a manner that no single leap to achieve the KLOs is too big for the learner. During the designing phase the bigger learning steps could be broken into smaller bits through a well-considered mix of activities, exercises, instructions, information, and thumb-rules.

3.2.2.4 *Satisfaction from personal accomplishments and rewards*

Another key challenge to motivation is the expectation of appreciation from one's effort. This gets instilled in us from a very early age and is reinforced in the company of family and friends who encourage us even when an achievement is moderate or small. However, work life is different where routine assigned work is not considered worth more than the emoluments or wages. To keep oneself going in such a circumstance it is important that individuals learn to draw satisfaction from personal accomplishments and continue to find the enthusiasm to recommit to good work even when there is no external reward. This will also allow the learner to value the external reward when it comes by.

Table 3.1 summarises the ARCS techniques used in training programs.

TABLE 3.1 Applying the ARCS Model to Content Development and Skilling Programmes[10, 11]

	ARCS Pillar	*Techniques for Content Development and Skilling Programmes*
1	Attention	*Perceptual arousal* through real-world examples, humour, and incongruity and conflict
2		*Inquiry arousal* through active participation and inquiry
3		Deploying tools and forms including audio-visual clips, discussions, hands-on learning, collaborative effort, etc. to spice up learning through *variety*
4	Relevance	*Goal orientation* by developing a perception about present worth as well as future usefulness of the delivered content
5		Improving understanding about learners' motivations in terms of achievement, power, or affiliation that encourages them learn and offering them choice to use their preferred route through *motive matching*
6		Reassuring learners by linking new information with what they might already know and exposing them to role models who could help build *familiarity* with the skills and knowledge
7	Confidence	Clearly communicating *learning requirements* in terms of standards and evaluation criteria to learners for them to set reasonable expectations with regard to KLOs
8		Using a combination of diverse instruction tools—illustrations, exercises, audio-visual, practice, etc.—to improve the learner's grasp of the skill and knowledge and enhance her/his *success opportunities*
9		Handing over *personal control* to learners to help them believe that true learning germinates deep inside and success depends very little, if at all, on external factors
10	Satisfaction	Providing the learners with the opportunity for immediate application of newly acquired skills and knowledge Encouraging them to derive fun from work as the *intrinsic reinforcement* of the learning process Encouraging them to treat external praise as a bonus
11		Offering appreciation and reinforcement to learners at non-predictable intervals to train them to also derive satisfaction from *extrinsic reward* when available
12		Maintaining *equity* in standards, assessments, and rewards across participants

3.3 Conclusion

While instructional design models are a useful tool to deploy for developing training content, a word of caution would be relevant. For skilling purposes, cognitive aspects of learning form only a part of learner development. Psychomotor and affective domains may need special emphasis within the chosen model, which the model per se may not specifically ask for.

Often a combination of models is used for content development. One such useful combination in dealing with a mixed group of learners from motivation and capabilities perspective would be to blend ARCS (or the integrative motivation–volition–performance triad [MVP] model) and ADDIE. While the former will work through the learner's internal ecosystem, the latter will support with structured inputs that a willing learner will then find easy to grasp thus leading to natural satisfaction. This combination will work well for the blended mode of instruction, where face-to-face skilling sessions are supplemented by web-based exercises, additional learning, etc.

Content creation and/or commissioning bodies (including SSCs) are encouraged to learn about other instructional design models to consider what works best for them. However, till such time that they arrive at a clearly formed view on which one (or a combination) to follow that is more suitable for their needs, they may continue with the above recommendations.

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11. In 2008, Keller posited in his integrative theory that motivation invokes willingness in an individual. Volition—self-regulation and the desire to overcome inertia and hurdles—plays an enabling role in the application of the learning for performance outcomes. Thus, the motivation–volition–performance triad or the MVP could be considered a more comprehensive framework for instructional design. For more information, see Keller J.M. (2008), ' An Integrative Theory of Motivation, Volition, and Performance', *Technology, Instruction, Cognition and Learning (6): 79–104.Retrieved from http://terrikrause.com/Content/documents/Keller2008IntegrativeTheory.pdf on 26 May 2018.*

4 Content Development Roles and Responsibilities

Chapter purpose: Defining roles and responsibilities of various stakeholders in the content development process such as the content commissioning body (or SSC), the SME, the ID, and members of the publishing team.

Much like a philharmonic orchestra, development of good skilling content is the culmination of the well-coordinated efforts of the content creation and/or commissioning body (such as the SSC), the SME, the CD/ID and his/her team (including the graphics designer, animation and audio-visuals executive), the editor, the typesetter, the proofreader, and finally the printer/publisher. The successful conclusion of the skilling content development process is determined by how well each player understands and executes his/her role, coordinates and collaborates with other members, adheres to standards, timelines, and expectations. Any misstep and mismatch can lead to discordance and cacophony in our orchestra which can deplete the quality and effectiveness of our training material and its use-worthiness.

As an essential precursor to skilling content development, therefore, the following need to be arrived at: competencies mapping, role assignment, and efficient division of responsibilities across all players. This is the exercise we embark upon in this chapter. In the sections that follow we enumerate the basic functions of key roles played by the content creation and/or commissioning bodies (including SSCs), SMEs, CD/ID, etc. in the content development process.

4.1 Content Creation and/or Commissioning Bodies (including SSCs)

What is the SSC? Set up by the NSDC as autonomous industry-led bodies, the SSCs consist of practitioners and experts belonging to the sector who are brought together to fulfil the responsibility of skilling content development. These

practitioners and experts undertake skill-gap studies, facilitate the creation of NOS and QPs, develop competency frameworks, conduct training-of-trainers (TOT) programmes, and assess and certify trainees on the curriculum aligned to the QP–NOS for a job role. The SSCs anchor the skilling content development process, which begins soon after any QP–NOS has been validated and adopted.

What does the content creation and/or commissioning body (such as the SSC) do? For the skilling content development process, content creation and/or commissioning body (such as the SSC) has many responsibilities.

A. As the content owner it must:

1. Develop QPs
2. Select the SME
3. Select the content development partner
4. Brief the SME on the requirements of the QP–NOS and the expectations of the SSC
5. Evaluate output at various stages, share feedback and approve stage completion based on the defined process map
6. Put the final skilling content through a quality assurance process
7. Embed publishing instructions related to: author information, copyright information, month and year of publication, publisher information, print line, credits, contact details, ISBN, disclaimer, logos, etc., as applicable
8. Give the final go ahead/sign-off to publish, e-publish, and print collaterals

B. In a process management role it must:

1. Ensure all legal formalities are completed
2. Ensure relevant permissions and approvals are facilitated in time
3. Undertake resource management
4. Undertake financial management
5. Manage schedules and timelines
6. Track milestones

C. As the owner of the copyright of the skilling content it must:

1. Instruct SMEs to use only copyright-free images and content—in case a copyright-bound image or text matter is used for the content, the content creation and/or commissioning body (or the SSC as the case may be) (as the copyright holder of the skilling content) is required to seek permission from the source.
2. In case NSDC or the SME is the copyright owner of the final skilling content then NSDC or the SME must apply for permission from the source

Note: Permission to use external elements is always granted to copyright owner of new content being developed.

4.2 Subject Matter Expert

Who is the SME?

The SME understands the needs of the sector and the requirements of the job role and has sound process knowledge relevant to the sector and job role.

What does the SME do?

The SME is responsible for:

1. Understanding the target audience (i.e. the trainee) for the specific job role in terms of awareness, literacy, motivations, socio-economic context, and existing skills
2. Assimilation of existing subject-matter knowledge, augmenting sector experience with secondary research and bibliographic study
3. Reduction and contextualisation of existing body of knowledge to the specific job role
4. Mentoring of the content development team through the content development process (via the CD/ID):
   i. Sharing of sector knowledge and overview
   ii. Briefing the CD/ID on granular expectations from the content being considered for development of the skilling collateral

iii. Sharing with the CD/ID secondary sources of empirical research, industry, and process information
iv. Facilitating field visits to factory floor or shop floor as applicable, for CD/ID to gain first-hand knowledge of the processes involved in the job role
v. Sharing the CD/ID's understanding of the profile of the typical trainee in terms of awareness, literacy, and existing skills
vi. Helping the CD/ID understand the MC
vii. Actively participating in the process of creating the draft TOC/storyboard
viii. Reviewing and approving the annotated TOC/storyboard
ix. Responding to queries raised by the CD/ID during the process of content creation

5. Reviewing skilling content periodically as it is developing, and providing feedback on correctness, completeness, and areas of improvement
6. Seeking permissions:
   i. The SME, in consultation with the CD/ID, prepares a detailed list of infographic and textual elements that are bound under copyright. This list is submitted to the SSC or the content creation/commissioning body, for getting desired permissions. The list must include details such as: copyright owner/organisation name, email id, and the postal address.
   ii. After securing relevant permissions from individuals/organisations, the SSC (or the content creation/commissioning body) will convey the same to the SME.
   iii. The SME must verify the permissions before using the copyrighted text or visuals.

4.3 Content Developer/Instructional Designer

Who is the CD/ID?

The CD/ID will be expected to have cross-disciplinary expertise in publishing, communication, training, visualisation, and instructional design. He/she would be expected to acquire sufficient sector knowledge to plan and anchor the collateral development process.

What does the CD/ID do?

The text content generation would be undertaken by the ID in the role of a writer with the capability to:

1. Develop basic sector knowledge and underpinnings
2. Understand the overall purpose of the skilling content
3. Understand the target audience (i.e. the trainee) for the specific job role in terms of awareness, literacy, motivations, socio-economic context, and existing skills
4. Develop the KLOs in consultation with the SME
5. Identify the instructional design model (that will best serve the purpose of the specific skilling content–job role combine)
6. Develop an annotated TOC for the skilling collateral
7. Assimilate all reference material (primary and secondary) as guided by the SME
8. Articulate new content as required
9. Collaborate with the Graphics team
10. Populate the storyboard with text and non-text content, to align with the preferred instructional design model, modular structure, learning objectives etc.
11. Repurpose and align the text matter to printed publications, digital outputs, and audio-visual vehicles of training delivery, depending on the structural mix of the training collateral
12. Develop exercises, simulations, demonstrations, case studies, etc. in discussion with the SME
13. Ensure that there is no plagiarism and all inclusions are suitably acknowledged and cited with appropriate content permission
14. Assist the SME by drawing up a list of text elements that need permission for inclusion in content, including name of copyright owner (individual or organisation), and email and postal address

15. Ensure that no text element from any external source, that requires permission for reproduction, is included without said permission received in writing

The ID, with prior experience in designing training content across platforms and media and adequate understanding of available design software, should visualise how the training content can be better supported with non-text elements.

The ID, as the visualiser, would undertake the following functions:

1. Develop an understanding of how non-text elements (such as illustrations, photographs, schematic diagrams, flowcharts, audio-visual clips, etc.) may lead or support the storyboard
2. Conceptualise visual elements that are to be created by the design executive, in consultation with the SME, in a way that they can be aligned and mapped consistently across output forms (including printed, digital, or audio-visual)
3. Ensure that non-text elements lead, complement, or supplement text, instead of merely repeating messages in the text without adding value
4. Assist the SME in drawing up a list of visual elements that will need permissions for inclusion in the collateral, including name of copyright owner (individual or organisation) and email and postal address. (This list is made available to the content creation and/or commissioning bodies [including SSCs] for seeking permissions.)
5. Coordinate with the SME to align visual elements appropriately with the text, to ensure that the depictions are accurate and do not contradict the text
6. Ensure that no visual element from any external source that requires permission for reproduction, has been included without said permission received in writing
7. Provide guidance to print graphics designer, animator, and audio–visual producer to create visual content

Box 4.1: A Competent Instructional Designer[1]

An ID wears many hats in the development of a lesson or course, including those of a teacher, visual designer, communication manager, and sometimes of a developer too. It is important to be flexible, versatile, creative, consistent, and knowledgeable about various teaching methods, and an effective communicator.

- An ID will have to be swift on the uptake. Training collateral is being envisaged across nearly 2000 job roles. Therefore, there is no set formula for developing learning solutions for these. The IDs should be able to do their jobs with minimum support from the SME.
- An ID not only needs to have good people skills for effectively handling a team that supports the entire content development process, but also to resonate well with the SME and ensure project timelines for the SSC.
- An ID should have a good understanding of andragogy. She/he should be able to develop instructional strategies for specific learning outcomes by homing in on the simplest and the most intuitive method that will work for the target audience.
- The ID/writer should be able to write the learning content in the simplest way possible so that it is easy to comprehend in small steps.
- The ID should also be a good visualiser. Since learning content will include text, images, illustration, videos etc, the ID should be able to use such tools creatively to develop the lessons. He/she should be able to play with colours, shapes, patterns, and animations.
- The ID should be able to identify the smallest of mistakes and gaps in the content and its design precisely and efficiently.
- The ID should be innovative enough to blend different strategies, models, approaches, and technologies for driving the desired learning outcome.
- The ID should have the capability to undertake in-depth sector-wise research to understand the need gaps precisely.
- The ID should be familiar with learning science and learning technologies including e-learning authoring tools, sound editing software, image editing software etc.
- The ID is the anchor person who must coordinate and collaborate with the SME, the trainees, trainers, technical teams etc. So he/she has to be a smart team player and leader who can communicate effectively and keep the project going as seamlessly as possible.

4.4 Design and Creation Team

4.4.1 Print Graphics Designer

The graphic designer must have skills in free hand drawing, drawing using a mouse, graphic pen, etc. He/she should have a good sense of representing humans, storyboarding visuals through key frames, colour palette development, managing resolution, aspect ratios, play of light, colours, architecture of schematics, etc. The design executive is trained to use software such as Corel DRAW, Adobe Photoshop, Adobe Illustrator, Sketch-up, etc. or scanned copies of free-hand drawn and coloured sketches to create the visual elements that the visualiser ideates as per the storyboard.

The graphic designer:

1. Gets a brief from the ID regarding the visual element to be developed
2. Utilises offline drawing and sketching tools, as well as the tools within the software array to create the element
3. Submits the visual to the ID for review
4. Iteratively refines the visual, based on feedback

4.4.2 Animator

An animator generates multiple frames to give motion and life to subjects and objects. While a graphic designer is relevant for print publishing, an animator with deeper knowledge of 3-D animation and blending of graphics with visuals to develop suitable audio-visual clips is required for developing e-content and content for playback using a projector during training sessions.

While an animator is skilled in understanding motion, evolution, transitions, etc., these skills are not so critical for a graphics designer who is required to generate illustrations, photos, schematics, flowcharts for print and e-content.

The tasks for the animator will be analogous to the ones listed for graphic designer. Visuals developed by graphics designers often provide the raw material to develop multiple frames to generate animations and audio-visual clips.

4.4.3 Audio–Visual Producer

This is a specialised role with competencies in audio-visual scripting, storyboarding, commentary writing, video production, audio recording, video and audio editing, audio-visual clip mastering, and generating playback clips in digital format.

4.5 ID Reviewer[2]

A good ID Reviewer must be someone who has extensive and in-depth experience in developing training content. His/her knowledge of instructional design and how the various models work should be thorough. He/she must also be able to guide the ID systematically with constructive and sharply focused inputs that can be clearly understood and actioned.

The ID Reviewer ensures the following:

- The key learning outcomes embedded in the training content are aligned to the overall objectives of the training.
- Each NOS is broken down into modules and units, and then the individual learning outcomes are clearly and correctly phrased; there is no ambiguity or overlap.
- The instructional design model applied to the course suits its purpose, curriculum, trainee profile, mode of instruction (instructor-led/web-based/blended) etc.
- The content is appropriately strengthened with illustrations and activities suited to the learner.
- There are sufficient reinforcement activities to ensure that the trainee achieves the required level of proficiency in each skill embedded in a learning outcome.

- There are exercises asking the candidate to explain concepts, demonstrate using actual apparatus, draw on the board, engage in group/role play activities, etc. For example, training content on hand embroidery or as an assistant beauty therapist will never be complete or effective without hands-on practice and demonstration of skill in executing kantha stitch or filing a nail.
- The evaluation and assessment exercises are adequate in terms of level and scope for comprehensive evaluation of the participant's job readiness.

4.6 Print Publishing Team

4.6.1 Language Editor

From this point onward, the core content is assumed to have been checked thoroughly for correctness and completeness. No further intervention in the content is warranted. The language editor focuses on 'saying it better' which includes:

1. Being concise and precise
2. Ensuring clarity of meaning
3. Simplification of complicated sentences
4. Use of first person active voice
5. Coming to the point quickly
6. Avoidance of unnecessary use of jargon, clichés, foreign words, complex scientific terms
7. Using meaningful headings and sub-headings
8. Appropriate use of bulleted lists
9. Ensuring one idea per sentence
10. Ensuring simple and direct messaging that can be easily translated to other Indian languages
11. Breaking complex ideas to multiple steps to ensure reader comprehension

4.6.2 Copy Editor

Copy editing is a technical skill and the copy editor is generally a trained professional with wide experience in making manuscripts publishing ready as books, manuals, articles, web content, broadcast, menu, flyers etc.

Copy editing entails review of the manuscript for accuracy, readability, and consistency not just of ideation and argumentation but style of presentation.

The language and/or copy editor:

1. Corrects spelling errors
2. Corrects punctuation errors
3. Corrects grammar errors
4. Corrects errors and inconsistencies in style and usage *(against the norms laid down in the publishing style guide being followed)** including conventions followed on alternative spellings, hyphenation, italics, capitals, units of measurement, presentation of quotations etc.
5. Splits long and complex sentences
6. Simplifies words, wherever possible with view to translatability
7. Reduces overuse of italic, bold, capitals, exclamation marks and the passive voice
8. Corrects or queries doubtful facts, weak arguments, contradictions, holes and gaps
9. Checks for sudden changes from first to third person or change in tense
10. Checks for referencing and citation of all facts, figures and quotes
11. Checks internal links/cross-references
12. Checks for inconsistencies and incompleteness in bibliographical references

* This can be a fairly complex and time consuming exercise if the guidelines are detailed.

13. Checks juxtaposition of text and non-text elements for consistent messaging
14. Checks visuals for:
    i. Ambiguity
    ii. Relevance
    iii. Messaging
    iv. Misrepresentation
    v. Spellings
    vi. Captions
    vii. Numbering
    viii. Completeness of notes
    ix. Correctness and completeness of sources (where relevant)
    x. Suitability for printing or reproduction on the web
15. Checks that relevant permissions have been obtained for reproduction of artwork/visuals picked up from external sources in the collateral
16. Checks that acknowledgements are appropriately worded
17. The language and/or copy editor may have queries to the CD/ID and the SME which will need to be resolved before the manuscript goes into layout and page setting
18. At this stage, the content creation process is complete and the document arrived at is termed a manuscript

4.6.3 Typesetter

A typesetter is a desktop publishing professional who helps convert the manuscript into a form that can plug and play with computer to plate (CTP) technology for printing, while maintaining high fidelity. Typesetters ensure that all inputs, including visual and textual matter, are suitably embedded into the publishing software as per the recommended/approved template. Since the printed form of the skilling content collateral would be handbooks, a typesetter would be needed to flow the visual and textual matter into a template using page layout software such as Adobe InDesign for desktop publishing, Quark Publishing Platform, etc.

The typesetter does the following:

1. Uses the template to define the framework for the document to be published
2. Defines mandatory publishing elements such as title page, prelim pages, fonts and colours, chapter title and level heads, page size and margin etc.
    i. Title page
    ii. Preliminary pages
    iii. Boilerplate/Tombstone/Title-verso carrying publisher info, copyright, disclaimer, etc.
    iv. Page size and margin
    v. Canvas, trim size, and print area
    vi. Hangers to hold the textual and visual elements
    vii. Fonts
    viii. Colours
    ix. Running heads
    x. Chapter title and level heads
    xi. Visual elements style
    xii. Hyperlink elements
3. Links files created in other formats, such as visual elements created in CorelDRAW or Photoshop to the book
4. Creates styles in the typesetting software, thus making it extremely efficient to flow the matter
5. Converts all images to CMYK format for printed output and RGB format in case of soft copy to be seen on computer or mobile screen
6. Generates multiple proofs in soft copy as well as printed form for proofreading and correction incorporation

7. Interacts with the printer to run printer checks and generate print ready-high resolution (PR-HR) output in PDF form for the printed handbooks, after approval of final proof
8. Generates low resolution files that can be referred on a computer or a mobile screen as a PDF
9. Generates XML output for the digital publishing of e-books
10. Ensures that there is no 4-colour black elements in the entire PR–HR file, except where necessary in photos and illustrations
11. Ensures that all fonts are properly embedded

4.6.4 Proofreader

A trained proofreader will have an eye for detail and adequate experience in the publishing industry to spot a proof error. Proofreading involves the line by line, page by page reading of published proofs, primarily for production errors in text and visuals including:

1. Repeated text
2. Deleted text
3. Widows and orphans
4. Wrong placement of visual against text
5. Errors in captions, headings, and sub-headings
6. Errors in running heads
7. Errors in exhibits (figures, tables, photographs, illustrations, maps, schemas, flow diagrams, and boxes) related to:
    i. Labelling
    ii. Captions
    iii. Numbering
    iv. Direction of arrows in flow diagrams
    v. Units of measurement

Major spelling, grammar, content or structure-related errors are expected to have been weeded out at the earlier stages and are not part of the proofreader's mandate.

The proofreader may have queries for the content generation team which need to be resolved before the final proofs are submitted for approval.

4.6.5 Printer

A printer-ready file is delivered to the printer in PR–HR PDF format with appropriate production specifications after sign-offs from CD/ID, ID Reviewer, SME, and content creation/commissioning body or SSC—in that order.

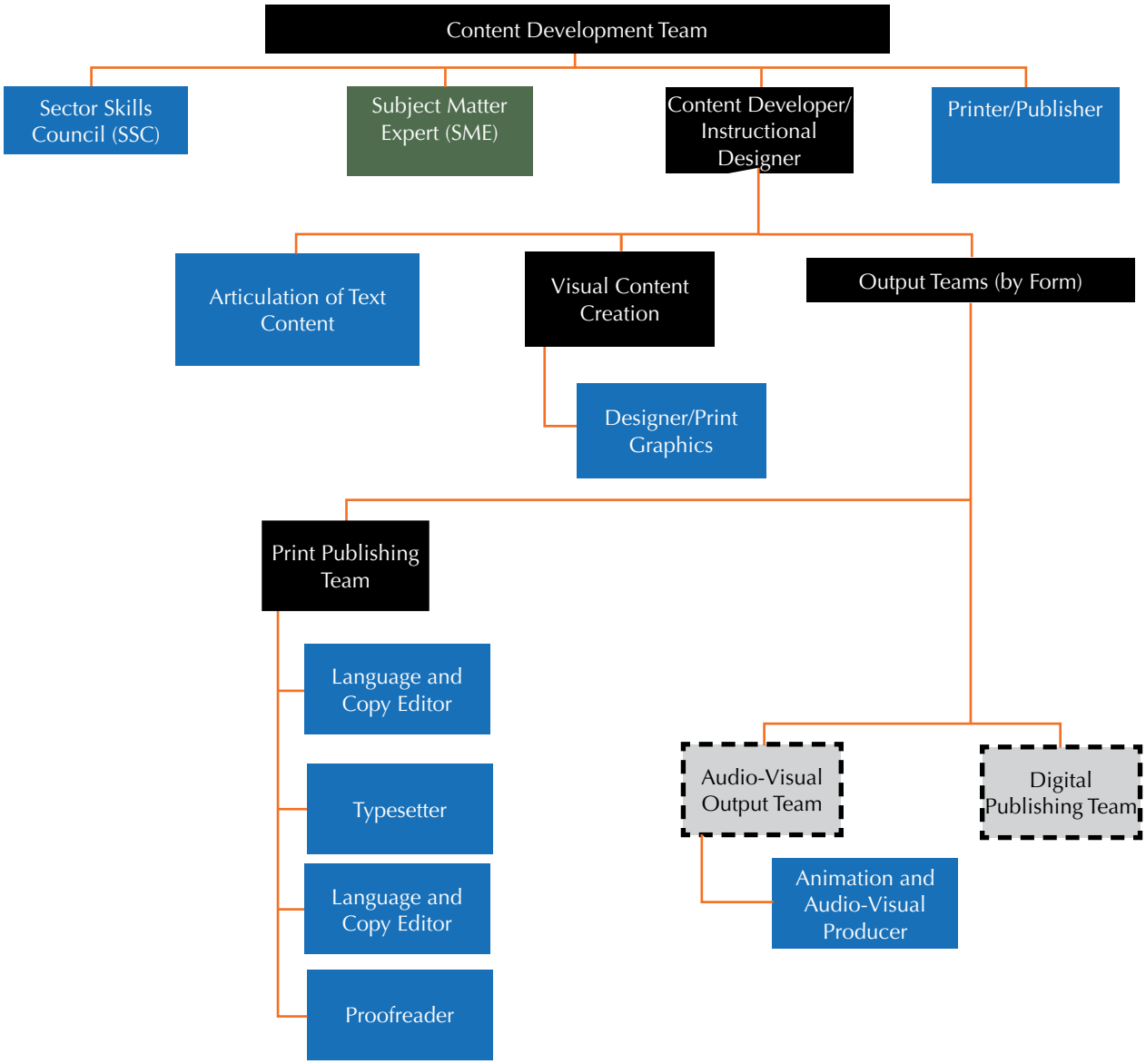
The printer converts the digital document into a printed physical book according to the agreed specifications—paper (inside and cover), colours (4 colour, 2 colour, B&W, etc.), size, pagination, etc.

The printer may use digital printing for less than 200–300 books or offset printing for printing larger orders. The exact cost–benefit of shifting from digital to offset may vary from printer to printer within this range.

4.7 Conclusion

A key player in skilling content development in the CD/ID who creates the vehicle of knowledge transfer from the SME to the trainee while anchoring the process along with his/her team. The SME brings to the table his/her sector expertise and in depth and granular understanding of each job role/QP. The content creation and/or commissioning body (such as the SSC) on the other hand, has a strong supervisory, process management, and legal safeguards role.

Exhibit 4.1: Content Development Team Structure



* Content creation or commissioning bodies (including SSCs)

To create effective content that meets learning outcomes, a cohesive and efficient team is necessary—a team where each member takes on a specific role and yet collaborates seamlessly towards a single objective.

Notes and References

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5 Developing Skilling Content

Chapter purpose: Understanding how content is compiled, assimilated, prioritised, organised, chunked, structured, storyboarded, and published.

Development of skilling content is perhaps the most crucial process in rolling out a skilling programme for a job role. The outcome of this process is expected to bridge the gap between entry and exit profiles of candidates in a modular, measurable, achievable, and goal-oriented manner. This is also the core reason for developing this guideline.

The chapter begins with an understanding of the skilling requirements of the youth and applying the most suitable method of instruction to deliver the domain skills and knowledge. The mix of content types to appropriately support skilling needs, and its organisation in output form (handbook, e-content, etc.), are crucial to the effectiveness of skilling content.

Lastly, this chapter also attempts to provide simple guidelines for writing and presenting content with some standardisation and a great degree of flexibility across sectors and job roles.

5.1 Skilling the Indian Youth—Pedagogy or Andragogy?

Pedagogy refers to the art and science, theories and methods of teaching or knowledge and skills transfer from a teacher to a student. Traditionally, the recipient of the knowledge—the pupil—was assumed to be a young person, more often a child, while the agent imparting the knowledge, was assumed to be an experienced adult—a teacher.

Andragogy, first distinguished from pedagogy by Malcolm Knowles in 1966, refers to the theory and practice of adult learning which is self-regulated.[1] The distinction between pedagogy and andragogy hardly resides in the age of the pupil though. It lies in the approach to and technique of learning, the vehicles of knowledge transfer and acquisition, and the relationship between the learner and the facilitator (Table 5.1).

TABLE 5.1 Pedagogy versus Andragogy

Pedagogy	*Andragogy*
'Pedagogy' literally means 'leading children'	Andragogy literally means 'leading man' (Greek ἀνδρ - andr-, meaning 'man', and ἀγωγός agogos, meaning 'leader of')
Trainer-centred content and instructional method	Participant-centred content and instructional method
Teacher–student interrelationship of instructor and learner, where inequality is well accepted in the partnership	Participant–Facilitator interrelationship of instructor and learner, where inequality is neither well established nor accepted in the partnership
Teacher decides what, how, when and why to learn	The trainer facilitates and makes information and techniques to learn available to make learning simple for participants
A top-down approach wherein the teacher entirely controls the learning environment and experience	An andragogic approach, is self-directed, experiential, and cooperative

Pedagogy	*Andragogy*
Teacher works through power–distance of knowledge and experience, i.e., the teacher at any time knows significantly more (student cannot measure) than what the student knows or has experienced	Facilitator works through individual experience as a learner and a trained problem solver and does not assume any power–distance with learners
Teacher assumes that students have no *a priori* knowledge, i.e., pre-existing awareness of the subject matter in its context, from their experience	Facilitator assumes that the participants have past observations and experiences on the basis of which they will learn
Students are assumed to have absolute motivation without significant understanding of goals and aspirations	Participants are motivated primarily by their aspirations and goals
The learner begins with a clean slate	It is assumed that the learner comes with prior experiences, biases, and prejudices
Teachers tells, demonstrates, and asks questions	Participants are engaged through exercises, role play, quizzes, peer learning and knowledge sharing with colleagues, demonstrations, etc.
Students may not know what is best for them	Participants have a sense of what is good for them
Curriculum is generally tightly defined and grades are an important indicator of both teaching and learning capabilities	Curriculum is less rigid and importance of grades is low
Sense of self (ego) does not come in the way of learning as the student has unknowingly submitted to the tutelage of the teacher—as a result there are no preconceived notions	Sense of self (ego) influences learning—often coming in the way of accepting any counter-intuitive facts, principles, phenomenon, etc.; however, when the barrier to learning is overcome, the lesson becomes a conviction
Students agree and commit to learning not of their own volition but according to parental, societal, or governmental influence	Participants agree and commit to learning a new skill or knowhow only when they are convinced about the benefits of the skills or knowledge being imparted
Students see grades as of relevance and learn to excel by pursuing better grades, but often lack the ability to see far and long	Participants like to see the immediate relevance of what they are learning and prefer to do so at a time, space, and pace that suits them
Learn–unlearn–relearn cycle does not apply	Learn–unlearn–relearn cycle needs to be mastered
Learning by rote and from experience of others	Experience-based self-guided problem-solving

The training collateral we have set out to develop is likely to have elements of both these approaches because while our learners are adults, the curriculum, including the expected learned outcomes, is well-defined. The National Occupational Standards (NOS) within the Qualification Packs (QPs) are already outlined clearly and model curriculum (MC) for the desired skills and proficiencies articulated.

While there is some flexibility in how a set of NOS may be broken down into modules, units, and then Key Learning Objectives (KLOs), the participant does not take decisions on the next steps. Once the participant enters a programme, he/she must meet every KLO and hence master each unit and module, and thus meet the expected set of NOS which come together to define the job role. Till this happens, the participant is not considered 'qualified for the job'.

The training sessions are fixed and it is not 'up to the learner' to decide how and when to learn. Therefore, we are dealing with **delivering an essentially pedagogic set of learning outcomes to an adult audience using instructional design strategies that must be built around andragogic techniques**.

Consequently, the entire instructional delivery mechanism—starting with content development, instructional design, training of trainers, and actual skilling sessions—needs to deeply imbibe the finer elements of andragogic approach, more than pedagogic ones. For our purposes, we may consider the guild master (mason or weaver or carpenter) and his apprentice to have also entered into an andragogic relationship to transfer pedagogic KLOs.

To add to this complexity, we are also trying to achieve this for not only the ~2,000 existing job roles cutting across 10 NSQF levels and more than 35 sectors for which QP–NOS is ready but also for the thousands of new job roles that are likely to come up in the foreseeable future!

So how does one create content for this unique purpose?

5.2 Developing Skilling Content

Skilling content in our context is developed by the CD/ID in close collaboration with the SME based on the MC for a QP developed and adopted by the SSCs. The job entails curating the most relevant content and presenting it in the most effective manner in the skilling programme or course.

The 13-step process outlined below will serve as a guide for content creation and/or commissioning bodies (including SSCs), as many of the councils are entering this area for the first time. It begins with MC as step 0, provided the MC has already been prepared by the SSCs, in consultation with the SME.

0. MC for the job role as defined in the QP–NOS
1. Content compilation
2. Content reduction
3. Content assimilation
4. Content classification: Classifying content into facts, concepts, processes, procedures, and principles
5. Content chunking for modularity: chunking into unique topics; meaningful labelling; linking related topics
6. Identifying the instructional design
7. Developing the storyboard or the book plan
8. Checking if the storyboard or book plan is fully aligned with the draft TOC, as defined by the MC
9. Populating the storyboard: best practices of writing skilling content; designing and including the visual elements; developing exercises, evaluation, and assessment sections
10. Reviewing the content and finalising the TOC making necessary adjustments—Final TOC
11. Instructional design review of standards, guidelines, ID model, templates, etc.
12. Seeking approvals from SME and content creation and/or commissioning body (or the SSCs as the case may be)
13. Publishing the training handbook: language editing and copy editing; typesetting; proofreading

Box 5.1: Reiterating the Significance of the Model Curriculum

The starting point of the skilling content development process is the MC for the QP of the specific job role. Based on the QP–NOS, the SSC has developed a MC that the trainee has to go through to be fully qualified to perform this job role.

To build skilling content for a job role, the MC is the primary reference. The SME has the sector and context expertise to aggregate relevant existing content and industry knowhow. The SME guides the CD/ID to use the MC as a framework and convert the content he or she provides into a participants' handbook and a facilitators' guide.

5.2.1 Content Compilation

Aggregation begins with the articulation of skilling content need and identification of suitable sources for the skilling content, and is completed with the creation of the master document that includes all references and sources. Primarily the domain of the SME, this activity entails generating a bibliographical list with precise source details. It is critical to ensure a complete map of sources from where content has to be built, including previous publications, web resources, expert's own previous work, industry manuals, field studies, etc. A master document may then be generated that has all the relevant material including visual elements as might be available from various sources. References must be cited for all sourced material.

5.2.2 Content Reduction

Too much information creates clutter and is therefore not conducive to structured learning. A substantial edit includes removal of repetitive, unusable, irrelevant, redundant, superfluous, and dated content.

5.2.3 Content Assimilation

We have to keep in mind that the CD/ID is a technical expert on instructional design but neither a domain expert nor an experienced and skilled hand such as a supervisor with intuitive knowledge about the sector–industry–job role–process. Therefore, to fully migrate the body of knowledge provided by the SME to skilling content based on an MC, the CD/ID has to undergo a process of immersion into the existing content which may be termed as content assimilation. During this process, the CD/ID, under the guidance of the SME goes through the content in detail and attains the sector–industry–job role–process expertise essential to serve the limited objective of managing the development of this content for instructional purposes and reducing it to smaller units of learning.

5.2.4 Content Classification

Classification of the content is critical for a training course because, based on the type of content, an appropriate learning strategy can be adopted. The CD/ID would, at this stage, classify the content into the following categories—fact, concept, process, procedure, and principle.

As the terms suggest, facts and concepts are declarative, about 'knowing what'. Processes and procedures are, well, procedural, that is they support 'knowing how'. Principles, on the other hand, are about 'knowing when and why' and are therefore situational in nature.

1. **What are Facts?** Facts are basic information. For instance, a hand embroiderer may need to know the following facts—*Chikankari* embroidery originated in Lucknow, *Kantha* stitches in Bengal, and *Sujani* in Bihar. Only a limited number of facts need to be known, understood and remembered for every job role.

   Facts may be reinforced through job aids, diagrams, tables, lists, labelling, and practice.

2. **What are concepts?** Concepts represent objects or ideas that may be observed across multiple examples. Objects and ideas identified with the same concept share a set of important features. They may also have a few less important differentiating features. Drawing upon our example again from hand embroidery, a needle is a concept. Needles are tools for inserting thread through woven fabric. All needles have identical defining shared features—the eye, the shaft and the point. There are many types of needles however, which are differentiated in terms of the shape and length of the eye, the width and length of the shaft and the sharpness and structure of the tip, for instance, the crewel needle, tapestry needle, chenille needle, milliner needle, ball point needle and so forth. Each type serves a different purpose but in the ultimate reckoning, they are all needles.

   Concepts may be explained through definitions, examples, non-examples, diagrams, analogies, and practice. So, we need to explain to our embroiderer not just what a needle is and why the ball point needle is one but also why, for our purposes, a knitting needle or a crochet needle is not one. The needle is an example of a 'concrete' concept while motivation or entrepreneurship is an 'abstract' concept. Abstract concepts need to be explained in words in greater detail but examples, non-examples, and analogies still work.

3 **What are processes?** A process describes how things work or operate. It could be the description of a business process (workflow) or a technical process (how a machine works or photosynthesis works). For instance, a housekeeping trainee in the hospitality sector needs to know the workflow regarding guest laundry—how laundry is collected, tagged, washed, dried, ironed, tagged again, folded and returned to the guest. It is important for the trainee to be familiar with the process from end to end. While she/he may be only responsible for collecting and returning the laundry, the candidate must know how she/he fits into the bigger picture. By knowing the entire process, the skilled worker will also know where to start looking if an item goes missing.

   Processes may be business, technical or scientific. To understand a process, a trainee may need to be exposed to a set of facts first. The process may then be explained using words, images, tables, diagrams and flowcharts. The trainee may be tested on his/her understanding of a process by assigning a troubleshooting task related to it. If a

machine maintenance worker needs to troubleshoot a system to diagnose and fix a problem, he/she will have to apply that process understanding to troubleshoot effectively, for instance, instead of asking the trainee to describe the process flow on a bread factory floor, he/she could be asked, 'what would you do if a batch of 2,000 loaves emerged hard and not fluffy?'

4. **What are procedures?** Procedures are a series of small steps from a starting point to an end goal, which clearly show how to do or make something, for example, how to install a point of sales terminal machine. Procedural steps are 'directive' in nature. Procedural steps tell the trainee 'how to do' something and is different from a process which simply describes 'how things happen'. A process may involve multiple actors while a procedure will necessarily be a directed at one person. If our housekeeping trainee were to train in doing the laundry, he/she would need to learn how to run the PNG operated industrial washing machine—sort the clothes, turn the machine on, load the appropriate cleaning agent (depending on the fabric), read the display panel, set the cycles, read the indicators, note the timer setting, respond to alarms and alerts, unload the washed clothes, and turn the machine off.

   Procedures may be taught only if all the steps and sub-steps are clearly identified. When you train a worker to perform a procedure, you're teaching them to perform a series of steps in the exact same order every time, sometimes referred to as *near-transfer tasks*. We should know at the outset if it is a *linear* procedure or a *branching* one (which is decision-based). Say, a participant training to be an assistant beauty therapist is being taught the procedure of applying a patch test on a client before bleaching. The procedural steps in case there is itching, swelling, or rashes will be different from a case where there is no allergy—hence decision-based branching. Clear explanation of procedures may be accompanied by job aids, tables, diagrams, charts, photos, and videos. Decision points and trouble areas may be highlighted. Demonstration and practice sessions with appropriate feedback on right and wrong steps are also required.

5. **What are principles?** Principles are guidelines or criteria that may be applied to number of different situations to achieve a desired outcome. For instance, a sales person may not apply the exact same replicable criteria to close each sales deal, as the situation he/she is dealing with will vary. Therefore, there is no set order or exact duplication of steps that can be taught to a sales trainee that will guarantee the desired outcome. In such a case, only a set of principles may be shared. Say, our housekeeping trainee is faced with a furious guest whose expensive shirt, sent to be laundered, can't be traced. Not only does the trainee need to know the laundering process followed at the hotel to track the shirt down, he/she also needs to imbibe the basic principles of handling an angry guest, calming her down and reassuring her that the lost item will be found. Such principles could include maintaining presence and expressing empathy, acknowledging concern, addressing the problem appropriately, etc.

   Principles, as opposed to procedures are part of *far-transfer* training. It is important to present and explain principles and guidelines clearly, drawing on multiple workplace related examples and scenarios. Analogies and role play are important tools for such far-transfer training. Constant feedback should be elicited from the trainee on how the principle was being applied in different scenarios, what these scenarios had in common, what worked and why, in situations where things didn't work out, how the principle could have been applied differently and so forth. There should be ample opportunity for the trainee to practice and the trainer to provide constructive feedback. For instance, during sales training, the principles to be followed could be to 'minimise unsold returns', which may be achieved through turnover discount. Alternately, a different principle could be 'maximise profit per unit of sale, irrespective of turnover'. Similarly, in a manufacturing line the principle could be 'maximising quality while minimising costs', which could be achieved by multiple routes. Application of principle in skilling content may follow the routine of stating the principle, followed by an example where it will apply, and finally an example where the same principle does not apply.

Each content type is unique and useful in its own way. Every job role will have content of each type that needs to be taught in a way that the participant can recall the information and apply it. Each content type is taught in a different way, hence the need to categorise it.

5.2.5 Organising Content for Modularity[2]

At this stage, our main goal is to make technical content easy, efficient, and logical. Once the content development team has classified the body of content (see Section 5.2.4 above), we are ready to chunk the content into discrete, stand-alone modules, which are segregated further into units, drilling down to specific learning outcomes that the learner can attain one at a time.

Content chunking is a very important step because the human brain has limited working memory and can manipulate only a small amount of information at a time. Therefore, while explaining something complex, the CD/ID will need to chunk the information into manageable bits—bite-sized pieces. Chunking and grouping conceptually-related information together within a modular construct makes the content easier to understand, retain, and recall appropriately.

Modularisation therefore is based on these main concepts:

1. Chunk text into logical stand-alone topics.
2. Label topics with clear and meaningful titles.
3. Link related topics to each other.

5.2.5.1 Chunking into unique topics

So how do we go about chunking? Say we have all the content we need from the SME for the QP–NOS which we have classified into facts, concepts, processes, procedures and principles. We also know that our content hierarchy is 'QP to NOS to Modules to Units to Learning Outcomes'. Our task therefore is to organise the content logically, based on the hierarchy. So, we start at the highest level and categorise the content into the various NOS within the QP.

Under each NOS, we take large chunks of conceptually-related information and basket them into the multiple modules in line with the MC. We thus continue progressively arranging the content along the hierarchical structure to units and further down to the learning outcomes. We may iterate to refine the internal structure, based on inputs from the SME.

Seen from the opposite end, related learning outcomes are linked together under each unit. Related units are clubbed under the module and related modules aggregate to the NOS (Exhibit 5.1).

Once we have chunked all our content into the NOS–Module–Unit–Learning Outcome structure, we start chunking each learning outcome by screen/slide. In the context of a printed handbook, we may think of the screen or slide as a page—what the user of the handbook can view in a single glance without going back and forth. If the participant has to keep several things in mind simultaneously to attain a more complex learning outcome, we break the content down further screen by screen (page by page). This is what we call storyboarding, but more on that later.

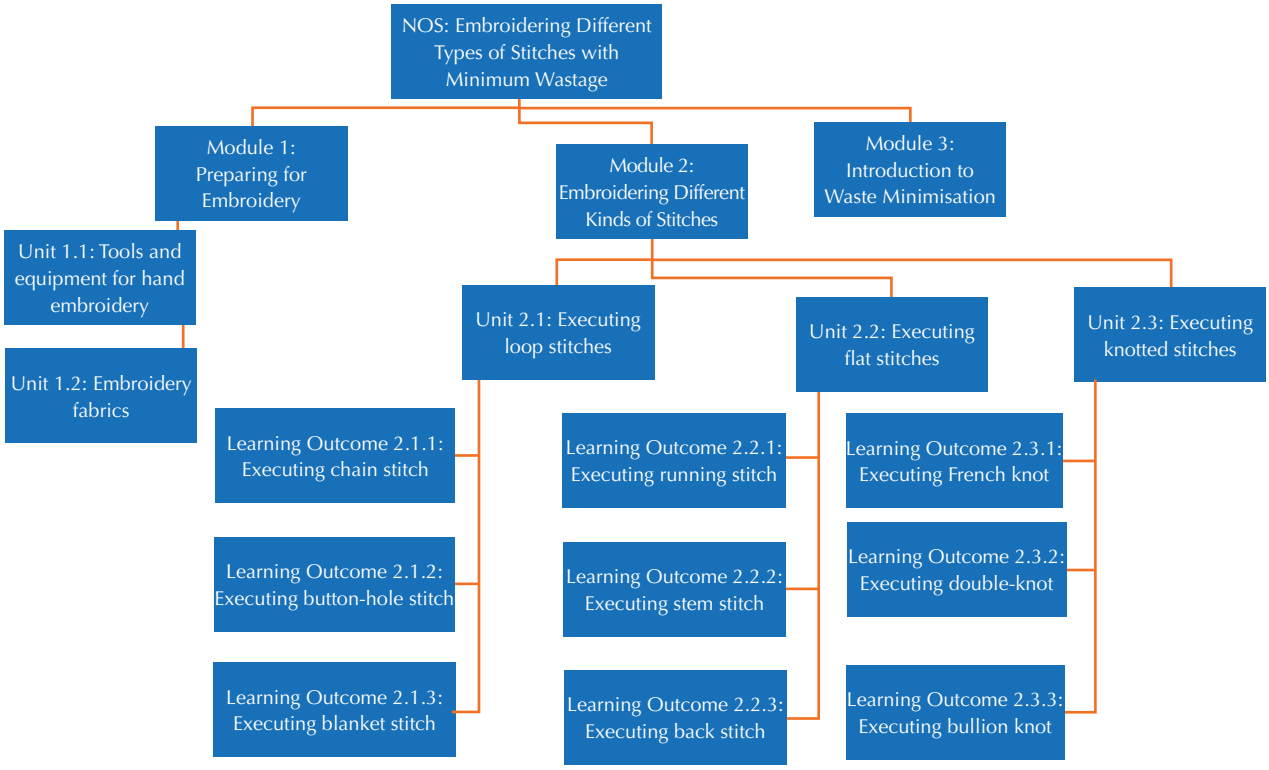
5.2.5.2 Clubbing by relevance

The content presented to the learner should be relevant in achieving the end objective of the course. While chunking information, ensure that the chunks contain only relevant information. Whatever is 'good to have', but is not directly relevant, should be pushed into annexes. This is to ensure that unrelated and out of context information does not clutter the learning material and confuse trainees.

5.2.5.3 Meaningful labelling

As demonstrated in Exhibit 5.1, labelling each learning outcome and each screen within a learning outcome with clear, concise, accurate and unique headings/numbering is very important to ensure that the reader is not confounded by the interconnected web of information. Within this structured format we may separate descriptive matter such as 'Tools needed for embroidery' which is a likely inclusion under Module 1 from the task-oriented content of Module 2. Accurate labelling provides a crucial visual clue to the trainee on where to head for what she needs to refer to.

Exhibit 5.1: NOS under QP Hand Embroiderer and its Information Branches



5.2.5.4 Linking related topics

We have already acknowledged that modular content is easier to find, understand, and use. Modular content is self-sufficient and gives complete knowledge about the concept. This makes modular content reusable from one course to other. For instance, a Unit on First Aid and CPR may be as useful to the handbook for the Hand Embroiderer as for Mason Tiling. Any topic may be reused by connecting one topic to another through a 'related-topic' link. For example, while talking about Customer Service, we can link it to Soft Skills while the content for each resides in independent units. Linking related topics enables our participants to easily negotiate between related content and build holistic understanding. While digital content may be easily linked using technology, for printed collaterals (handbooks, etc.) a reference line that carries the sub-section number (preferably, also, page number) may be inserted. Printed collaterals are however limited by the physical book that one is carrying and it may not be possible to link topics across handbooks, across job roles.

5.2.6 Identifying the Instructional Design

Having chunked our content into bite-sized pieces, we are now ready to choose an instructional design model (ID model) that will fit our purpose well. Every ID model is based on certain principles of human behaviour, ideological underpinnings, and logic. These paradigms need to be kept in mind before selecting a model for our course. It is also possible to blend elements of different models to arrive at something that works for us. For instance, for our context we may decide to start with an ARCS approach to motivate the learner, catch and hold his/her attention while we also keep elements of the ADDIE model in place for the actual pedagogy. Chapter 3 discusses these models in greater detail.

We should choose the ID model that is best suited for our KLOs. That is why during content preparation we need to arrive at our KLOs first. We backward integrate from our KLOs to the existing content to figure out which model will serve the KLO most efficiently. Choosing unwisely may lead to wasted effort in trying to force fit KLOs into the ID model and, as a result, the desired learning outcomes may not be attained. It is not a decision that we can easily switch midway; changing one's mind about the ID model basically means starting over from scratch.

We also need to ponder on whether the model can cater to learners across vehicles of training delivery, that is, printed, digital and audio-visual platforms. Can the model blend technology with human interaction and serve a wide range of learning needs and preferences?

Central to the decision are the needs of the trainees. Just because an ID model is suited to the content, it does not mean that it will sit well with the traits, abilities, skills, knowledge base, background, and preferences of the learner group. Therefore, learner-centricity has been discussed in detail in Chapter 1. Who are we creating this content for? How does this community learn best? What works for them and what does not? Deep research into these aspects must precede the decision on the right ID model.

The decision to go with a specific ID model is also predicated on available tools, materials, and resources. We must be sure that we have access to the resources necessary to uphold the integrity of the ID model through to the end. Else we may either need to acquire new tools and assets or ditch the model midway, which is generally a terrible idea.

Equally important is the shelf life of the content based on the ID model. We must be able to serve not just the present needs but those of the foreseeable future as well. If we choose an old model, will it suit future audiences? If it is too new, will it fail the test of time? Is the model tech forward and flexible?

5.2.7 Developing the Storyboard or the Book Plan

With our content chunked and training method or instructional design model chosen, we are now ready to develop a storyboard for our training collateral. Drawing from the techniques of movie making, a storyboard lays out the handbook plan screen by screen (or page by page, for our printed handbooks). For each learning outcome the story board presents a plan for the text to go with it, the visual support, links to related topics etc that will be displayed in one page. The storyboard also presents an assessment strategy to check if the KLOs have been met. For details on storyboarding, please refer to Chapter 6.

While planning each page, we keep checking for information overload against the brain's working memory constraint described earlier. We use visuals and infographics to grab attention, break the monotony and make the matter easier to understand and remember. If we have trouble organising our chunks of content, bullets and numbered lists are easy ways to present our information clearly. Side notes, analogies, case studies, interactive questions and story-breaks also enhance comprehension, retention, and application of learned information. We could also use creative fonts in heading and sub-headings to communicate with the learner the importance or urgency of a certain topic.

Box 5.2: The Significance of Visual Support

Many of our participants are late learners whose formal education was truncated early. For them, pages and pages of written matter are intimidating, uninviting, and ultimately incomprehensible. Our storyboard must therefore include a granular page-plan of every photo, graph, diagram, schema, and flow chart that will be used in the handbook.

Visuals are powerful tools because they are self-explanatory and convey the key messages in a single glance. Research suggests that 90 per cent of the information transmitted to the human brain is visual and our brain processes visual information 60,000 times faster than text. Visual support ensures that our training handbook remains accessible, useful, engaging, succinct, and instructive. Without visual support, we might as well abandon our handbook making task.

However, we should not throw in visuals just for the sake of it. The visualisation must be aligned to the overarching objective of the course. Visuals should be realistic and consistent. We must ensure that they are reducing rather than increasing the cognitive load of the page. They should be easy to understand. They must complement and supplement the key messages of the text and not contradict them. They must keep our participants connected to the course.

5.2.8 Aligning to the Draft Table of Contents—Draft TOC

Once our storyboard is in place, we now check alignment of our content structure to the draft TOC arrived at earlier. The CD/ID may share information on digressions or any restructuring that may have occurred on the draft TOC with

the SME for feedback. The SME may make some inclusions and exclusions or move things around a bit keeping the sector imperatives in mind. The final handbook plan would need the approval of the content creation and/or commissioning body (such as the SSC), before the storyboard is populated with actual content.

5.2.9 Populating the Storyboard

We have now reached the stage where each page of our approved storyboard may be populated with the skilling content. This is when our handbook is getting written. The activities are in four baskets:

1. Rewriting/repurposing existing content
2. Identifying information gaps (gaps in the flow or clarity of existing content; where new content has to be researched and written out)
3. Secondary research and writing of new content to fill these gaps
4. Designing and inserting visual elements in each page

Based on the storyboard, the chunked content for each page must be rewritten and repurposed for the specific learning outcome and trainee context. Where information gaps are identified, areas of further research may have to be referred to the SME for guidance.

Content development is a strongly collaborative exercise wherein the visuals designer must be fully clued into the text content as it is evolving. This will ensure that the text and the visuals complement each other and embed the concept and context clearly in the trainee's mind.

We may need to evaluate the evolving content against the annotated TOC and storyboard approved by the SME and SSC.

5.2.9.1 Best practices for writing skilling content[3]

1. **Never mix descriptive and task topics:** Concept and reference topics should be clearly separated from task-oriented information. Participants who are trying to learn how to execute a scallop stitch should not wade into needle-type descriptions while doing so. Similarly, when the trainee (say, a potential POS terminal machine installer) is trying to gather information on her job role, she should not end up with a step-by-step on how such a machine is installed. An important point is that all task-related units will need a brief (one to three sentences) introduction on its purpose and context—this descriptive information is an integral part of the task-based content.
2. **To the extent possible, ensure that each unit is a stand-alone piece:** The participant must follow what is being said without having to navigate here and there. They should find everything they need to attain the learning outcomes of a unit within the same unit. At the same time, background information should not be repeated over and over. Only the relevant bit of context setting should be included at the start of the specific unit. For more details, the reader is referred to the unit which provides the concept information.
3. **Do not present a long-winded introduction:** While developing content for a unit, the first paragraph is crucial because it states the purpose of and summarises the information presented in that unit. The introduction indicates to the reader exactly where they are in the document and what they are expecting to read. The first sentence of the introduction must therefore get directly to the point and clearly relate to the title, so that the participants can connect the title to the content.
4. **Do not pack too much into one chunk:** Ensure that each unit is a simple aggregate of its learning outcomes. The whole idea of chunking is to reduce demands on the human working memory. Where a set of NOS seems better served by multiple modules, there should be no hesitation in splitting the content and redistributing it. Sometimes such congestion is not clear at the storyboarding and planning stage but crops up while writing. Always remember to keep each information nugget small, to enable the learner to grasp the concept easily.
5. **Use unique and descriptive heading, sub-heading and titles:** We have already emphasised the importance of labelling each content component with a unique, clear, and precise title so that each component (learning

outcome, unit and module) remains easily identifiable and searchable even if they are quoted outside the context. Ensure that no topic label is repeated, that every topic label uses the correct syntax for its topic type, and that every topic label is as descriptive as possible. A task-oriented outcome should be titled using a gerund or verb form while concept or reference information labels should be noun or adjective-noun strings. For instance, in the Participants' Handbook for Assistant Beauty Therapist, Section 4.1.11 'Remove Unwanted Hair' is a task section, while Section 4.1.4 'Environmental Conditions' is reference information.

6. **Provide links and transitions:** Although an advantage of modular text is that stand-alone modules do not necessarily have to be read in sequence, a clearly labelled hierarchy that links all subparts must be in place. It is inevitable that task-based learning outcomes will be linked to underlying concepts elucidated elsewhere. These concepts would in turn be based on reference topics. To ensure that the training collateral we are developing remains logical and usable, organic links and transitions between sections, NOS, modules, exercises, simulations need to be developed keeping the overall purpose of the collateral in mind as well as the specific purpose of each transition.
7. **Group, order, and label topics logically so that information hierarchy remains learning outcome-focused.**
8. **Use analogies, case studies, simulation activities through role play or demonstration with training equipment, graphical representations, and interactive questions.**
9. **Keep it short:**
    1. Keep paragraphs short.
    2. Discuss no more than one idea per paragraph.
    3. State no more than one clear, identifiable, and definable action per sentence.
    4. Visualise the learning situation for each sentence or instruction.
    5. Remain participant/learner centric in each sentence.
    6. Do not use more words where less will do.
10. **Keep it simple:**
    1. Use active voice.
    2. Avoid jargon, clichés and over-used words.
    3. Do not use a longer word where a shorter one will do.
    4. Get to the point quickly.
    5. Use precise words.
    6. Avoid nuance and ambiguity so, that it is easy to translate the training material to other Indian languages.
11. **Use 'We' (first person plural) to inculcate a sense of ownership.**
12. **Ensure that there is no plagiarism:**
    1. No 'Ctrl+c', 'Ctrl+v' from sourced content: resource or reference material must not be copy-pasted but rearticulated, restructured, and repurposed for the collateral.
    2. No copied words, expressions, ideas, patterns, sequences, visual elements, etc.
    3. Where reference material is used as is, ensure that suitable permissions have been obtained.
    4. Where reference material is reproduced as is, ensure the sources are properly acknowledged.
    5. Universally-used technical terms, common knowledge etc., do not fall under this check and balance.
    6. However, even for common knowledge etc., rearticulate and break pattern using 'learn and rearticulate' techniques.
13. **Additional tools and checks:**
    1. Use highlighters, bold text, underlined text, bullet lists, paragraph breaks and other layout tips to help the learner access the important information.
    2. Each new chapter/module/unit must start from a fresh page.
    3. Before scripting, prepare a standards document that contains information related to font styles, font size, and images. This document may be used as a checklist to ensure that no formatting errors exist in the book at the time of delivery.

5.2.9.2 Sequencing/re-sequencing to follow instructional strategy

Sequencing of the content according to flow of procedures and processes along the flow of time and the instructional strategy is a necessary activity. Each module needs to be reviewed for sequencing and its appropriateness and effectiveness.

5.2.9.3 Designing and including the visual elements

Visual elements help us convey much in one snapshot or a few words. While planning for visual elements, we have to keep the visual–text ratio (refer to Section 1.5.2) for the specified job role in mind. As we write the content, simultaneously, the visuals need to be developed. This is a parallel activity and includes visuals research, development, photo shoots, fieldwork, etc.

The visuals team consists of the visualiser (the ID), the photographer, the design executive, and the illustrator.

In a printed publication, visual elements include:

1. Graphs
2. Charts
3. Illustrations
4. Schemas
5. Photographs
6. Flow diagrams
7. Maps
8. Tabulated presentation of information (text and data tables may be treated as part of text though)

5.2.9.4 Developing exercises, evaluation, and assessment sections

The CD/ID would need to include at the end of each unit, a series of exercises, evaluation, and assessment techniques to evaluate if the participant has attained the intended learning outcomes of that unit.

At the end of each chapter in the participants' handbook exercises may be designed to examine the understanding developed by the learner. These could be in the form of filling in the blanks, matching linked concepts, procedures, or principles across columns, labelling exercises, filling missing steps in a pictorial flowchart, etc.

Role play, demonstration of procedures, and generation of output may also be included for evaluation purposes. Some coordination and communication exercises in the context of QP-specific NOS may also be considered to emphasise working in teams.

5.2.10 Reviewing and Finalising the Table of Contents—Final TOC

This is the stage at which the manuscript is checked for being complete and optimum for all skilling content needs of a particular job role. A final check on reorganising content for better flow precedes the finalisation of the TOC that will be carried in the printed handbook. At this point, the ability of created content to fill up the skill gap of participants to meet job role expectations, is also validated. That is where the Instructional Design Reviewer (ID Reviewer) comes into the picture.

5.2.11 Instructional Design Review of Standards, Guidelines, ID Model, Templates, etc.[4]

The basic set of parameters and their sub-criteria that the ID Reviewer must check include:

- **Objective**
  - Clear objective with conditions and criteria
  - Complete alignment with course requirements
  - Suitable learning outcomes that match objectives
  - Modules/units comprehensively cover the objectives
  - Ensure that content and its structure fulfil the skilling objective

- **Structure**
  - Concise, precise, and comprehensive overview (syllabus)
  - Sufficient examples, analogies, case studies, simulations, graphical representations, and interactive questions
  - Use of appropriate methods and procedures to measure mastery by learners
- **Content**
  - Up-to-date
  - Aligned to curriculum
  - Inclusion of desired outcomes
  - Grammatically and syntactically correct seamless flow without typos
  - Not plagiarised, copyright law compliant, has citations and references
  - Trainee engagement in critical thinking and abstract ideas
  - Necessary technical background or other prerequisites
- **Assessment**
  - Fair, clear, and effective
  - Time-efficient and engaging—covering relevant skill-sets
  - Interactive and aligned to course objectives
- **Technology (Design)**
  - Clear and consistent design, appropriate directions
  - High quality images and graphics suitable for the course
  - Assistance with technical content and course management
  - Consistent, reliable, and easy to navigate course structure
  - Mutually synchronised audio and on-screen text
  - Well-defined hardware and software
  - Flexibility to instructors in course architecture—add content, activities, and extra assessments

5.2.12 Seeking Approvals from SME and SSC

Once the ID Reviewer has checked, revised, reviewed, and cleared the content, it comes up for approval from the content creation and/or commissioning body (or the SSC as the case may be). They and the industry practitioners ensure that all training aspects and requirements have been covered. The feedback from the content creation and/or commissioning body (such as the SSC) should be incorporated into the text before it is finalised. The content creation and/or commissioning body (or the SSC as the case may be) verifies that all material included is:

1. Relevant
2. Complete
3. Level appropriate
4. Clear
5. In the correct order

Furthermore,

6. External sources have been suitably acknowledged.
7. Permissions have been obtained as required.
8. In addition, the content has been endorsed by industry-organizations to ensure that the content developed matches the employment requirements posted by those industries. Content Development team (CDT) committee members as SMEs may assist by seeking such endorsements from their respective organizations.
9. No concept/idea/text/visual/element which is externally sourced is being passed off as original without acknowledgment.

5.3 Publishing the Training Handbook

After the final content has been cleared by the SME and the content creation and/or commissioning body (including SSC), it is ready for publishing into a printed handbook. It will be edited, typeset, proof read and ultimately clothed in a nice cover design and printed!

5.3.1 Language and Copy Editing

The manuscript must be completed and finalised by the SME–CD/ID–ID Reviewer and approved by the content creation and/or commissioning bodies (including SSCs). The editor takes up the task only when the authors have put their pens down.

Box 5.3: A Style Guide for the Needs of Skilling, Customised for Each Sector and QP

Every communication and publishing objective will have its own need for a standardised guide for style and usage. This will ensure that all the trainee support collateral produced across sectors, QPs, and NSQF levels in general and all such publications within a specific sector follow similar norms and conventions for presenting the content as well as a standard glossary of terms, abbreviations, etc.

Such a guide is expected to lay down the style of presenting appendices, articles, boxes, brand names, company names, lists, headings, quotations, ranges, rates and ratios, tables, time of day, weights and measures, etc.

This guide will also standardise abbreviations, capitalisation, cross-references, currencies and exchange rates, dates, figures, footnotes, glossary (technical terms), numbers, punctuations, references, spellings, etc.

It will also outline certain key rules of articulation including computer terms, gender references, health terms, non-English terms, rules of grammar, scientific terms, etc.

These guidelines may be divided into three levels—skilling collateral as per NSDC's recommendations, sector specific as per the recommendations of the content creation and/or commissioning bodies (including SSCs), and some sector/QP specific conventions that are unique to the specific trainee support collateral basket under preparation.

For details of what the language and copy editors do, please refer to Chapter 4.

5.3.2 Typesetting

The process of laying out the manuscript, along with all visual and other elements for instruction according to a plan, is to be undertaken once a participant handbook has been language- and copy-edited. The typesetter must be provided all elements with detailed publishing instructions. For details please refer to Chapter 4.

5.3.3 Proofreading

The final check for publishing before a document goes to print is the proofreading stage. Proofreading involves the line by line, page by page reading of published proofs and checking for digressions from the manuscript primarily for layout and editorial errors in text and visuals. For details, please refer to Chapter 4.

5.3.4 Seeking Approvals

1. Proof submission and approval by the content creation and/or commissioning bodies (including SSCs): approval process as has been identified by NSDC.
2. Modifications and suggestion incorporation: This is the closure round before acceptance of the final published output in high resolution print-ready (HR–PR) PDF format to incorporate all reasonable suggestions as finalised between NSDC, SSC, and CD/ID.

5.3.5 Print Production

Work out the economics of print production before embarking upon print production of handbooks, guides and other skilling support material.

1. Identify suitable paper (type, bulk, colour shade, etc.) and printing technology.
2. Identify an economical lot size.
3. Choose between bulk printing in offset or small lots in digital printing.
4. Depending upon other variables, it is usually more economical to go for digital printing rather than offset for print runs of up to 200–300 copies.

5.3.5.1 Pre-press

1. Ascertain that all published elements are retained form-wise after the HR–PR file is put through Raster Image Processor (RIP).
2. Check and approve Ferros and one digital copy.
3. Proceed for plate-making (if offset) and printing only after approval.

5.3.5.2 Printing

1. On-ground quality check of output and visual colour matching is very important before rolling out high speed printing.
2. Minimise wastage to control costs as well as save the environment.
3. Use of inputs and processes with minimal impact on environment are desirable.
4. Proper drying of printed lots is necessary for good quality output where the printing ink sets into the paper.

5.3.5.3 Manufacturing

1. Cleanliness should be maintained while handling printed pages and covers during manufacturing.
2. Folding of printed forms must be done in open clean areas with clean hands and instruments.
3. Section sewing quality needs to be monitored.
4. Gumming of the cover must be at the right temperature with appropriate quantity of gum.

5.3.5.4 Packing

1. Shrink wrap individual books.
2. Pack in dry cartons for shipping or storing.

5.3.5.5 Secure storage

1. Protect books from light, mice, silverfish, mould, and moisture.
2. Systematically arrange, conduct periodic pest control and maintain the storage area.
3. When storing for more than 6 months ensure low moisture, low light, no dust, no pests, and no heat.
4. Ideal storage temperature for books ranges from 16 to 21 degree Celsius.

5.4 Conclusion

The 13-step development of the skilling content as described above is a broad guideline for all the stakeholders involved in content development to follow. The content creation and/or commissioning bodies (including SSCs), SMEs, CDs, IDs, as well as other members of the content development team will have to collectively work with the final purpose of delivering the best possible skilling content for a superb programme that transforms the careers of participants. A rigorous and iterative content development process will ensure a strong command, control, and mastery over the content, the instructional strategy, the training programme delivery, and resultantly, the learning outcomes.

Since print collaterals (participants' handbook, facilitators' guide, etc.) are the first fully published documents related to skilling meant for mass consumption, the entire skilling programme including e-Content, training of trainers, etc. would benefit from following the recommended routine. The steps may be improved upon and adapted for the specific needs of a sector, job role, or participant groups. Completely doing away with any step is, however, not recommended.

Note:

List of inclusions for creating a participants' handbook or a facilitators' guide is presented in the Annexes.

Notes and References

1. As described in http://www.andragogy.net/ and https://www.igi-global.com/chapter/beginnings-history-philosophy-andragogy-1833/41837, both accessed on 17 October 2018.
2 Accessed on 18 April 2019 from http://theelearningcoach.com/elearning_design/chunking-information; www.writersua.com/articles/modular/index.html
3 Accessed on 18 April 2019 from www.writersua.com/articles/modular/index.html
4 Accessed on 18 April 2019 from https://elearningindustry.com/a-compact-instructional-design-review-checklist

6 Creation of Content for e-Learning

Chapter purpose: Learning how to make storyboard and using software to author and publish e-lessons

In India, geographical spread of learners, programme delivery through training partners across the country, and standardisation of outcomes pose a challenge to creating national standards of skills and performance. In the current technology ecosystem, digitalising the skilling programmes could help the situation to an extent. Digital or electronic content (e-Content)—delivered via web and mobile platforms—could significantly increase the reach of our programmes.

While skilling cannot happen without contact sessions, much of the knowing could be achieved with e-Content. Aspects of a skilling programme that e-Content will certainly be able to deliver, include:

1. Knowledge of what the job role entails
2. Awareness of terminology used by the sector
3. Learning about the skill through reading and viewing
4. Interacting with actual work environment through digital audio-visual content

Box 6.1: Immersive Simulations Complement e-Content in Advanced Technology Environments

Advanced technology environments offered in the 'Augmented Reality (AR) – Virtual Reality (VR) – Mixed Reality (MR)' space is progressively being considered in conjunction with e-Content to deliver skilling of the psychomotor abilities in areas as diverse as the beauty industry, gaming, the military, industry, medicine, and tourism for specified job roles.* Immersive simulations through AR – VR – MR provide enhanced safety, increase skill levels, and streamline costs for training that could otherwise be very expensive to deliver. However, such simulations often need to be or should be complemented by hands-on training on the actual machine, device, or work environment.

Simulation in the AR – VR – MR space is a function of how authentically replication of the real-world skilling environment can be achieved. For instance, cockpit simulators for pilot training can generate runway and approach details of airports, varying weather attributes and wind speeds, and specific conditions for 'emergency' simulations such as low fuel, damaged undercarriage, etc. They also provide complete functionality thanks to hydraulic systems that physically induce the simulator to yaw and pitch (move sideways, and up and down movement) ensuring close to real world experience.

The e-Content could ride on the back of such immersive simulations to deliver specific units or modules for a skilling programme.

* Virtual reality generates computer-simulated environments (replacing real objects, natural environments, images, etc.) for the users to interact with. Augmented reality uses real world objects, images, and actual work environment to simulate movements, actions, decisions, outcomes, etc. It adds graphics, sounds, haptic (touch) or kinaesthetic feedback, and smell to the natural world rather than replacing it as in case of VR. These are immersive technologies that provide sensory inputs to the user and gather real-time hand-body-mind signals (haptic or kinaesthetic communication) as inputs for the simulation. They provide near-real environments, simulate experiences, and provide interactivity to practice and develop the ability to perform tasks. Mixed reality blends VR and AR to allow virtual objects to be interacted with, as one would in the real world.

5. Communication, soft skills, entrepreneurship, business knowledge, etc.
6. Interaction and query resolution with facilitators and experts
7. Other such parts that do not engage the psychomotor domain, in the absence of any specialised technology environment

For technology-driven services, where IT doubles up both as the platform for learning as well as the platform to perform the job role, e-Content may be able to deliver a lot more. This is possible in sectors such as Information Technology Enabled Services (ITES), online retail, financial services, digital entertainment, etc.

For many other job roles belonging to the brick and mortar world involving the psychomotor domain, authentic e-Content may serve do-it-yourself audio-visuals, other skilling support, and additional knowledge related to skills. These may include job roles from sectors such as construction, agriculture, manufacturing, housekeeping, hospitality, etc.

The degree of e-Content used and the impact of such content would vary with the sector and the job role. However, used in the right proportion along with contact programmes and hands-on skilling, e-Content can offer a major boost to the entire skilling initiative for nearly all sectors.

6.1 Introduction to e-Learning

Electronic learning (e-Learning) delivers e-Content to learners by blending Information and Communication Technology (ICT) for all three domains of knowledge, skills, and attitude. All communication using computer and internet technologies may be called e-Content. However, for our purposes the term is primarily associated with learning content and not with commercial information, entertainment, or news and current affairs.

Some of the salient features of e-Content for learning are:

1. Like other digital content it is delivered using telecommunication and internet technologies across any distance.
2. It may be able to overcome the shortage of facilitators (trainers) by blending canned content with live instructional modules delivered using computer, telecommunication, and internet technologies.
3. Apart from knowing new facts, acts, and perspectives, e-Learning also offers continued lifetime learning. This helps to improve the performance of individual learners over a certain span of time.
4. e-Content is often associated with e-Courses, where assessment is also administered online—sometimes in real-time.
5. One of the main differences between e-Content and traditional print content is that e-Content is not limited to a two-dimensional page, sized for printed handbooks and can therefore be suitably sized to match the information, content layout, and user-convenience.
6. Unlike books, e-Content is not linear (sequential) in its plan and layout.
7. e-Content has depth. Hyperlinked information can reside underneath a page without disturbing the pagination. This offers an added advantage of adding layers of revised information to a page without having to reprint.
8. e-Content can blend all modes of communication—written, drawn, or photographed static visual elements, audio files, audio-visual clips, animation graphics, virtual reality, etc.
9. e-Learning is thus able to provide rich content to learners, making lessons more engaging and easily memorisable.
10. e-Content does not need to go through the production and manufacturing process. It can therefore be deployed immediately once the content is ready or updated, provided the learning platform has stabilised (a technical issue that is usually addressed at platform level and not at individual course-content level).
11. Resources for developing e-Content are more widely skilled across various software platforms and technologies.
12. e-Content may be more capital intensive in the initial phase of development, whereas the cost of running it per learner can be very low.

Since e-Content by definition is open to the dimensions of layered content, space created by and within the screen and learning experience is crucial, as is time planning, for effective learning. The storyboard method may be adopted for developing printed participants' handbooks and facilitators' guides.

A storyboard for e-Content is the core planning instrument, which is analogous (functionally similar) to films—where it was first introduced—or audio-visual media. The frame-by-frame description of a film or audio-visual production storyboard captures the details of location, characters, dialogues, play (drama), movements, actions, camerawork, lighting, costumes, editing, effects, and all other details necessary for its making.

For learning purposes, a storyboard must be able to deliver the training in a manner that is most effective for the learners. This may require mapping the path from introduction of a module (or unit) to guide the learner to the specified learning outcome. The choice of the path, instructional design to be followed, instructions, assessments, and delivery format for each stage (text, graphic, animation, audio-visual clips, etc.) may all be specified in the storyboard in addition to the actual content relevant for the job.

Storyboards are thus about granular thinking through on how the content will be rolled out in the actual training programme frame by frame (like screenplay writing before making a movie) before the actual e-Lessons are created. They help in sequencing the various elements within a lesson plan, and in comprehensively reviewing and iterating the various elements that are placed together in a unit or a module.

It is invariably more efficient and effective to make changes to the storyboard by anticipating potential issues at the planning stage, than tinkering with individual elements of the final course content later if things don't work out. A storyboard not only helps in sequencing and chunking, but is also the document to return to when revising and updating the content.

In the following sections we shall know more about storyboards, the anatomy of a storyboard, as well as the roadmap for creating different storyboard components such as on-screen text, images, animations, videos, etc. We shall also be introduced to storyboarding and authoring tools used to develop e-Content, and to publishing options for the e-Learning course.

Note:

The storyboarding and authoring tools, e-Learning platforms, and publishing technologies listed in this chapter are mere examples to help content creation and/or commissioning bodies (such as SSCs) search for the type of tools they may need. Neither Lucid Solutions nor NSDC recommends particular storyboarding or authoring tools, e-Learning platforms, or publishing technologies to content creation and/or commissioning bodies (or SSCs), which must evaluate and identify suitable tools, platforms, and technologies for their own specific needs.

6.2 Storyboards—Sequencing and Chunking Content[1]

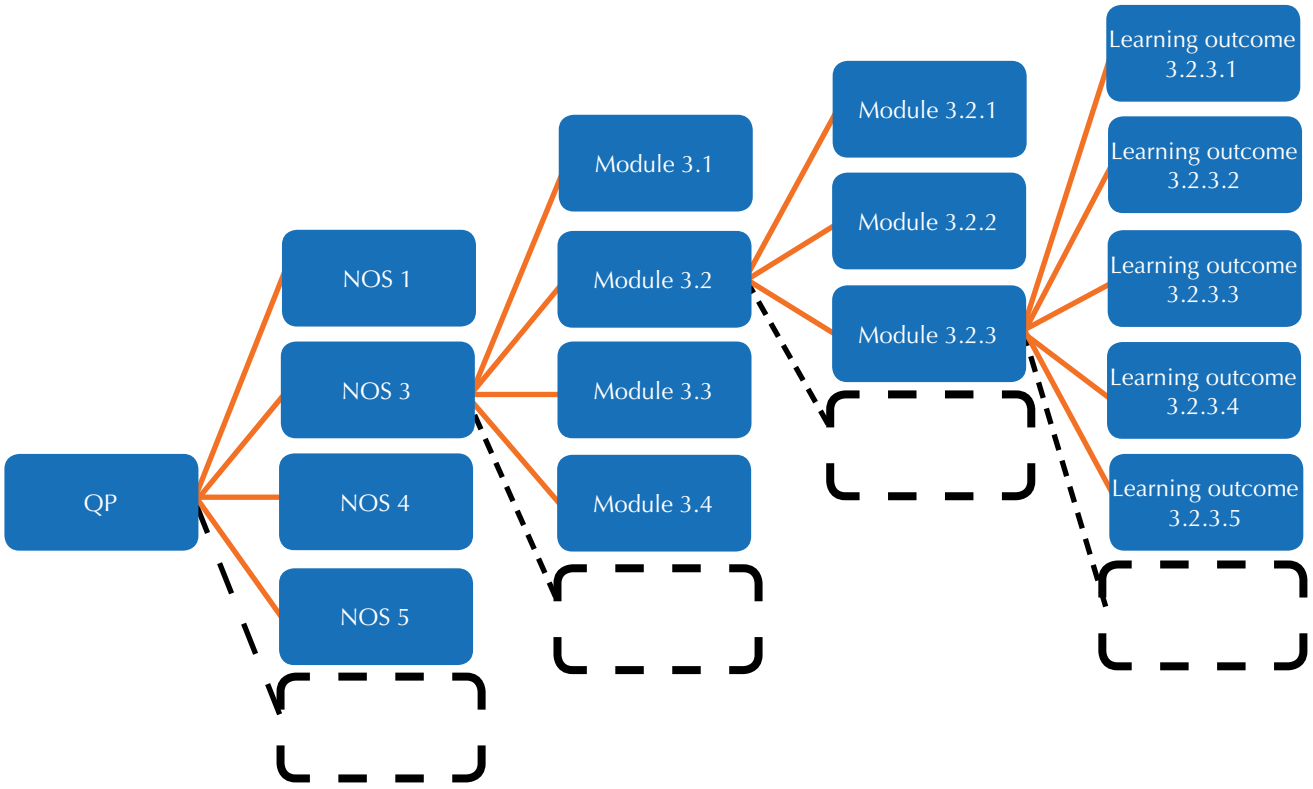
In the context of skilling collateral development (handbooks, audio-visual clips, e-Content, etc.), each QP has multiple NOS and each NOS can be divided into modules. We may distribute one NOS into one or more modules. Each module is composed of units that are arranged according to the learning outcomes. The aim is to attain the learning outcomes through the activities of a unit.

The distribution of NOS → Module → Unit → Learning Outcome must make it easier for the learner to internalise the skill as well as the facilitator to deliver the lesson. Therefore, we need to plan the knowledge and activities using bite-sized nuggets of inputs—neither too big to understand nor too small or insignificant. The process begins soon after raw content is aggregated by the SME or under guidance from the SME.

6.2.1 Sequencing and Chunking of Content

Once the SME has provided the relevant content, the CD/ID may develop each lesson by sequencing and chunking the content into bite-sized units and then drilling down to each learning outcome, as illustrated in Exhibit 6.1.

Exhibit 6.1: The Storyboard Maps each Learning Outcome



We have to identify the most suitable training method for each learning outcome and populate the storyboard in reverse—right to left in Exhibit 6.1—starting from learning outcomes, gradually moving towards the NOS. The narrative and flow of the outcomes, units, and modules within the NOS, need to be reviewed and reorganised, primarily from the candidates' skilling perspective. This step demands iteratively populating the storyboard, reviewing the sequencing, chunking from the participant perspective, and modifying the distribution and flow of information again. The process may require repeating step(s), till satisfactory sequencing and chunking is achieved.

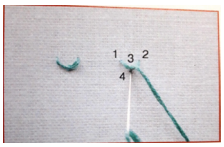
6.2.2 Populating the Storyboard Frame-by-Frame

To populate a storyboard each learning outcome may be considered to be a frame. When completed, each frame (Exhibit 6.2) outlines the various elements deployed for transmittal of skilling content. This may cover text, visuals (photo, graphic, schematic, etc.), audio-visual (snippets, animations, etc.), and interactive elements (learning-by-doing, ask-an-expert, industry practice exposure, FAQs, links to supporting material, etc.). Apart from PowerPoint one may also use MS Word or any other familiar word-processing software, assigning a page each for a storyboard screen or frame.

The higher the interactivity in imparting each learning outcome, the better the skilling will be. It is important for us to remember that both quantity of interactivity and its quality matter in effectively delivering skill and knowledge.

While a storyboard is not a conventional tool for developing printed collaterals such as participants' handbooks, in view of the operational efficiency it lends, CD/IDs are encouraged to use it in that context to sequence, chunk, and populate content.

Exhibit 6.2: Scallop Stitching Screen from a Storyboard Created with PowerPoint

QP: Hand Embroiderer **Ref ID: AMH/Q1001** **Version 1.0, NSQF level 4** **NOS:** Embroider Decorative Designs using a Combination of Stitches and Work Styles. (AMH/N1002) **Module** 3 **Unit** 3.3: Make different types of edges, appliqué work, and cut work. **Learning outcome 3.3.2** Scallop Stitch and its Steps	• The Scallop Stitch can be used to add patterns at the edge of the embroidery. • A single stitch looks like a smiling face. • Steps to make a scallop stitch:  • Come up at point 1, then go down at point 2, leaving the thread loose. • Come up at point 3, catching the loop of thread. • Go down at point 4, but not the same hole.	The PowerPoint slide is populated with text, visual (photo, graphic, schematic, etc.), audio-visual (snippets, animations, etc.), and interactive elements as are planned for each learning objective. Multiple slides would usually be needed for each activity depending on the number of key steps involved in fulfilling the requirements of a specific learning outcome. Each slide of the PowerPoint must also carry the entire information tree: QP → NOS → Module → Unit → Learning Outcome.
To be accompanied by animation of the three steps for making a scallop stitch and a picture of the final outcome.		Annotations or notes must mention the elements in detail, addressing everyone involved in developing the content and e-Content with specific briefs. The more granular the input, the easier the communication and smoother the development process.

In the context of e-Content development however, storyboarding goes beyond sequencing, chunking, and populating content. This is an essential and pivotal step in developing e-Content.

Once we have this intermediate design document resulting from the storyboarding activity, the framework for skilling content of a specific course is ready. We shall learn more about populating a storyboard in the following sections.

6.2.3 Components of a Storyboard

While storyboards can be of various kinds depending on their use, elaborated below are some key components of every screen in an online course that lead to a robust storyboard.

6.2.3.1 Screen/slide number

The numbering convention for the screen or slide should be such that it can remain consistent throughout.

For instance, for the QP Assistant Beauty Therapist, Module 5 'Provide Manicure and Pedicure Services', Unit 5.1 'Manicure', Lesson 5.1.8 'Step-by-Step Manicure', say we want to number the storyboard screen that will carry Step 4 of the 19 steps. The screen number may then be ABT_5.1.8_4.

Such a numbering method ensures that each screen is uniquely identified and can be edited without version control or sequence confusion. The same identifier may be used to name the video file that demonstrates Step 4 so that it is clear which video(s) accompanies a screen. Integration of the two becomes easy and error-free when one is ready to load the lesson onto the learning platform.

6.2.3.2 Screen/slide title or name

The slide title should clearly present what the slide is about. For instance, screen ABT_5.1.8_4 in the example above presents the step, 'Cut the nails into shape, if required, using sterilised scissors. Nail clippings need to be caught in a tissue and disposed of'. Such a screen could be titled 'Cutting Nails and Disposing Nail Clippings'.

If required for easy comprehension of the trainee, one could split the 'nail cutting with its video' from the 'nail disposal in a tissue and its video' and place them on two separate screens with separate titles, 'ABT_5.8.1_4 Nail Cutting' and 'ABT_5.8.1_5 Nail Disposal'.

Again, a consistent logic of naming each slide should be followed throughout the entire project related to a QP.

6.2.3.3 Learning objective

Stating the learning objective of each screen helps to validate why it is included and what it does to enhance the participant's knowledge of the topic. For instance, in the example presented in Exhibit 6.2, the learning outcome of the screen is 'Scallop stitch and its steps'.

6.2.3.4 Text

The text should fully support the learning objective of the slide. Relevant text should remain short and to the point without overloading the screen. It should be sequenced logically and supported by the images, audio, and video as applicable.

6.2.3.5 Audio–video–graphics–animation

1. Ideally, thumbnails of the actual images should be included on the screen.
2. If using an animation or a video, a detailed description of what will be shown should be included in the notes section of the slide.
3. While building a question/interaction slide, correct and incorrect responses should also be included for the e-Lesson developer to suitably incorporate.

6.2.3.6 Interactivity

Technology offers many advantages to e-Learning. A reasonable degree of interactivity is one of them. Even if it does not exactly compare to the one-on-one exchange possible in a classroom situation, it could come quite close. Some of the interactive aspects for e-Learning to support skilling include:

1. Learning-by-doing with step-by-step video-based guidance
2. Modules that offer the option to ask-an-expert through a live chat session
3. Exposure to industry practices through online audio-visual interactions
4. Frequently asked questions (FAQs) that are regularly updated based on emerging participant queries
5. Activity-based modules to learn and practice key skills linked to learning objectives
6. Activity-based modules to assess performance of participants
7. Links to additional audio-visual content
8. Live sessions for problem solving etc.

6.2.3.7 Branching (options to go to next)

Branching has to do with the information tree contained in the e-Content for a job role. The QP-linked branching is part of sequencing–chunking–populating the storyboard.

6.2.3.7.1 Navigation

Electronically navigating the course with the use of clicks through links and tiles needs to be organised and coded as planned next steps (flow within a module or unit). Tiles or clicks on the slide may navigate the participant to the next slide, previous slide, pop-up information, etc.

6.2.3.7.2 Non-linear connects within course material

There may be important cross-references to later sections. Tiles or clicks on the slide may navigate the participant to jump to another screen or slide using hyperlinks with a back button provided to return to the previous location.

6.2.3.7.3 External resources

At times supplementary resources may even be accessed outside the e-Content for the course through hyperlinks.

6.2.3.8 Notes to the developer

Information included in the notes panel of each slide of the storyboard will guide the developer to faithfully convert each screen of the storyboard to an e-lesson.

6.2.4 Guidelines for Building the Storyboard[2]

6.2.4.1 Knowing the purpose

The content developer must be clear on the exact takeaways and learning outcomes intended for the trainee/participant taking the course—what do they need to learn, and why and how it fits into the skill. Similar clarity is needed for each NOS in the QP, modules included in each NOS, units within every module, and all learning points (outcomes) of all units.

6.2.4.2 Knowing the user

As elaborated in Chapter 1, anyone developing learning material must know the target user of that material thoroughly. The developer too needs to learn as much as possible about the participants in terms of their educational background, culture, professional knowledge base, experience level, gender, current occupation, income, likes and dislikes, hobbies, socio-economic category, marital status, and other sociological groupings.

Besides, the CD/ID needs to understand the skill-set or knowledge that needs to be transferred to this target group through the e-Learning course, with inputs from the SME.

To build an effective storyboard the CD/ID, or storyboard writer will additionally need to know previous approaches to skilling for the job role and associated outcomes—what worked in the past and what did not.

6.2.4.3 Identifying the components for our template

A storyboard once prepared will consist of information and features that each screen (frame) pertaining to the final lesson may contain. These screens may have rich content including the text, graphics (Exhibit 6.2), audio-visual clips, and animation or simple text. There is no set template for preparing a storyboard. Its look and feel will vary with the content, the tool being used to develop it, and the team that is expected to use it to develop the e-Lessons.

Choice of features and elements may therefore be customised for individual job roles, sectors, NSQF levels, or participant orientation. In choosing these features for a template of the storyboard audience-centricity is paramount. If we keep our personal preferences, chances are that we might overlook some elements that are obvious to us but not to the participant, who is initially unfamiliar with nearly all aspects of the skill and training.

Suppose we develop the e-Lesson in Exhibit 6.2 with ourselves as the audience. The storyboard screen may include only a few initial steps and elements since we are familiar with stitching. So, posing a few critical questions is enough.

- When is scallop stitch used?
- What does a scallop stitch look like?
- What are the steps to making a scallop stitch?

The last question is relevant only if we are not familiar with the particular stitch. If however, we keep the audience in mind we will ensure that a suitable mix of features and elements go into making the template and populating the storyboard. For instance, the following step might be a suitable addition for an audience that is learning about stitches from scratch.

- Add animation to demonstrate a scallop stitch.

At the same time, a storyboard should not be overloaded with too much detail. A congested storyboard is difficult to understand and key elements may get missed in the clutter. Therefore, the solution lies in striking the right balance between providing the right level of detail needed for the audience and keeping only as much detail as can be included without sacrificing clarity.

This, in turn, will also help various content development team members (graphic artist, animator, etc.) to fully understand the tasks that they need to perform. A basic (blank) template is presented in Exhibit 6.3 that may provide the starting point for most courses.

Exhibit 6.3: A Basic (Blank) Template Created in PowerPoint

Program/Course name		***Module name***	
Page no.	***Page title***	***Section/Lesson no.***	***Section/Lesson name***
On Screen Visuals/Text 1.		Narration 1. <Information must be chunked into smaller pieces>	
On Screen Visuals/Text 2.		Narration 2. <The slides may be divided if two closely related chunks of information need to be presented in the same slide. Ideally each slide should carry only one idea.>	
Animation description: 1. (Notes to developers): 2. (Notes to developers):			

6.2.4.4 Creating a content sequence

To identify the right instructional design that will support the e-Learning objectives:

1. Aggregate all the learning material from the SME.
2. Gather all the background information on the participants, history of successes and failures with such training in the past, and all other information necessary to organise the content.
3. Take decisions on:
   i. What needs to be included?
   ii. What can be left out?
   iii. How much content does one have to work with?

Repeated discussions with the SME may be required to build a comprehensive understanding of the content around these questions and that is the sort of exploratory exercise that the team cannot skimp on if the storyboard has to be a meaningful tool.

Based on the instructional design decided upon:

1. Break the content into **chunks**, i.e. **modules** and units, to effectively depict in the storyboard.

2. Sequence the e-Learning content as will be presented to the participant, while answering the following questions:
   i. What comes before and why?
   ii. What comes later and why?
   iii. Is the order flow natural to the topic and the way it will be assimilated by the participant?

6.2.4.5 Knowing when and how the participant will be assessed[3]

Adding e-Learning assessments is one of the first stages in the planning process. Where each test and exam will be placed and what type of assessment is best suited for the subject matter and audience need to be figured out early on. Knowledge checks, lesson summaries, and chapter recaps have to be mapped out for the whole storyboard. Also included is basic information about e-Learning activities and online exercises, such as the key points and the learning goals they tie into, and information on how each activity or exercise will be graded.

6.2.4.6 Planning content for each learning objective

Against each intended learning outcome, the storyboard should provide clearly demarcated spaces for:

1. Stating the topic
2. Explaining the objective
3. Presenting the key points one by one
4. Presenting examples and comparisons
5. Presenting scenarios and questions
6. Presenting a bouquet of optional answers for the participant to choose from after thinking through the scenarios

6.2.4.7 The multimedia elements

An analytical description of each image, graphic, **animation,** and e-Learning **video to be used must be included** in the corresponding part of the storyboard. Each screen should provide space for **visual** and **audio** elements, such as clips, **narrations**, and **interactive** scenarios. It is a good practice to note their position on the page by drawing a rough sketch or by adding a text description.

Cognitive Overload Alert! A congested storyboard with too many elements (linking infographics, mini-videos, graphs, links to sources, PDF extracts) is likely to lead to a congested e-Lesson which can cause cognitive overload in the participant. Please keep things simple. Do not add elements for the sake of it. Aesthetics (size, font, design, and experience), placement, frequency of use of tools, content format, should focus on ensuring that learners are not overwhelmed by the experience.

6.2.4.8 Storyboarding participant interaction

To ensure that the navigation of the e-Learning course remains well organised and no hyperlinks are disconnected, every activity, assessment, and navigation icon in the e-Learning course must be flagged clearly on the storyboard.

Suppose, some participant interaction is being elicited wherein he/she is to be redirected to a different slide by clicking a tile—'Go to ABT_5.1.8_13 to know more about the use of a cuticle knife'—on the screen. Every instance of such participant interaction should be mentioned in the storyboard.

The storyboard must provide answers to fundamental questions related to icon choices, participant behaviour and other navigational elements. For example:

1. What graphic icons will represent **next** and **previous** buttons?
2. What will happen if the participant clicks a wrong response?
3. Where will the participant click to reach a third-party site?

6.2.4.9 Include transitions between lessons

The storyboard should include transition slides to take the participant from one topic to the next. Such transitions should ideally be consistent in style and format throughout the course so that the participant can recognise a transition slide when she sees one. Transitions may even be a series of two to three screens—one summarising what has been learnt in the previous segment, followed by a slide that links to the next topic, and a third slide that presents the key learning outcomes to be covered in the next segment. Transitions also serve as pauses when the participant may reflect on—What have I learnt? How can I apply this in the real world?

If the interest of the participant can be suitably aroused, such reflection will enable them to remember what they have learnt for a long time.

6.2.4.10 Include a visual map

If the course has complex branching or dynamic content, the storyboard author may want to create a visual map so that the team understands where learners land with every decision point. Being able to see the navigation flow is sometimes easier than trying to follow line numbers and references on a spreadsheet. The storyboard author could create the visual map on a single slide in Storyline, using squares to represent slides and arrows to represent branching. Or she could simply build out the branching scenario using separate slides and the branching features in Storyline and take a screenshot of the 'Story View'.[4]

6.3 Tools to Author e-Learning Content

Preparing a storyboard is central to preparation of e-Content for skilling programmes. However, the task is still incomplete. The actual content with all its elements still needs to be authored or articulated. Storyboards prepared in word processing applications such as MS Word, Writer, and Google Docs or presentation applications such as PowerPoint and Impress can be developed into e-Content using proprietary authoring tools such as Captivate, Articulate, iSpring, Camtasia, and Lectora or open source ones such as eXe, Multimedia Learning Object Authoring Tool, Xerte, and LAMS.

These and other such authoring tools come with a variety of capabilities and functionalities. The latest authoring tools for e-Learning also have storyboarding capabilities. However, for those new to authoring, it is best to develop storyboard in an environment that they are familiar with, such as word processing or presentation applications.

Considering many of us would be first time users, the best suited authoring tool needs to be identified on the basis of its simplicity, ease of adaptation and use, features, intuitiveness of the user interface, and price. Another consideration is whether the tool is primarily designed to be used for authoring by a single user, or by multiple users collaborating on the same content. Also relevant for first time developers of content for e-Learning is whether the authoring tool requires basic awareness of programming (HTML, etc.) or not.

From the end-user perspective, interactivity is relevant while from the development point of view it is crucial to consider an in-built facility to edit multimedia content. For flexibility in delivering a course, seamless adaptability to mobile content matters, whereas for certification, features related to assessment are important.

Since diverse software–hardware combinations and legacy systems coexist in the Indian learning ecosystem, it is necessary to evaluate how each authoring tool and output works under different hardware and operating systems configurations (minimum systems requirements) during development as well as use.

Content creation and/or commissioning bodies (including SSCs), are encouraged to learn more about the authoring tools to identify the one that fits their needs the best. To do so, they may go through user and expert blogs. Some of these are listed as endnotes to this chapter.[5]

6.4 Publishing Content for e-Learning[6]

Once the authoring of content for e-Learning is completed we have to decide on the technology interface to deploy the content for e-Learning.

6.4.1 Identifying Platforms for e-Learning[7]

Now we are ready to e-Publish by embedding the e-Content into the e-Learning platform and e-Publishing software helps in this process. The e-Learning platform, through its interactive online services, delivers the e-Content over the web to provide information, tools, and resources to learners.

These platforms enable the processes of creation, storage, and access to e-Learning resources, often collectively referred to as learning content management. The curriculum mapping and planning feature facilitates creation of lesson plans and personalising of learning experience as well as assessment. Individual information about the learner and mapping his/her progress, are the activities covered by the learner engagement and management feature.

The basket of tools and services offered on these platforms includes blogs, group discussions, messaging systems, forums, and other such interactive elements. Such a platform, referred to as a Learning Management System (LMS), delivers online, virtual classroom, and instructor-led courses. This is at the core of e-Learning and drives automated content-delivery based on a plan, imparts training, manages learner schedules, and maps progress in performance. LMS platforms are quite versatile and are able to track classroom (offline) as well as online activities.

A Learning Content Management System (LCMS), on the other hand, primarily helps developers and administrators create content for e-Learning, such as tests, games, audio-visual clips, and chunks of digital content. These could be efficiently reorganised, repurposed, and customised to meet learner needs. The LCMS however, manages only digital content—not offline or blended activities.

A Virtual Learning Environment (VLE) closely mirrors face-to-face activities performed in a physical classroom with significant opportunity for collaboration. Moodle and Blackboard are two leading VLEs.

6.4.2 Technology Interface

The Aviation Industry CBT (computer-based training) Committee (AICC) offered the first technology interface for e-Learning in 1988. This was followed by Sharable Content Object Reference Model or SCORM that continues to provide technical standards for e-Learning that define how content interfaces with the LMS. Uploading content is made easy by SCORM.

The next generation of SCORM is the Tin Can Application Programming Interface (API) that allows us to track and record experiences across mobile, simulations, virtual environment, games, as well as offline engagements. It ensures anywhere, anytime interaction with learners by linking up with multiple devices and using a Learning Record Store (LRS) to record and store the learning activities.

The fifth generation (revision) of HTML—HTML5, combined with CSS3 and JavaScript APIs allows the learner to engage immediately by clicking a link or icon, without the need to download multiple apps across devices or downloading periodic updates.

A suitable technology interface needs to be identified from amongst those discussed here or any other, with guidance from technical experts within or outside the content creation and/or commissioning bodies (including SSCs).

6.5 Providing Learner Support

It is essential to plan and provide support to learners to resolve technical queries related to using the e-Learning platform (technology- and use-related), guidance on the e-Learning content (skilling- and instructions-related), and instructions and follow-up on assessments (performance management).

6.6 Conclusion

e-Learning is the future of adult learning (and perhaps learners of all ages) where the learner is able to define the pace and other parameters of skilling. Developing future-ready e-Content is therefore critical to develop trained manpower for evolving job roles in sunrise sectors. e-Content has the added advantage of an easy-to-update structure that could be leveraged periodically to revise content for a skilling programme.

Though e-Learning is relatively economical to deliver, it is quite expensive to develop. Therefore careful planning and meticulous development of e-Content is the key in managing to sweat limited resources. The development ecosystem for e-Content is fast changing. Newer technologies with added functionalities tend to throw up options even before one has settled into one software or platform for development.

One of the greatest advantages of e-Learning is the possibility of continuously assessing and evaluating the performance of participants, which is also easily accessible for them to view, review, practice, and improve upon. This makes the entire certification process transparent and technology enabled.

The content creation and/or commissioning bodies (including SSCs), CDs/IDs, and other members of the extended content development team have to acquire new skills, develop new work practices, and adapt to contemporary technology ecosystems to ensure that e-Learning rapidly becomes a successful, widely applied, and efficient reality in the context of skilling in India.

Notes and References

1. 'Food and Agricultural Organization (2011), 'ELearning methodologies, A guide for designing and developing eLearning courses', Rome: FAO; accessed on 6 July 2018 from www.fao.org/docrep/015/i2516e/i2516e.pdf
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3. Accessed on 20 April 2019 from https://eLearningindustry.com/12-tips-to-create-effective-eLearning-storyboards
4. Accessed on 20 April 2019 from https://community.articulate.com/series/starting-your-course/articles/11-best-practices-for-eLearning-storyboarding
5. Independent and company sponsored blogs comparing various commercially available authoring tools: (1) Steve Penfold, '9 e-Learning Authoring Tools: Comparison and Review', November 28, 2017; Accessed on 20 April 2019 from https://blog.elucidat.com/eLearning-authoring-tools/; (2) 'Top 5 e-Learning Authoring Tools: The Use Cases Comparison, 2017 Update', Accessed on 23 April 2019 from https://www.ispringsolutions.com/blog/5-eLearning-authoring-tools
6. Accessed on 4 April 2018 from https://eLearningindustry.com/choosing-the-best-publishing-option-for-your-eLearning
7. Accessed on 20 April 2019 from www.fao.org/docrep/015/i2516e/i2516e.pdf

7 Content Sourcing, Publishing, and Implications*

Chapter purpose: Learning how to source and publish content that is free of plagiarism and copyright violation.

- Recognising and dealing with plagiarism.
- Safeguarding against copyright violation in content creation.

This chapter discusses content sourcing, permissions, plagiarism, and copyright-related implications for creation and/or commissioning bodies (including SSCs) and other stakeholders. There are three broad categories of content which SMEs, CDs/IDs, and creation and/or commissioning bodies (including SSCs), will work with:

1. Original content
2. Sourced or borrowed content
3. Derived content

There may be some instances, where the content development team (the SME, CD/ID, and the creation and/or commissioning body, including the SSC) has to provide information related to some machinery or design (patented information) required for industrial training. For this reason, it is very important to have an understanding of various copyright laws related to intellectual property (IP) including patents, trademarks, designs, etc. followed in our country and globally. This chapter therefore, attempts to create awareness about these content-related laws.

7.1 Content Classification

7.1.1 Original Content

Original content is that which has been created or co-created by an individual(s), from scratch. The creation or co-creation rights lie with the individuals. In some cases, curation of content—where the relevant content is segregated and thus presented in a reader-friendly format—can also be taken as original content; for example, using previously studied data sheets, and adding fresh insights to it. However, in all such cases, it is very important to acknowledge the original sources.

Some key characteristics that define original content include:

- A majority (more than 80 per cent) of the content is created from first principles[1] of research and writing
- Contains proper citation of previously published work referred to while developing content
- Will stand scrutiny to checks for plagiarism
- Will have undisputed author(s)
- Can be copyrighted and protected against copyright infringement

* Disclaimer: The chapter should not be read, understood, interpreted, or considered to be legal advice. For instances, when the SSC needs to defend against claims by any copyright owner or the council needs to file a complaint against perceived copyright infringement, seeking legal counsel and going to a court of law would be advisable

7.1.2 Sourced (Borrowed) Content

For creation of content, one may be required to gather information from related books, articles, journals, etc. available digitally on the internet or in print. This type of information is usually referred to as borrowed content. Improper use of such content may also invoke plagiarism charges, i.e. presenting somebody's work as your own; for example, borrowing direct quotations, phrases, concepts, etc. from previously published work of others or even one's own.

Sourcing content from even unpublished work and misrepresenting it as one's own, can be construed as plagiarism. In all such cases, it is very important to cite the source from where the information has been borrowed.

Some of the features of the sourced content are:

- Usually less than 20 per cent content is created from first principles of writing; there is negligible research; and even the writing is mostly attempted at stringing ideas together
- Will usually have a publishing history trail, except in case of unpublished content
- Will need to be worked upon to ensure it stands plagiarism scrutiny

The SME is the 'aggregator' and not the 'author' of content borrowed from different sources for participants' handbooks. All original sources must be properly cited and permissions sought as necessary. Content in aggregated form may not be copyrighted (since it is not original in the first place). However, it is also not easy to protect aggregated content against copyright infringement (since anyone can further copy that which is not protected).

7.1.3 Derived Content

Derived content is that which is based on previously published or unpublished work of others but has been entirely repurposed for the new publication/output. Content aggregated from multiple sources combined, rearticulated, and presented in a new way, often takes a near original form because in the new aggregated form it is serving a new purpose that was never envisaged by the individual original writers. It is eminently possible that the new material is thematically linked and strung together from a completely fresh perspective and the new (entirely rewritten) document in no way resembles a 'sum of parts' as it were. Nevertheless, even derived content has to acknowledge the sources from which it is being derived in order to pass plagiarism checks.

7.2 Understanding Plagiarism

7.2.1 Plagiarism and Its Characteristics

Plagiarism may be defined as the act of knowingly or unknowingly copying literary, scientific, or media work (images, video, and music) or idea created by another person, persons, or institution without suitable attribution (citation, reference, or due acknowledgement)—thus, potentially misleading the reader into considering the intellectual property, text matter, photos, etc. as one's own.

Plagiarism is a moral issue that often leads to copyright infringement. Since copyright is by and large granted upon first instance of authoring, any instance of plagiarism is a potential case for copyright violation. Therefore plagiarism needs to be prevented through self regulation.

Merriam-Webster online dictionary defines plagiarism as:

> "To steal and pass off (the ideas or words of another) as one's own; to use (another's production) without crediting the source; to commit literary theft; to present as new and original an idea or product derived from an existing source".[2]

The following qualify as plagiarism:[3]

- Failing to put a quotation in quotation marks
- Copying words or ideas from someone else without giving credit
- Instances of turning in someone else's work as your own
- Giving incorrect information about the source of a quotation

- Changing words, but copying the sentence structure of a source without giving credit
- Copying so many words or ideas from a source that it makes up the majority of the work (regardless of whether you give credit or not)
- Unattributed copying of images, videos, and music without proper permission
- Publishing unattributed copying of images, videos, and music without proper permission

Any set of ideas with a purpose, expressions (including set of keywords), acronyms, sentences (including structure), paragraphs, sections, frameworks, theories, diagrams, graphical representations (schematics, flowcharts, process outlines, etc.), photographs, etc. all form the elements that may be identified to mark up content for plagiarism.

Put differently, changing a few words in a sentence will not render the text matter free of plagiarism.

7.2.2 Types of Plagiarism

It is important to understand what the various types of plagiarism are. The plagiarism typology below uses examples from the Participants' Handbook for Mason Tiling.[4]

7.2.2.1 Taking text from an existing source and representing it as original text developed for the training collateral

Old Text (sourced from Participants' Handbook for Mason Tiling in the Construction Sector)	*New Text (which is the exact replica but does not acknowledge the source)*
Fire is one of the most common causes of accidents in establishments. Fire is defined as a self sustaining combustion process in which a substance (fuel) combines with oxygen in air to produce immense heat and light. Fire hazards pose threats to life and property. It is, therefore, the prime objective of fire safety systems to detect, remove or reduce the risk of fire threatened by those potential hazards.	Fire is one of the most common causes of accidents in establishments. Fire is defined as a self sustaining combustion process in which a substance (fuel) combines with oxygen in air to produce immense heat and light. Fire hazards pose threats to life and property. It is, therefore, the prime objective of fire safety systems to detect, remove or reduce the risk of fire threatened by those potential hazards.

7.2.2.2 Copying substantial text from the existing source, and modifying a few words

Old Text (sourced from Participants' Handbook for Mason Tiling in the Construction Sector)	*New Text (only two or three words have been changed but most of the text is old)*
Fire is one of the most common causes of accidents in establishments. Fire is defined as a self sustaining combustion process in which a substance (fuel) combines with oxygen in air to produce immense heat and light. Fire hazards pose threats to life and property. It is, therefore, the prime objective of fire safety systems to detect, remove or reduce the risk of fire threatened by those potential hazards.	Fire is one of the most common causes of accidents in factories. Fire is defined as a self sustaining combustion process in which a substance (fuel) combines with oxygen in air to generate intense heat and light. Fire hazards pose threats to life and property. It is, therefore, the main aim of fire safety systems to detect, remove or reduce the risk of fire.

7.2.2.3 Replacing some key words and phrases while sticking to the old sentence construct and original articulation

Old Text (sourced from Participants' Handbook for Mason Tiling in the Construction Sector)	*New Text*
Fire is one of the most common causes of accidents in establishments. Fire is defined as a self sustaining combustion process in which a substance (fuel) combines with oxygen in air to produce immense heat and light. Fire hazards pose threats to life and property. It is, therefore, the prime objective of fire safety systems to detect, remove or reduce the risk of fire threatened by those potential hazards.	Fire is one of the most widespread causes of accidents in factories and other commercial establishments. Fire is defined as a self sustaining combustion process in which a substance (fuel) is ignited in the presence of oxygen in air to produce immense heat and light. Fire hazards threaten life and property and therefore, the prime objective of fire safety systems to detect, remove or reduce the risk of fire threatened by those potential hazards.

7.2.2.4 *Stringing together text from multiple sources to construct a reasonably meaningful paragraph (curation of content)*

- If sources of such text are not acknowledged it is certainly plagiarism.
- Even if each and every source is acknowledged, such aggregation still constitutes plagiarism because the original texts were not written for the purpose that they are now being used. Text has not been adapted or reshaped or contextualised for the training collateral.

Old Text (sourced from Participants' Handbook for Mason Tiling in the Construction Sector)	*New Text (the second sentence in **white on black** is picked up from www.femalifesafety.org. The sentence in **black on grey** was picked up from Wikipedia but is there in the Mason Tiling Handbook as well, nearly verbatim. The last line in **white bold on grey** is derived content from multiple sources without citation)*
Fire is one of the most common causes of accidents in establishments. Fire is defined as a self sustaining combustion process in which a substance (fuel) combines with oxygen in air to produce immense heat and light. Fire hazards pose threats to life and property. It is, therefore, the prime objective of fire safety systems to detect, remove or reduce the risk of fire threatened by those potential hazards.	Fire is one of the most common causes of accidents in establishments. There are four elements that must be present for a fire to exist—oxygen to sustain combustion, heat to raise the material to its ignition temperature, fuel to support the combustion and a chemical reaction among the three elements. A fire extinguisher is an active fire protection device used to extinguish or control small fires in emergency situations. It is not intended for use on an out-of control fire, such as one that has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard etc) or otherwise requires the expertise of a fire department. **Common fire extinguishers include: dry chemicals, foams, water, cleaning agents and carbon dioxide.**

7.2.2.5 *A variant of the above type would be where text with cited sources is interspersed with 'also copied' matter but without acknowledgement of original reference*

New Text (the sentences that are not highlighted but have no footnotes have also been picked up from Wikipedia but they have not been cited.)
Fire is one of the most common causes of accidents in establishments.[i] Fire safety is the set of practices intended to reduce destruction caused by fire. There are four elements that must be present for a fire to exist—oxygen to sustain combustion, heat to raise the material to its ignition temperature, fuel to support the combustion and a chemical reaction among the three elements.[ii] Fire safety measures include those that are intended to prevent ignition of an uncontrolled fire, and those that are used to limit the development and effects of a fire after it starts. A fire extinguisher is an active fire protection device used to extinguish or control small fires in emergency situations. It is not intended for use on an out-of control fire, such as one that has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard etc) or otherwise requires the expertise of a fire department.[iii] Common fire extinguishers include: dry chemicals, foams, water, cleaning agents and carbon dioxide.[iv]

7.2.2.6 *A step further would be to unintentionally cite references that are inaccurate or deliberately cite references that are fictitious.*

New Text (Footnotes vi and viii are imaginary references. Footnote ix is an incomplete reference)
Fire is one of the most common causes of accidents in establishments.[v] Fire safety is the set of practices intended to reduce destruction caused by fire.[vi] There are four elements that must be present for a fire to exist—oxygen to sustain combustion,

[i] Participants' Handbook on Mason Tiling

[ii] www.femalifesafety.org

[iii] Wikipedia

[iv] 'Participants' Handbook on Mason Tiling', derived content from multiple sources without citation.

[v] 'Participants' Handbook on Mason Tiling'

[vi] Subedar and Lance Naik (2013), Fire Arms in the Armed Forces, Indian National Army, Subhash Chandra Bose Institute, Rourkela (THERE IS NO SUCH PUBLICATION)

heat to raise the material to its ignition temperature, fuel to support the combustion and a chemical reaction among the three elements.[vii] Fire safety measures include those that are intended to prevent ignition of an uncontrolled fire, and those that are used to limit the development and effects of a fire after it starts.[viii]

A fire extinguisher is an active fire protection device used to extinguish or control small fires in emergency situations. It is not intended for use on an out-of control fire, such as, one that has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard etc.) or otherwise requires the expertise of a fire department.[ix] Common fire extinguishers include: dry chemicals, foams, water, cleaning agents and carbon dioxide.[x]

7.3 Copyright[5]

Copyright deals with ownership rights of the first author(s) or producer(s) of tangible published or unpublished original work that could be literary, dramatic, musical, artistic, cinematographic, audio-graphic, or any other form of unique expression. Such rights provide exclusivity to the author, creator, or producer for activities including reproduction, distribution, communication (broadcast, etc.), and adaptation of the original work, unless and otherwise agreed to with another individual or entity.

Copyright is governed by copyright laws, which comprise both statutory laws and common laws for a specific jurisdiction that may vary from country to country. Copyright laws grant protection against actual or potential loss as well as damage or harm to the reputation of the first author(s) or producer(s).

7.3.1 Copyright Legislation in India and Abroad

Copyright in India is governed by The Copyright Act, 1957 (Act No. 14 of 1957), as amended up to Act No. 27 of 2012 and are implemented by Copyright Rules 2013.[6, 7, 8, 9]

The International Copyright Order 1999 lays down that as a signatory to the Berne Convention and the Universal Copyright Convention, original works created in other member countries enjoy the same copyright protection in India as in its country of origin and vice-versa.

7.3.2 Copyright and Its Registration

Copyright is granted as soon as an original work is first published or created (in case unpublished). In absence of any agreement that states otherwise, the author is the first (default) owner of copyright. However, if the original work is created as part of author's employment (including contractual service and apprenticeship) the employer is the first copyright owner, unless stated otherwise. Exclusive copyright when assigned allows the licensee to exploit the work to the exclusion of all others. Exclusive copyright may even restrict the author/creator from selling copies or licenses.

While registration of copyright is not mandatory for grant of copyright, it helps in case of litigation. For instance, in case there is any fraudulent copyright claim to an unpublished work, the actual creator will find it easier to prove ownership if registered.

Copyright registration in India is carried out by the Copyright Office (http://www.copyright.gov.in/). The office is led by Registrar of Copyrights who is appointed by the Government of India.

[vii] www.femalifesafety.org
[viii] Johnson and Johnson (1984), Why we should safeguard against fires, ABCD Publishers, Honolulu (THERE IS NO SUCH PUBLICATION)
[ix] Wikipedia
[x] 'Participant Handbook on Mason Tiling'

7.3.3 Duration of Copyright

Copyright for most of the literary, dramatic, musical, and artistic works **stays in effect through the lifetime and up to 60 years after the expiry of the original author**. It may fall into public domain from 1 January of the 61st year.

Exceptions to this rule are applicable in special circumstances that include anonymous, pseudonymous, and posthumous works, where **the copyright remains in effect for 60 years** from the date of original creation. Categories such as photographs, cinematographic films, sound recordings, and government and public undertaking works also fall into public domain on the 1 January of the 61st year.

7.4 Dealing with Plagiarism

7.4.1 Distinguishing Plagiarism from Copyright Violation

Plagiarism occurs when the work of another person(s) is presented as one's own, whereas copyright violation is when another person's (or persons') work bearing copyright is published without authorisation.

Copyright is a legal issue and therefore infringement or violation depends upon the laws as applicable in the land of the origin of copyright. Copyright infringement covers the use, replication, repurposing, performance, making derivatives of, or distributing copies of the work to the public and publicly displaying or performing the work of copyright-protected works without the permission of the copyright holder.

Plagiarism without copyright violation occurs when the content, ideas, facts, or plot points are not copyright protected, or are free from copyright, or when specific publishing permission is granted by the original creator but no attribution to the original author(s) is carried in the published output. For example:

- If one claims to have authored the Mahabharat, an epic in public domain, it would be plagiarism but not copyright violation.
- Purchasing an essay from a ghost writer and publishing (or submitting) as one's own, is also plagiarism without copyright issues.

Copyright violation can occur without plagiarism if copyright-protected matter is reproduced or circulated without permission of the copyright owner, even when duly attributed to the original creator with citation:

- For example, if one were to reproduce long extract (say, more than 300 words) from an academic paper without the permission of the copyright holder of that paper, the act would constitute copyright infringement even if the original source was acknowledged.
- Similarly, distributing copies of a play or poem without the permission of copyright holder or publicly singing a song without the permission of the original composer, singer, or music company that holds the rights to the song, would constitute copyright violation even if the original creator of the piece was acknowledged.

For greater clarity on copyright and its infringement, the following resources are useful even though these pertain to specific legal systems governed in these geographies:

- The Copyright Act, 1957 (Act No. 14 of 1957), as amended up to Act No. 27 of 2012 and implemented by Copyright Rules 2013, which may be accessed from,
  - http://www.copyright.gov.in/Copyright_Act_1957/index.html
  - www.copyright.gov.in/Documents/Copyrightrules1957.pdf
  - http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/CprAct.pdf
  - http://copyright.gov.in/Documents/Copy-Right-Rules-2013.pdf
- University of Chicago Press (Guidelines for Fair Use of Our Publications), which may be accessed from, http://www.press.uchicago.edu/Misc/Chicago/permissions.html
- Copyright and Permissions Guidelines pertaining to UK, US, Canada, and India from, https://academic.oup.com/DocumentLibrary/Pages/access_purchase_rights_and_permissions/new-permissions-guidelines-update.pdf

7.4.2 Principles of Fair Use and Fair Dealing

In order to expedite rather than impede creative and academic work which needs to source and cite previous work of self or others, some principles of exception, exemption, and limitation to copyright protection are laid out within the copyright statutes of different legal systems worldwide such as the:

1. Principles of 'fair dealing' defined under common law jurisdictions such as Great Britain, Canada, Australia and New Zealand.[10]
   (For fair dealing principles followed in Great Britain please refer to, https://www.gov.uk/guidance/exceptions-to-copyright)
2. 'Fair use' *provision in US copyright law*[11] prescribes four factors that must be included in a fairness determination:
   1. Purpose and character of the use
   2. Nature of the copyrighted work
   3. Amount and substantiality of the portion of the work used
   4. Effect of the use on the potential market or value of the work

   (For fair dealing principles followed in the US please refer to, https://www.copyright.gov/fair-use/more-info.html)

Depending on the legal jurisdiction in which a copyright owning entity, such as a publishing house operates, it can provide guidelines for fair use of works owned by it aligned to the copyright law of the land.

- For instance, University Press of Chicago and Oxford University Press have different guidelines for what they would consider fair use of copyrighted material without prior permission.

While it does not specifically address 'fair use' or 'fair dealing', the Indian Copyright Act 1957 offers flexibilities of use for certain entities such as libraries, certain purposes such as non-commercial use, and certain material such as government documents, Acts and Committee Reports.

7.4.3 Principles for Avoiding Plagiarism

To avoid plagiarism, the following steps are crucial:

1. Providing references and citations (see Section 7.4.4 below)
2. Minimising sourced content
3. Assimilation and repurposing, not aggregation of content
4. Seeking permissions from authors, editors, photojournalists, videographers, publishers, institutions, content creators, copyright owners, etc.

By avoiding plagiarism, many instances of copyright infringement are also prevented. However, copyright violation being a legal issue, needs informed legal guidance.

7.4.4 Acknowledging Previously Published Work (Bibliographical Referencing)

7.4.4.1 Citation or reference

- Citation is meant for instances of word-for-word copying from source
- Citation may be presented with mention of original author within quotation marks along with the reference to source of information as a footnote
- Every citation is a reference, but not vice-versa
- Reference is meant for instances where content has been adapted for publication with appropriate modifications—including repurposing, rewriting, and reshaping

7.4.4.2 Information needed for complete bibliographical referencing

- Books (single author): Surname, first name, title of book, place of publication: publisher, (date)
- Books (multiple authors): Surname of first author, first name of first author and first name of second author, surname of second author etc., title of book, place of publication: publisher, (date)
- Paper in journal (single author): surname, first name, 'title of paper', name of journal, volume number (Issue number), (date), pp. 000-0
- Paper in journal (multiple authors): surname of first author, first name of first author and first name of second author surname of second author, 'title of paper', name of journal, volume number (issue number), (date), pp. 000-0
- Unpublished Papers/Mimeographs/Discussion Papers/Working Papers: Surname of first author, first name of first author and first name of second author surname of second author, 'title of paper', mimeo, place: organisation, (date)
- Website references: website address; author's name; title of article or publication; date on which information was accessed; date of publication of original article, if available

7.4.4.3 Absence of clearly citable reference

- In case of non-availability of any clearly citable references provide whatever information is available regarding the source of such information

7.4.5 Framework to Avoid Plagiarism and Copyright Violation

7.4.5.1 For CDs/IDs, editors, and SMEs

- **Keep borrowed content to the bare minimum**
  - This is a prerequisite and needs to be followed by the author or SME throughout the articulation process.
  - Content development teams must carefully evaluate the necessity and relevance of the borrowed information in the main text before including it.
- **Write complete references** for every sentence, paragraph, section, framework, theory, diagram, schematic, flowchart, process outline, and photograph drawn from an external source.
- **Verbatim copying of matter may not exceed 300 words. While various publishing houses follow different norms, this thumb rule is a conservative limit. However, there have been instances of infringement at less than 300 words too.**
  - Quoted text must be presented within inverted commas with a mention of the author in the running text and complete reference of source document in footnote (or endnote) numbered immediately after the quote is concluded.
  - Multiple instances of such 300-word sections within one publication must be avoided, unless and otherwise permitted by the author, editor, or publisher.
- **Licenses and permissions to use should be sought as applicable.**
  - If the content has been borrowed from a single source with copyright, a **transparent and fully negotiated license to use the matter with financial consideration** is recommended.
  - Written permission may also be obtained from **the author, editor, or publisher of previously published work,** reference to which may be included at the beginning of the NOS as a footnote to the NOS title.
  - Content development teams must ensure that all necessary permissions are obtained, cited, and a tabulated record maintained for ease of tracking.
  - They must also ensure that conditions of usage as mentioned in the permission to use or licence to use are strictly adhered to.
- Importantly, more than 5 per cent[12] of material from a single source in one book or more than 5 per cent of one book constituted from material accessed from a single source, even if carried with proper reference and acknowledgement may fall outside 'fair use' or 'fair dealing'.

In sum, to prevent plagiarism references for all sourced content must be carried in full irrespective of whether it is a minor or major reference, whether its use is licensed or authorised by permission, prescribed or negotiated.

7.4.5.2 For content creation and/or commissioning bodies (including SSCs)

- Ensure suitable undertakings from SME and CD/ID that outline the processes followed towards preventive and proactive action in the context of plagiarism.
- Validate that all permissions necessary for all content that has been incorporated from other sources for each published document are obtained and complete in all respects.
- Each content creation and/or commissioning body (such as the SSC) may create specific guidelines for prevention of copyright violation and permissions, based on its specific requirements.
- Indian Copyright Law entertains certain exceptions for work that is: non-commercial (not-for-profit), is meant for free distribution (free from copyright claims), and pertains to research and training needs fulfilled by research and educational institutions and libraries. Content creation and/or commissioning bodies (including SSCs) are encouraged to study in greater detail and leverage these provisions in a manner that is legally permissible.

7.5 Entering into Legal Contracts

- A legal contract is a document that binds signatories to the purpose of their coming together according to the agreed principles, subject to the laws of the land. Therefore jurisdiction of a particular agreement is important.
- All foreseeable concerns to reduce risks for all involved must be addressed in all fairness, to the extent possible.
- Provisions for copyright infringement—as a user of previously available information as well as copyright owner of modified or adapted content—must be part of the legal contracts that content creation and/or commissioning bodies (including SSCs), draw up with outside agencies or external partners.
- Legal agreements do increase cost of operations, cost of engaging external partners, and cause delays. All of this will need to be factored into planning and cost allocation.

The purpose of a legal agreement is to set out the rules of engagement or terms of reference at the outset, so that there are few assumptions regarding response to emerging circumstances. The idea is to make operations easier and according to principles set forth by the agreement. The purpose of the legal agreement is not to maintain all authority, commercial interests, and ownership with one party while transferring all responsibilities and liabilities to another party, who might not have the knowledge of legal tangles or terminology. For, if a legal contract is perceived to be one-sided, a court of law may dismiss any filing for damages as not maintainable under law.

7.5.1 Considerations for Agreements with Outside Agencies

- For content licensing from agencies and individuals:
  - Clearly define the purpose.
  - Obtain licence to use:
    - either within an existing licensing provision if content is protected; or
    - by arriving at a new arrangement as per an agreed licensing template.
  - Ensure that the borrowed content is indemnified by the current copyright owner.
  - Acknowledge and cite these original sources to prevent plagiarism.
- For outright purchase of content rights from agencies and individuals (seldom required):
  - Clearly state the purpose upfront.
  - Clearly articulate rights of the user and rights of the content creator/owner.
  - The current copyright owner must indemnify for sourced content.
  - New arrangement should be as per an agreed commercial agreement.
  - Acknowledgement and citation will still remain necessary to prevent plagiarism.

- For content permissions other than legal contracts and outright purchase such as content sources from commercial entities:
  - Clearly state the purpose upfront.
  - Permission to use content may be arrived at through:
    - an email exchange;
    - legal contractual route;
    - commercial agreement, etc.
  - Acknowledgement and citation will still remain necessary to prevent plagiarism.
- For training tie-ups:
  - Facilitator training programmes
    - Agencies running these programmes must comply with content usage guidelines.
  - Skilling programmes
    - Agencies running these programmes must comply with content usage guidelines.

7.5.2 Considerations for Legal Agreements

Agreements between the content creation and/or commissioning body (including the SSC), and SMEs, CDs/IDs, content development agencies, printers, etc. must:

- Safeguard against risks arising out of:
  - Not attributing soured information appropriately
  - Not alerting creation and/or commissioning body (including the SSC) about potential conflict
  - Intentional misrepresentation
  - Hiding of information
- Ensure quality of content at different levels:
  - Identification of quality parameters to be considered under the legal agreement
  - Quantification of these quality parameters
  - Setting standards of expectations
  - Basis of quality standards (guarantee, warranty, best efforts, etc.)
  - Recourse action (replacement, penalty, etc.)
- Keep all content confidential in favour of the copyright owner.
- Prevent unauthorised printing, sales, distribution, and sharing of content.
- Clearly state the time period with dates during which an agreement will remain in force and binding for either party, including cooling-off period, if any.
- Include suitable termination clause, especially for non-performance, non-compliance, or any other act of omission or commission such as irregular/non-payment of royalties and timely submission of statement of accounts, if not rectified or resolved within a predefined/reasonable time after notification.

While drawing up such agreements, important caveats that need to be kept in mind are:

- The core implications of plagiarism or copyright violation charges are for the copyright claimant of the new content.
- The primary responsibility for prevention of plagiarism or copyright violation, in the form of flagging and identifying sources, lies with the SME and not the CD/ID, assuming that all content is sourced/provided/reviewed by SME.
- In many cases, the CD/ID will also be sourcing and introducing content elements.
- While it is indeed useful to bind the CD/ID and SME to a set of standards ensuring that they have taken agreed steps to prevent plagiarism, the content creation and/or commissioning body (including the SSC) must maintain constant vigil and oversight over the content submitted by CD/ID and SME to prevent instances of copyright infringement.
- It is very important to take all measures to prevent instances of plagiarism and copyright infringement through proper citations and editorial measures.

- Prevention of plagiarism and copyright infringement must be adopted by the content creation and/or commissioning body (including the SSC) as a process, so that the need to invoke legal contracts to seek indemnity is minimal.
- If and when a copyright infringement notice is served on the copyright claimant (i.e. the content creation and/or commissioning body, including the SSC) the agreement with CD/ID may not help the copyright claimant bypass the implications, since the content creation and/or commissioning body (including the SSC) is the copyright claimant to the new document.
- An honest and sincere 'Disclaimer' in the document is a more useful tool that can keep a window slightly open for discussions with anyone seeking damages or legal action against the content creation and/or commissioning body (including the SSC) for copyright infringement.
- Often, treatment of non-commercial use of copyright material is more lenient in law, whereas commercial use with profit motive offers lower defences against such unforeseen instances of copyright infringement.

Box 7.1: Key Considerations for an Agreement to Source Content from Copyright Owner

As discussed, authors and editors need to ensure that all steps are taken to prevent plagiarism. However, alongside plagiarism lurks another concern for any individual or entity sourcing content from elsewhere—copyright violation. To prevent such an infringement, an agreement is necessary.

An agreement to source content from the copyright owner, author, or creator requires many aspects to be clearly thought through. The choices made before drawing it up, during negotiations amongst the parties, and providing for potential future scenarios keeping one's best interests in mind are all necessary for an agreement. In this context, the following prominent considerations—not an exhaustive list or a full complement of issues and concerns—are useful:

1. Ascertaining whether the person claiming to own the content is truly the copyright owner of the content (document)
2. Ascertaining that sourcing content from the person will not infringe upon the rights of any third party—individual other than the copyright owner owing to any pre-existing agreement, in which case even the copyright owner's indemnification could be insufficient to prevent recalling the published output or entering into a financial settlement
3. Ascertaining that the sourced content does not expose the publisher to libel or defamation
4. Estimating the value of the content to ensure that the commercial terms will stand scrutiny to fairness under any law with regard to exploitation
5. Estimating the value of the content to negotiate the best price for the permissions derived under the agreement that is also commensurate with the use that the sourced content has for the output being created
6. Clearly identifying the following, to arrive at the fair value of the content to be sourced:
    a. Precise extent of content required
    b. Geography across which content is to be disseminated
    c. Number of impressions, copies, etc. to be distributed or circulated
    d. Whether content usage will extend beyond current medium of expression, output form, and technology—if so, clearly expressing the same
    e. Output forms across which such sourced content would manifest
    f. Duration for which such sourcing would remain in force
    g. Exclusive (or non-exclusive) nature of the content
    h. Exclusive (or non-exclusive) usage of the content
    i. Choosing between permission to reproduce (reprint), reproduce with modifications, licensing, assignment, or any other form as the core nature of the agreement on the basis of need that the content will fulfil and the price to be paid in each case
7. Ascertaining that the copyright owner fully understands the ramifications of this agreement and what it means for any other previous or future agreement related to the same content
8. Suitably and proportionately restricting the freedoms of CDs/IDs with regard to the content that they generate for any job role
9. Suitably and proportionately restricting the freedoms of SMEs with regard to the content that they generate for any job role
10. Defining the legal jurisdictions under which the agreement is being drawn up

These are some of the key indicative considerations. For specific agreements, content creation and/or commissioning bodies (including SSCs) are encouraged to seek the services of an informed legal counsel.

7.6 Creative Commons

7.6.1 What are the Creative Commons?[13]

'Creative Commons provides free, easy-to-use copyright licenses to make a simple and standardised way to give the public permission to share and use your creative work–on conditions of your choice.

CC licenses are legal tools that creators and other rights holders can use to offer certain usage rights to the public, while reserving other rights. Those who want to make their work available to the public for limited kinds of uses while preserving their copyright may want to consider using CC licenses. **Others who want to reserve all of their rights under copyright law should not use CC licenses.**'

If content creation and/or commissioning bodies (such as the SSCs)/SMEs source content entirely outside CC and do not plan to share content using CC, the CC licensing details are not meant for such job roles. If however, content creation and/or commissioning bodies (such as the SSCs)/SMEs do source content under CC—often applicable to photos, graphical representations, multimedia, and other such content sourced from the web—they will need to know about CC in greater detail. Sourcing under CC and not sharing under CC may lead to copyright violation too.

7.6.2 The Licenses[14]

7.6.2.1 What CC licenses do

'The Creative Commons copyright licenses and tools give everyone from individual creators to large companies and institutions a simple, standardised way to grant copyright permissions to their creative work. The combination of the CC tools and the CC users is a vast and growing digital commons, a pool of content that can be copied, distributed, edited, remixed, and built upon, all within the boundaries of copyright law.'

7.6.2.2 License design and rationale

'Every Creative Commons license also ensures licensors get the credit for their work they deserve. Every Creative Commons license works around the world and lasts as long as applicable copyright lasts (because they are built on copyright). These common features serve as the baseline, on top of which licensors can choose to grant additional permissions when deciding how they want their work to be used.'

7.6.2.3 Three "layers" of licenses

'The CC public copyright licenses incorporate a unique and innovative "three-layer" design. Each license begins as a traditional legal tool, in the kind of language and text formats that most lawyers know and love. This is called the **Legal Code** layer of each license.

But since most creators, educators, and scientists are not in fact lawyers, the licenses are also made available in a format that normal people can read—the **Commons Deed** (also known as the "human readable" version of the license).

The final layer of the license design recognises that software, from search engines to office productivity to music editing, plays an enormous role in the creation, copying, discovery, and distribution of works. In order to make it easy for the Web to know when a work is available under a Creative Commons license, a "machine readable" version of the license is provided—**CC Rights Expression Language (CC REL).**

Taken together, these three layers of licenses ensure that the spectrum of rights isn't just a legal concept. It's something that the creators of works can understand, their users can understand, and even the Web itself can understand.'

7.7 Making Disclaimers Serve a Purpose

The disclaimer at the beginning of a handbook is the appropriate place to open a dialogue for negotiated settlement before approaching a court to claim damages in case of copyright violation by a third party where the content creation and/or commissioning body (or the SSC, as the case may be) is the aggrieved party or in case any content creation and/or commissioning body (or the SSC, as the case may be) needs to defend a copyright infringement instance thrust upon it by a claimant of original work.

7.8 Conclusion

This chapter has attempted to present the spirit and editorial routine for preventing plagiarism, processes to be followed in avoiding deliberate copyright infringement, and the principles to be followed in engaging partners such as SMEs, CDs/IDs, Printers, and other partners for content development.

Having gone through these, content creation and/or commissioning bodies (including SSCs), SMEs, CDs/IDs and content development teams/agencies should set forth necessary processes to ensure compliance to these agreed principles. For articulating legal agreements, interpreting clauses in an agreement, or filing or defending a case related to copyright infringement, engaging a legal counsel is advisable.

Notes and References

1. 'A first principle is a basic, foundational, self-evident proposition or assumption. It cannot be deduced from any other proposition or assumption. It stands on its own. It forms the fundamental concept or assumption on which a theory, system, or method is based.' (Merriam Webster Dictionary)
2. Accessed on 15 January 2018 from https://www.merriam-webster.com/dictionary/plagiarized
3. Accessed on 15 January 2018 from http://www.plagiarism.org/article/what-is-plagiarism; originally published on 18 May 2017
4. Developed on the basis of the Turnitin plagiarism spectrum (accessed on 15 January 2018 from http://www.plagiarism.org/article/what-is-plagiarism; originally published on 18 May 2017) for the specific needs of NSDC and SSCs.
5. Copyright law of India, sourced from India page on International Copyright Service website accessed on 12 June 2018 from https://www.copyrightservice.net/copyright/in
6. Accessed on 23 April 2019 from http://www.copyright.gov.in/Copyright_Act_1957/index.html
7. Accessed on 23 April 2019 from http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/CprAct.pdf
8. Accessed on 23 April 2019 from http://copyright.gov.in/documents/copyrightrules1957.pdf
9. Accessed on 23 April 2019 from http://copyright.gov.in/Documents/Copy-Right-Rules-2013.pdf
10. For fair dealing principles followed in Great Britain please refer to https://www.gov.uk/guidance/exceptions-to-copyright
11. For fair use principles followed in the US please refer to https://www.copyright.gov/fair-use/more-info.html
12. This is the thumb rule. There have been instances of infringement at less than five per cent.
13. The text below has been extracted from https://creativecommons.org to give the reader an overview. For details please visit the website.
14. The text below has been extracted from https://creativecommons.org/licenses/; for further details please visit the website.

8 Planning and Managing Content Development

Chapter purpose: Understanding the process flow, working with a publication plan, and executing the content development project.

Content development is a fairly complex process. It includes many processes and sub-processes, methodologies, activities, and decision points. At times the process may appear to be iteratively going back and forth in order to refine (or define) the TOC, the instructional design model to be followed, chunking, flow, etc. For instance, the finalising of the KLOs and the finalising of the TOC are not possible till an instructional design model is finalised. The TOC itself undergoes iterations at different stages of the development process.

To run the content development process effectively across various job roles, the content creation and/or commissioning body (such as the SSC), needs to appoint and efficiently manage large teams of content professionals and subject matter experts (SMEs). The development of high quality participants' handbooks, facilitators' guides, and e-Content for the various job roles, needs to be properly planned and managed in a time-bound manner.

The planning kicks off as soon as any content creation and/or commissioning body, identifies a job role for the development of a handbook or e-Content.

8.1 Building the Team (see Section 4.1)

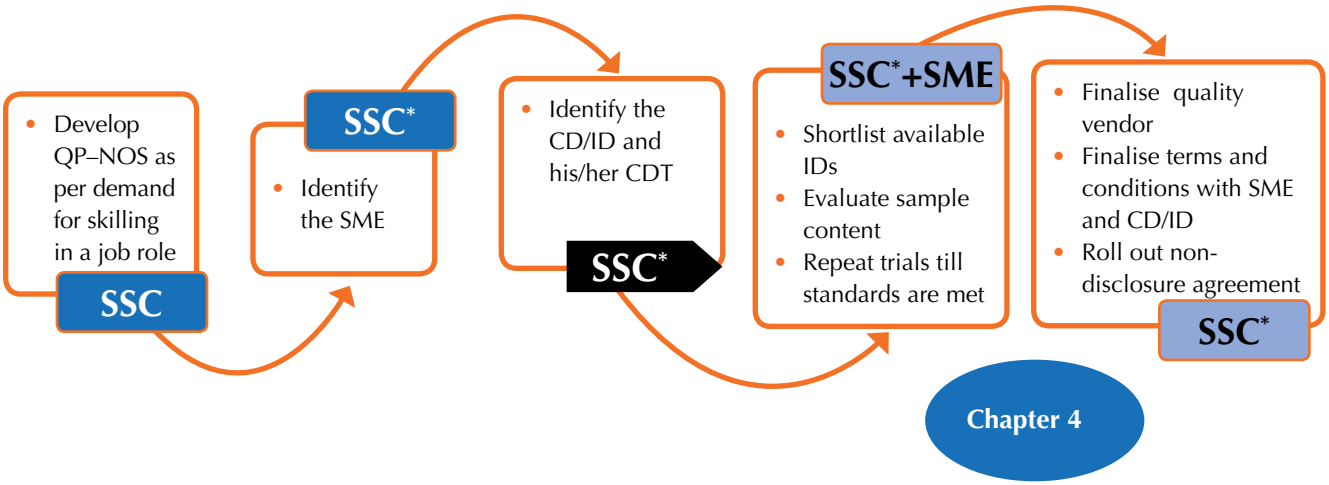
Once the job role is identified, the process of bringing in resources for developing content, begins (Exhibit 8.1: Process 1). The first task is to bring on board an SME, who is critical for content sourcing and know-how. Then the content creation and/or commissioning body (such as the SSC), has to put in place a team to develop content. This team may be nominally referred to as the Content Development Team (CDT). Individuals in this team must have capabilities to transform available information into skilling content according to job role-specific needs.

The CDT must have an experienced content developer (CD) who is preferably a qualified instructional designer (ID), and other team members to play complementary roles in areas such as graphic designing, animation, and programming (for e-Content).

Often a sample output and a presentation on the content development approach by CD/ID, SME, etc. for the specific job role may be relevant and useful in picking the most suitable team.

For certain job roles, the content creation and/or commissioning body (such as the SSC) may engage the SME along with the CDT. In such cases, the content creation and/or commissioning body (or the SSC, as the case may be) must ensure that their contractual agreements (rights and duties) are distinct and aligned to their roles and responsibilities.

Exhibit 8.1: Process 1, Building the Team



* Beyond the stage of developing the QP–NOS, the term SSC* denotes any content creation and/or commissioning body (including SSCs).

Once the CDT and the SME have been appointed, the content creation and/or commissioning body (such as the SSC) must enter into legal contractual understanding with them, comprehensively listing rights and duties along with potential risks and liabilities. Clear milestones, with timelines on a 'best efforts' basis, need to be part of such contractual arrangements.

Within a sector, many job roles are likely to have synergies in terms of course content, resources, SME, etc. and therefore the content creation and/or commissioning bodies (including SSCs) may plan the content development of two or three such roles together for efficiencies. However, before that, care must be taken to put in place a fully functional, streamlined, team operation.

Considering that SMEs are sometimes very senior resources, with years of experience behind them, a proper briefing to the CDT to align well with the SME remains a crucial team building exercise. A cordial and mutually respectful formal relationship is desirable between the CDT and SME, for a successful professional engagement, since both report to the content creation and/or commissioning body (or the SSC as the case may be). To initiate content development, the content creation and/or commissioning body (such as the SSC), may facilitate the discussions such that the CDT and SME team up well for the next two to six months.

8.2 Knowing the Audience (see Chapter 1)

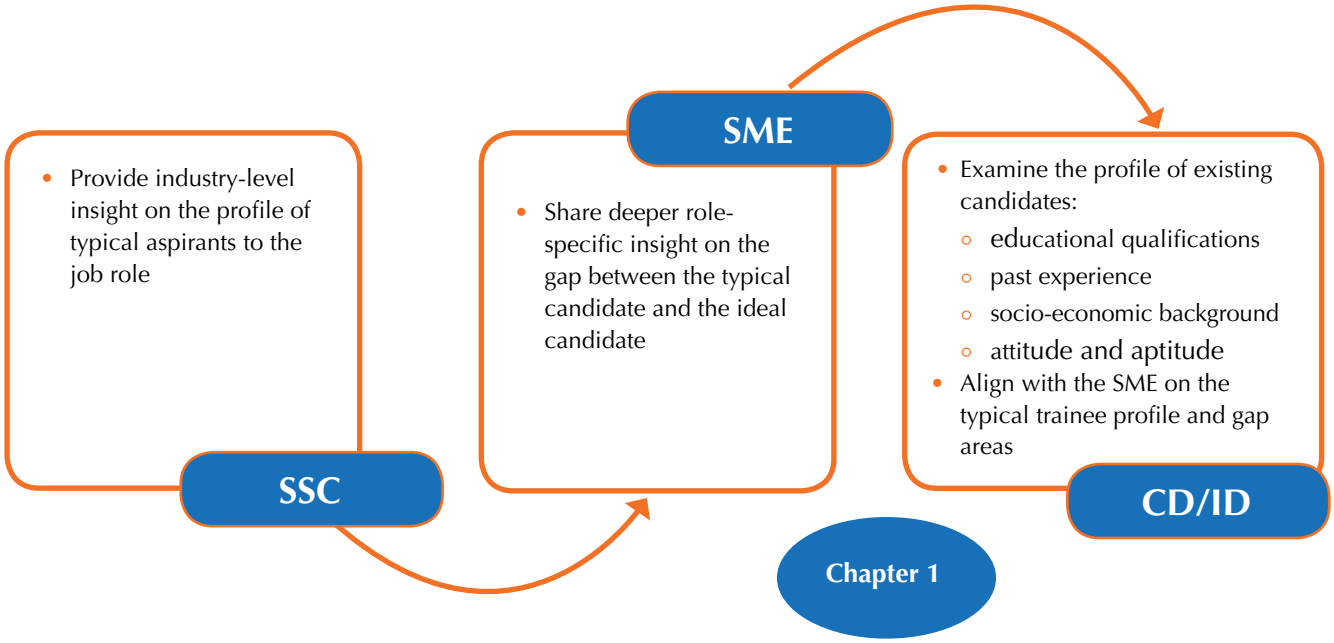
The CDT and SME need to build a common understanding about the audience for whom the content is being developed. Chapter 1: Knowing Our Audience, is a good place to start. The audience profile may blend insights from industry inputs, job role requirements, and a closer engagement with typical candidates enrolling for comparable courses (Exhibit 8.2: Process 2).

Who we are writing for, dictates what we write and how we write it. It reflects in the sequencing of ideas, choice of words, flow and complexity of sentences, level of elaboration and reiteration, assumptions regarding prior knowledge of sector, job role, process, etc. This provides necessary inputs in an appropriate manner, deciding on the ratio of text to visual, exercises and assignments, and other such considerations.

The final text-to-visual ratio may be defined on the basis of the sector, NSQF level, job role, etc. However, even in higher NSQF levels the ratio could be unusually skewed towards visuals in specific instances, for instance, a managerial job role in information technology enabled services (ITES) may need step-by-step screenshots.

After knowing the audience it also becomes easier to align the exercises, assignments, and evaluation with desired outcomes.

Exhibit 8.2: Process 2, Knowing the Audience



8.3 Developing Table of Contents Based on the Model Curriculum (see Chapters 2, 3, and 5)

Once the CD/ID and the SME are fully aligned with regard to the profile of the target audience and the requirements of the job role, they are ready to develop the table of contents for the participants' handbook based on the model curriculum (MC) for the job role (Exhibit 8.3: Process 3). As mentioned in Chapter 2: Section 2.5, the MC may be viewed as the framework for the syllabus that the typical trainee needs to cover to be fully qualified for the job role. It is the bridge between what the trainee knows and what the trainee needs to know.

8.3.1 Writing the Learning Objectives (see Sections 2.1–2.4)

The standards that a trainee is expected to meet for a job role are defined by the industry through the QP–NOS. The first step is therefore to develop learning objectives that the trainee will need to master, to meet these standards. The CDT must then break down each NOS into sharp, specific, focused, unitary, learning objectives in simplest terms. While articulating these objectives, all three domains of learning—cognitive, psychomotor, and affective—need to be considered.

When a participant meets all the learning objectives for a unit, module, NOS, and the entire QP for the job role, he/she becomes 'job ready'. So 'getting the learning objectives right' is the imperative first step to skilling content development. This is a stage which demands deep immersion, clear thinking, and iterative refinement on the part of the SME and the CD/ID. Force-fitting new learning objectives later, is a very disruptive exercise.

8.3.2 Choosing the Instructional Design Model (see Chapter 3 and Section 5.2.6)

Having developed our learning objectives, we choose an appropriate instructional design model or build an appropriate blend of models, which will best deliver our learning objectives to our trainees.

Chapter 3: Instructional Design Approaches, explores some useful and frequently used instructional design models in skill development across the world. Also, Section 5.2.6 shares tips on how an appropriate blended instructional design model may be developed for skilling content.

There are two models that have been described in Chapter 3 for CDTs, SMEs, and content creation and/or

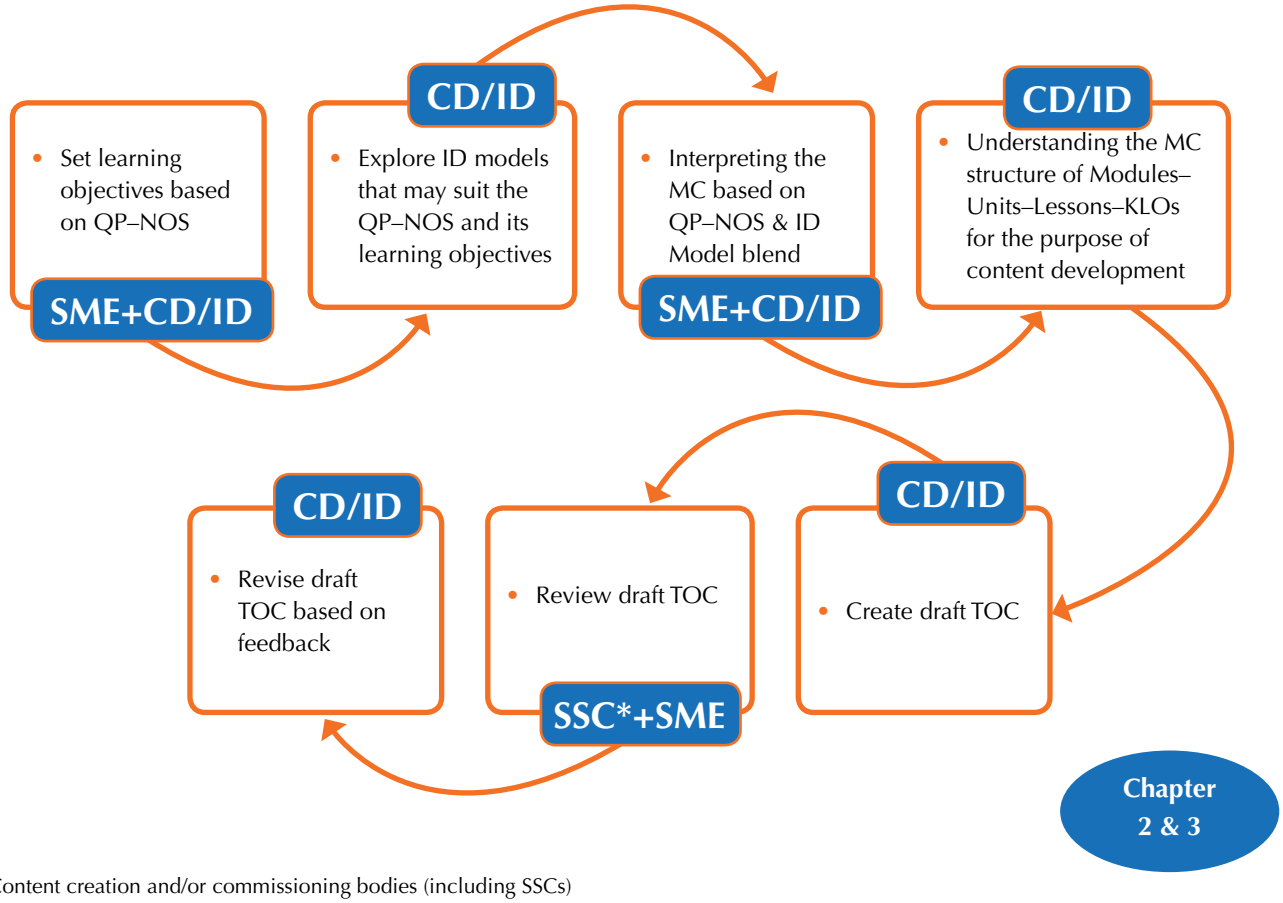
commissioning bodies (including SSCs) to consider. The ADDIE is a basic model for developing content from the perspective of the trainer or facilitator. In contrast, the ARCS model of motivational design closely follows the participant's learning curve, making the skilling process much more learner-centric. There are many other models to choose from too. Those content creation and/or commissioning bodies (or SSCs), which have already experienced limitations with the ADDIE, may consider other contemporary models such as ARCS.

It may be reiterated that the instructional design model blend, identified while outlining the learning objectives, may not take final shape till the team works with the actual content and develops the learning units. The instructional design model blend is likely to be iteratively revisited and refined as one goes along. A more sophisticated instructional design model (than the one we started out with) may eventually be rolled out to better serve the skilling requirement for the job role and ensure that the trainees achieve the KLOs based on the learning objectives set at the beginning.

8.3.3 Developing the Draft Table of Contents (see Section 2.5.2)

The KLOs defined and the instructional design model identified are embedded in the MC for the job role. The MC defines how the overall course content is to be chunked into modules–units–lessons–KLOs, it creates the blueprint for our trainee handbooks. The MC then forms the basis for the CD/ID to draw up a draft TOC for the trainee handbook or facilitator guide, as the case may be.

Exhibit 8.3: Process 3, Developing the Table of Contents



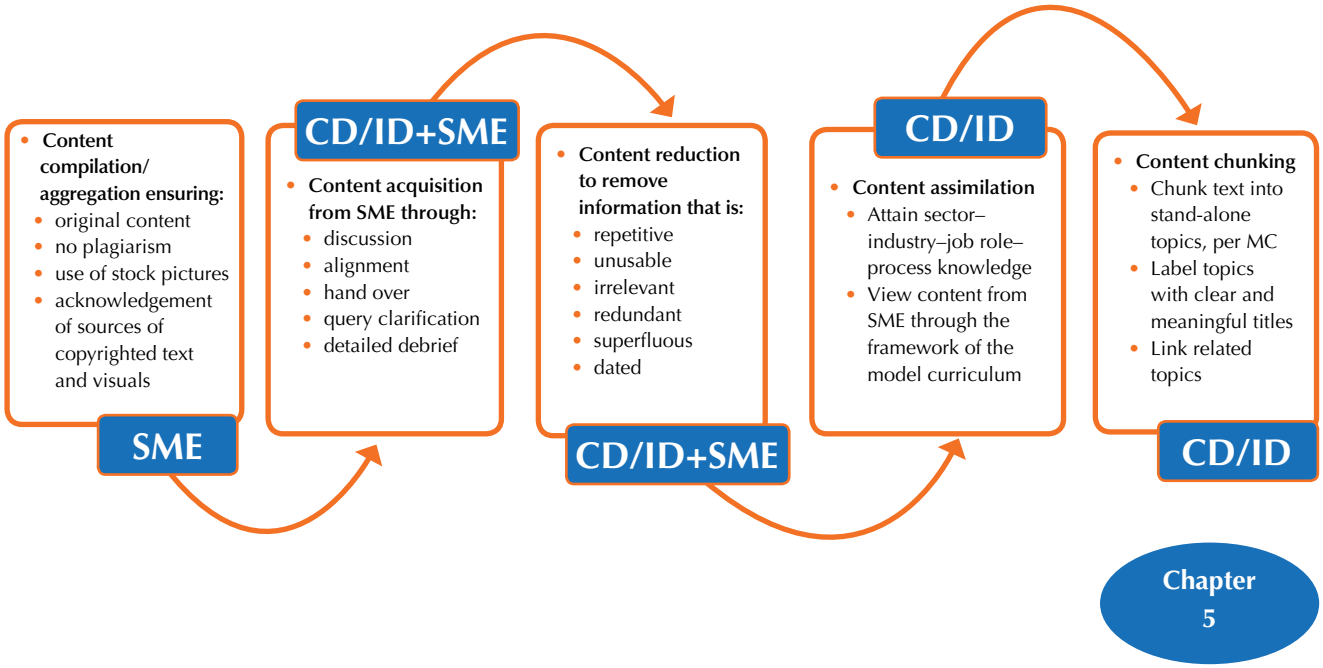
* Content creation and/or commissioning bodies (including SSCs)

8.4 Preparing and Managing Content (see Sections 5.2.1–5.2.5)

With the TOC in place, the core process of content development begins with the content compilation/aggregation and sourcing exercise (Exhibit 8.4: Process 4). The SME is expected to guide the CDT in this context and ensure accuracy and authenticity of externally sourced material. Besides content aggregated from the SME's own expertise and industry knowledge, every SME has the responsibility and mandate to validate all externally sourced material that goes into preparing the skilling content.

The sourcing and preparation of the content may be divided into five distinct stages—compilation/aggregation and sourcing (by SME), acquisition (by CD/ID from SME), reduction (to remove repeats and redundancies), assimilation, and chunking. While the SME is expected to guide and lead the first three activities, the CD/ID may drive the last two in consultation with the SME.

Exhibit 8.4: Process 4, Preparing and Managing Content



While we ensure that our content is complete, comprehensive, and adequate for our purpose, we also weed out unnecessary, repetitive or dated inputs that may add to the clutter rather than to the value of the skilling content. The idea is to be precise and purposeful. At the end of this process the curated raw material, chunked into topics, is available for development.

8.5 Adapting and Developing the Skilling Content

The core development of skilling content involves storyboard creation for the draft TOC. This is followed by articulating and populating the storyboard by adapting existing content, filling information gaps through secondary research, and writing fresh content. Once the entire content and flow is available, visual elements such as photos, graphics, and animation are generated or produced for inclusion in the skilling content. Developing exercises and content for assessment completes the stage of adapting and developing the skilling content (see Chapter 5: Sections 5.2.6–5.2.12; See Exhibit 8.5: Process 5).

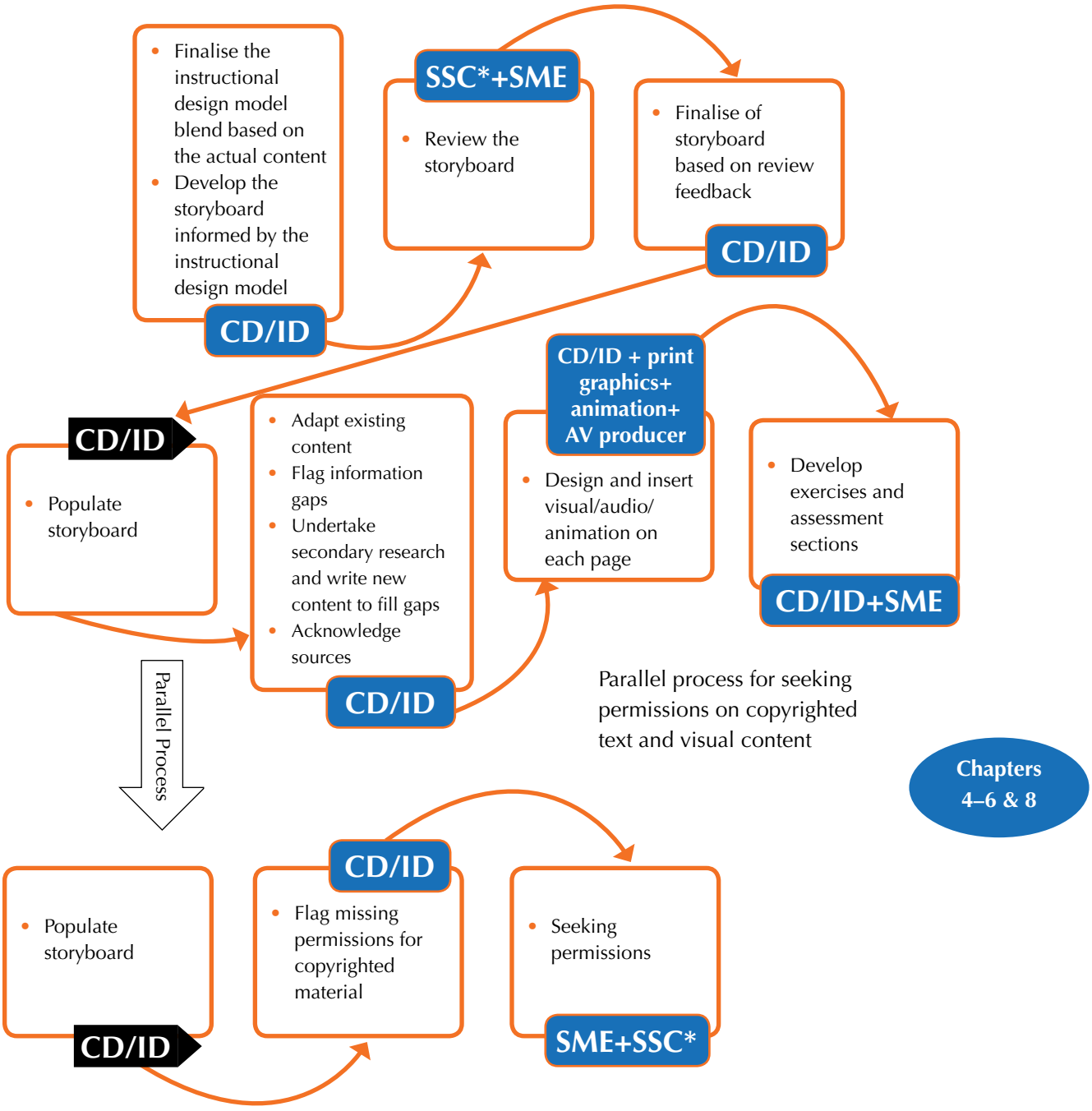
The following chapters form the framework for adapting and developing skilling content:

- Chapter 4: Content Development Roles and Responsibilities
- Chapter 5: Developing Skilling Content

- Chapter 6: Creation of Content (e-Content) for e-Learning
- Chapter 7: Content Sourcing, Publishing and Implications

These provide detailed maps of processes that would certainly help content creation and/or commissioning bodies (such as SSCs) that are new to development and publishing of skilling content. For other content creation and/or commissioning bodies (including SSCs) too these will serve as a good route to setting up robust processes, with checks and balances to develop world class content.

Exhibit 8.5: Process 5, Adapting and Developing the Skilling Content



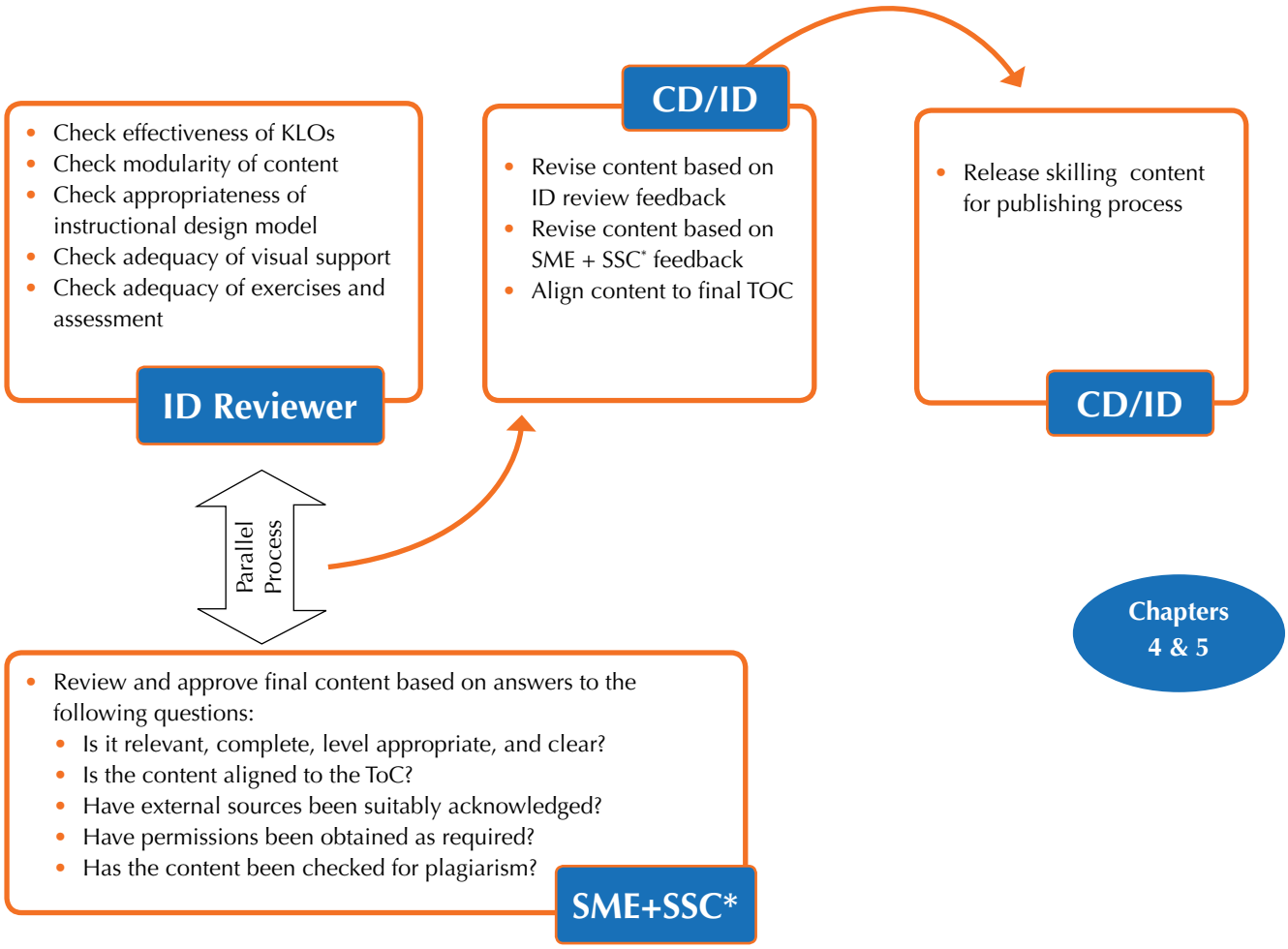
* Content creation and/or commissioning bodies (including SSCs)

An important parallel process during content development is that of seeking permissions. For all content sourced from previously published (and copyrighted) material, the appropriate citations, references, and permissions are necessary (see Sections 7.4.3–7.4.5). The entire activity of seeking and getting permissions for such inclusions needs to be completed alongside content development to avoid any delays later on.

8.6 Instructional Design Review and Approvals (see Sections 5.1.11–5.1.12)

Once ready, the draft content—including all text and visual elements—will go to a senior reviewer experienced in content development and instructional design (Exhibit 8.6: Process 6). The reviewer checks for effectiveness of KLOs, modularity of content, appropriateness of the instructional design model, adequacy of visual support, exercises and assessment. The detailed feedback on these aspects is shared with CD/ID to revise the draft content appropriately.

Exhibit 8.6: Process 6, Instructional Design Review and Approvals



*Content creation and/or commissioning bodies (including SSCs)

Though not an SME, the reviewer might raise queries or point out gaps in the content that relate to the subject matter. This may even call for seeking clarification or elaboration from the SME before revising the content.

In parallel, the SME may take up the review of the content, with a focus on adequate coverage of topics.

The content creation and/or commissioning body (or the SSC as the case may be) may simultaneously review the content to ensure completeness of information (no gaps), appropriateness of emphasis, and freedom from plagiarism. Processing the three in parallel will save time.

After incorporating all revisions, suggestions, recommendations, and corrections, the revised content may be shared again with all three for approval. This process may be iterative with a couple of rounds of modifications from the three—reviewer, SME, and the content creation and/or commissioning body (or the SSC as the case may be).

After an approval from all three and completion of plagiarism check and revision, the manuscript may be considered ready for publishing and production.

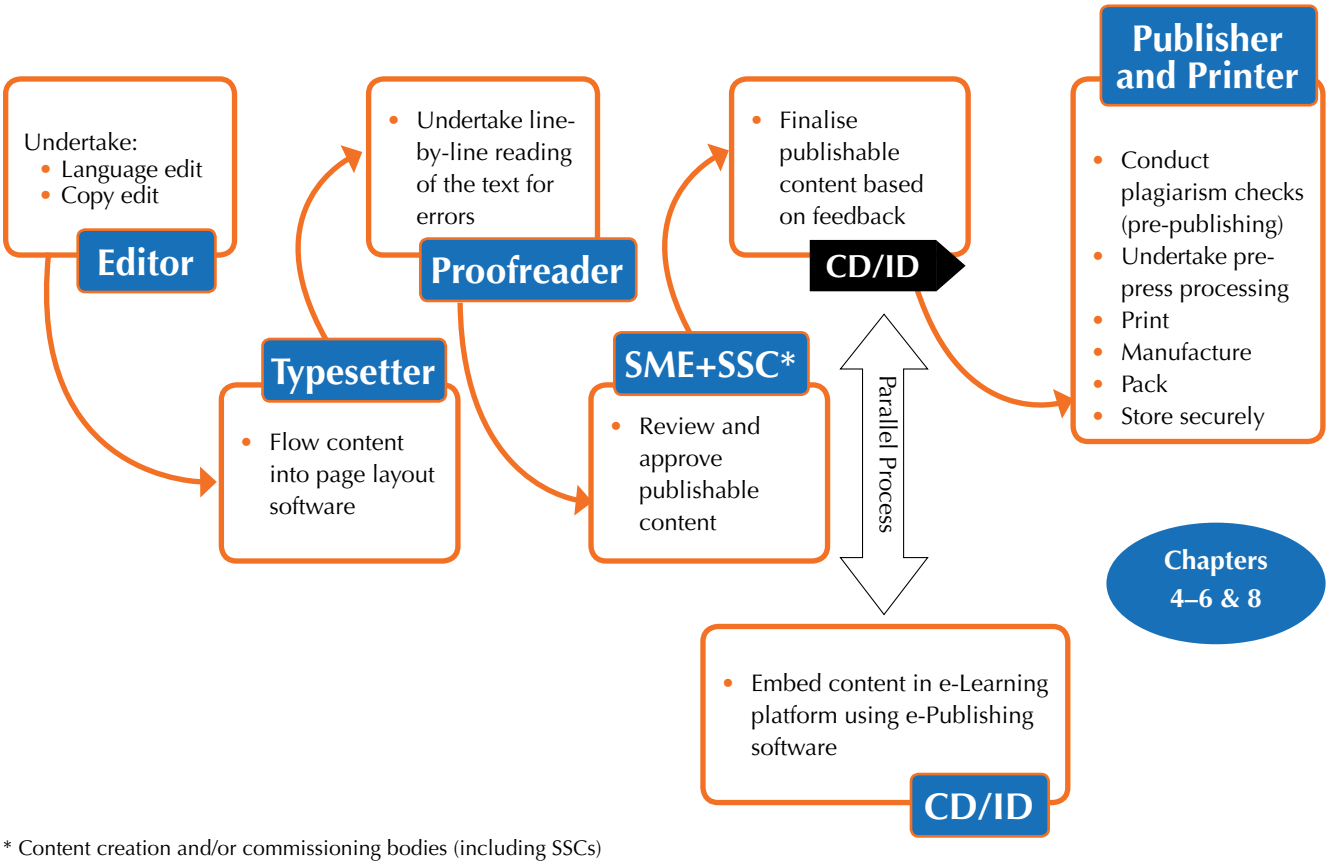
8.7 Publishing and Production (see Sections 4.6, 5.3, 6.4, and 7.4)

The finalised manuscript is now ready to be die cast into the content layout template (Exhibit 8.7: Process 7). This template is predefined and adapted to the job role, sector, and NSQF-level per the guidelines set by NSDC and SSC.

However, before the content is laid out in its final form, a language and copy edit needs to be undertaken to ensure that correct language and syntax are followed. Consistency throughout the document in terms of styles, grammar, spellings, etc. is maintained. Ideally, such consistency needs to be ensured across all job roles for a sector (SSC) and at a more general level with all job roles (NSDC).

The typesetting (or page-setting) exercise will follow copy edit to bring all the text and visual elements together into a published output. To complete the publishing process the final published output will have to be proofread for any errors or omissions. If there are any corrections at any of these publishing processes they will need to be incorporated accordingly.

Exhibit 8.7: Process 7, Publishing and Production



* Content creation and/or commissioning bodies (including SSCs)

The print handbook is ready for review by the reviewer as well as SME and CD/ID. The same will have to be finally approved by the SME and content creation and/or commissioning body (or the SSC, as the case may be) before the production of the printed output.

Upon approval, the CDT has to submit to the content creation and/or commissioning body (or the SSC, as the case may be):

- Final high resolution, print-ready file (HR–PR)
- Production files and source files including images, illustrations, schematics, flowcharts, e-Content, etc.
- Chapter-wise plagiarism check report (of entire content)
- Instructional design review sign-off report
- Editorial clearance report etc.

After the finalisation of the print collateral, the finalised content will need to be adapted to the e-Learning platform to deliver the skilling programme digitally.

8.8 Content Development Process at a Glance (Single Chart)

It is critical for the content creation and/or commissioning body and CDT to be able to see the entire content development process as a single flow of processes with clearly defined responsibilities, which may then be laid against a timeline. Those involved with the content development process may use the chart in Exhibit 8.8 as a tool.

1. The chart lists the content development processes across rows A to N with sub-processes and sub-sub-processes. The process list A–N identifies 'what needs to be done'.
2. The resources (or 'who will do it') are listed in the columns starting with SSC and followed by SME and the various members of the CDT (by role/function).
3. The '✓' mark indicates the core process owner who is expected to anchor the process/sub-process/sub-sub-process (in that row).
4. The last row indicates total sub-sub-processes each resource will have to anchor.

Exhibit 8.8: Process Flow – Resource Responsibility Chart for Planning and Managing Content Development

Process Reference			*Responsibility/Resource (In order of entry into the content development process)*	SSC	SME	CD/ID [1]		Design and Creation Team			Instructional Design Reviewer	Editor		Typesetter[2]	Proofreader	Printer–Publisher
			Process (Flow of activities)			Write	Visualise	Graphics Print	Animations	Producer AV		Language	Copy			
A			**Develop QP–NOS as per demand for skilling in a job role**	✓												
B			**Identify the SME/Industry Experts/Practitioners**	✓												
C			**Identify the CD/ID and thus the CDT committee**	✓												
C	I		Shortlist available IDs	✓												
C	II		Evaluate sample content received from each	✓	✓											
C	III		Repeat process with new candidates till samples meet quality standards	✓												

Process Reference			Responsibility/Resource (In order of entry into the content development process)	SSC	SME	CD/ID [1]		Design and Creation Team			Instructional Design Reviewer	Editor		Typesetter[2]	Proofreader	Printer–Publisher
			Process (Flow of activities)			Write	Visualise	Graphics Print	Animations	Producer AV		Language	Copy			
C	IV		Finalise the most suitable vendor, based on quality of sample content	✓												
C	V		Discuss division of labour, terms and conditions with SME and the linked ID	✓												
C	VI		Roll out non-disclosure agreements	✓												
D			**Understand the participant**		✓	✓										
E			**Understand the MC**													
E	I		Define learning objectives across cognitive, psychomotor, and affective domains based on QP–NOS			✓										
E	II		Consider various instructional design models that may suit the learning objectives			✓										
E	III		Set KLOs based on the learning objectives and the tentative instructional design model		✓	✓										
E	IV		Understand how the MC is based on the KLOs		✓	✓										
E	V		Understand the Modules–Units–KLOs structure of the MC			✓										
E	VI		Create draft TOC			✓										
E	VII		Review draft TOC	✓	✓											
E	VIII		Finalise draft TOC based on feedback			✓										
F			**Manage the content**													
F	I		Content aggregation		✓											
F	II		Content acquisition from SME			✓										
F	III		Content reduction		✓	✓										
F	IV		Content assimilation			✓										
F	V		Content chunking			✓										
G			**Develop the content**													
G	I		Finalise the instructional design model blend, based on the actual content			✓										
G	II		Develop storyboard informed by instructional design model			✓										
G	III		Review the storyboard	✓	✓											
G	IV		Finalise the storyboard based on review feedback			✓										
G	V		Populate the storyboard			✓	✓									
G	V	1	Adapt existing content			✓										

Process Reference			Responsibility/Resource (In order of entry into the content development process)	SSC	SME	CD/ID [1]		Design and Creation Team			Instructional Design Reviewer	Editor		Typesetter[2]	Proofreader	Printer–Publisher
			Process (Flow of activities)			Write	Visualise	Graphics Print	Animations	Producer AV		Language	Copy			
G	V	2	Identify information gaps			✓										
G	V	3	Do secondary research and write new content to fill these gaps			✓										
G	V	4	Acknowledge sources			✓										
G	V	5	Seek permissions	✓	✓											
G	V	6	Develop exercises and assessment sections		✓	✓										
G	V	7	Design and insert visual/audio/animation elements on each page				✓	✓	✓	✓						
H			**Seek Permissions or License to Use Content**													
H	I		For all instances of sourced content seek appropriate permissions or enter into license agreement	✓	✓											✓
H	II		Ensure all instances are addressed and reinvent portions that cannot be sourced		✓	✓										
I			**Prevent plagiarism**													
I	I		Run plagiarism checks			✓	✓	✓								✓
I	II		Review to eliminate instances of plagiarism tracked		✓	✓	✓	✓								
J			**Finalise TOC based on final content**			✓										
K			**Undertake basic editing to ready content for review**									✓	✓			
L			**Review content**													
L	I		Undertake instructional design review								✓					
L	II		Revise content based on instructional design review			✓	✓	✓	✓	✓						
L	III		Carry out expert review of final TOC and content	✓	✓											
L	IV		Finalise core content based on expert feedback			✓	✓	✓	✓	✓						
M			**Publishing**													
M	I		Language edit									✓				
M	II		Copy edit										✓			
M	III		Typeset/Page design											✓		✓
M	IV		Proofread												✓	
M	V		Review of publishable content and seek industry endorsements	✓	✓											
M	VI		Finalise publishable content based on feedback			✓										
M	VII		Embed content in learning platform using e-publishing software			✓										

Process Reference			Responsibility/Resource (In order of entry into the content development process)	SSC	SME	CD/ID [1]		Design and Creation Team			Instructional Design Reviewer	Editor		Typesetter[2]	Proofreader	Printer–Publisher
			Process (Flow of activities)			Write	Visualise	Graphics Print	Animations	Producer AV		Language	Copy			
N			**Production**													
N	I		Undertake pre-press processing													✓
N	II		Print													✓
N	III		Manufacture													✓
N	IV		Pack													✓
N	V		Store securely													✓
			Number of Processes Allocated to Resource	**15**	**15**	**29**	**6**	**5**	**3**	**3**	**1**	**2**	**2**	**1**	**1**	**8**

Notes: 1. The CD/ID (CDT) is required to submit a plagiarism check report along with other deliverables once the content development process is completed.

2. Typesetter is often brought in by the Printer–Publisher.

9 Checklists

9.1 Checklist for Final Manuscript (see Section 4.6.2 and Section 5.3.1)

The basic manuscript is ready for editing once the subject matter expert and the content designer/instructional designer and the instructional design reviewer have ensured to the best of their ability that the content meets the 7-Cs criteria.

TABLE 9.1 The 7-Cs for Finalisation of a Manuscript

	The 7 Cs	*Questions to Ask*
1.	Clarity	• Is there any ambiguity in the text? • Are all exhibits self-explanatory? • Has the conjunction of visuals against relevant text been verified?
2.	Correctness	• Are all the facts correct? • Are all the figures accurate? • Has every statement been checked for plagiarism?
3.	Consistency	• Have all repetitions been eliminated? • Have all contradictions have been tracked and resolved? • Do all the exhibits complement the text? • Do all arguments and assertions tie in with each other?
4.	Completeness	• Are there gaps in: ◦ Information? ◦ Visual support? ◦ Stages/steps of processing? ◦ National Occupational Standards to be met? ◦ Techniques and technologies available? ◦ Customer needs to be addressed? ◦ Job requirements? ◦ Soft-skill needs? ◦ Exercises to test for competencies? ◦ Health and safety requirements? ◦ Legal/regulatory/statutory requirements? ◦ Permissions and documentation requirements? • Has content been approved by all relevant stakeholders—the Sector Skills Council* and the subject matter expert, instructional design reviewer, etc.?

	The 7 Cs	*Questions to Ask*
5.	Coherence	• Is content as per agreed flow, structure, instructional design, and chunking logic decided upon? • Have the headings, caveats, sections, exercises, case studies, data, facts, figures, exhibits, etc. been finalised in discussion with relevant stakeholders? • Does the structure match the sequencing of training sessions as rolled out in the classroom/ laboratory? • Does one section lead to the next? • Is there any jumpy, staccato, incomplete, unclear, or out of context text?
6.	Conciseness	• Has all incidental/tangential/unnecessary information been eliminated? • Is the relevant information included as simply, briefly and clearly as possible? • Can anything else be reduced or removed without impacting the quality?
7.	Credibility	• Are sources, ascriptions, and facts verifiable? • Are all arguments, new ideas, and conclusions logical and believable? • Are there enough examples, demonstrations, and case studies? • Are all examples relevant to the context of the trainees and trainers? • Are assumptions about expected work environment realistic (not ideal)?

Sector Skills Council* (SSC): In this context it may also refer to content creation and/or commissioning bodies in general (including but not only SSCs).

9.2 Checklist for a Style Guide (see Section 4.6.2 and Section 5.3.1)

A **Standardised Guide for Style and Usage** is an absolute imperative to ensure that all the trainee support collateral produced across sectors, Qualification Packs, and National Skills Qualification Framework levels, follow similar norms and conventions.

TABLE 9.2 What Editorial Guidelines Typically Comprise*

1.	**Abbreviations:** Have lists of general abbreviations and specific abbreviations been created?
2.	**Appendices:** Has a style been defined for creation of appendices?
3.	**Articles (a, an, the):** Have the rules for articles been defined?
4.	**Boxes:** Has a style been defined for box items?
5.	**Brand names:** Has a style been defined for brand names?
6.	**Capitalisation:** Have rules been defined for capitalisation?
7.	**Company names:** Has a style been defined for company names?
8.	**Computer terms:** Has a style been defined for computer terms? Will they be abbreviated?
9.	**Cross-references:** What should be the style for cross-references?
10.	**Currencies and exchange rates:** What should be the style for currencies and rules for exchange rates?
11.	**Dates:** Has a format been defined for dates?
12.	**Figures:** Has a style been defined for figures?
13.	**Footnotes:** Has a style been defined for footnotes?
14.	**Gender references:** Have rules for gender references been defined?
15.	**Glossary (technical terms):**** Has a glossary of terms been generated for skills in general and the sector or job role in particular?
16.	**Headings:** Have heading styles been defined?
17.	**Health terms:** Have the rules for health terms been defined? Sentence case or title case?
18.	**Lists:** Has a style for lists been defined? Bulleted or numbered?
19.	**Non-English terms:** Have the rules for non-English terms been defined? Italicised? Title case?
20.	**Numbers:** Has a style for numbers been defined? In digits or in words? With Indian commas or international numbering system?
21.	**Punctuation:** Has a style for punctuation been defined? British or American?
22.	**Quotations:** Has a style for quotations been defined? Single or double?
23.	**Ranges:** Has a style for number ranges been defined?

24.	**Rates and ratios:** Have the rules for rates and ratios been defined?
25.	**References:** Has a reference style been defined? Footnotes or bibliographical listing?
26.	**Grammar:** Have the rules for grammar been defined? British or American?
27.	**Scientific terms:** Have the rules for scientific terms been defined?
28.	**Spelling:** Have the rules for spellings been defined? British or American?
29.	**Tables:** Has the style for tables been defined?
30.	**Time of day:** Have the rules for time of day been defined?
31.	**Weights and measures:** Have the rules for weights and measures been defined?

* A list of guidelines for edit-style and syntax will need to be developed for the copy editor to ensure consistency. The aspects covered in these guidelines will be outlined separately.

** A sector/qualification pack-specific glossary of technical terms and abbreviations frequently used in the training collateral will be required. Such a comprehensive but dynamic list will have to be developed by each Sector Skills Council. (Please note: The Sector Skills Council in this context, may also refer to content creation and/or commissioning bodies in general including but not limited to SSCs) in convergence with the subject matter expert and shared with the content developer/instructional designer, because such terms will be sector specific. The glossary may need to be updated from time to time as needs evolve.

These general guidelines may be supplemented with some sector/qualification pack specific conventions that are unique to the specific trainee support collateral basket under preparation.

9.3 Checklist for Creation of Visual Elements (see Section 4.4, Section 5.2.9.3, and Box 5.2)

9.3.1 Visual Elements

TABLE 9.3 **Content Developer/Instructional Designer to Ensure the Following Checks Before Releasing Visual Elements for Creation/Graphics Designing**

1.	**Labelling:** Have all visual elements been suitably labelled?
2.	**Captioning:** Have all elements other than main text been suitably captioned?
3.	**Numbering:** Have all elements other than main text been appropriately numbered?
4.	**Sequencing:** Have all elements other than main text been suitably sequenced?
5.	**Placement:** Have all visual elements been appropriately placed against relevant text?
6.	**Referenced:** Have all elements other than running text been referenced in the main text?
7.	**Source:** Have sources for all elements procured from elsewhere been mentioned in footnote or endnote?

9.3.2 Visuals Resource

TABLE 9.4 **Content Developer/Instructional Designer to Ensure the Following Checks Before Releasing Visual Elements for Page Setting or Integration into Digital Output Forms**

1.	**Suitable for printing:** Is the art-work suitable for printing in terms of colour components, resolution, choice of colours, distinctiveness, conveying what is intended, etc.?
2.	**Suitable for digital:** Is the artwork suitable for reproduction on the web in terms of colour components, resolution, choice of colours, distinctiveness, conveying what is intended, etc.?
3.	**Permissions:** Have relevant permissions been obtained for reproduction of artwork taken from external sources in the collateral?
4.	**Acknowledgements:** Have the acknowledgements been appropriately worded as required by the owner of the artwork?
5.	**Other reproductions:** If the training support collateral consists of elements beyond a printed publication, the visual elements will take many other forms and be delivered through a range of communication vehicles such as rich multimedia. Have the above items 2–4 been ensured for the alternate communication vehicle?

9.4 Checklist to Source Content (see Section 4.3, Section 5.2.9.1, and Chapter 7)

TABLE 9.5 Content Creation and/or Commissioning Bodies (Including Sector Skills Councils) to Ensure Steps are Taken to Prevent Copyright Violation

1.	**Obtaining permission:** Has the content creation and/or commissioning body (including Sector Skills Councils) obtained permission in writing from all the sources from where content has been acquired, for the purpose that it has been acquired for?
2.	**Initiation of permission seeking:** Has the editor/author/subject matter expert/content designer/instructional designer alerted the content creation and/or commissioning body to seek permission from the copyright owner to source the content and initiated the process on behalf of the content creation and/or commissioning body (such as the SSC)?
3.	**Source ownership:** Does the source own the copyright to give permission or assign the copyright for the content that is being sourced?
4.	**Citations and references:** Does the sourced content carry suitable citations and references pertaining to the content sourced?
5.	**Permission boundaries:** Does the source permission restrict modification of the sourced content for the purpose?
6.	**Common knowledge:** Is the content available from multiple sources and is it mostly common knowledge?
7.	**Reference from source:** Does the source provide proper reference to be carried with the sourced content?
8.	**Authenticity of information:** Is the information contained authentic, validated, and tested for the purpose?
9.	**Adaptation:** Is it possible to adapt the sourced content for the purpose?
10.	**Suitability:** Is the information suitable for the purpose?
11.	**Comprehensiveness:** Is the information sufficient for the purpose?

9.5 Checklists for Developing Participants' Handbook and Facilitators' Guide

9.5.1 Participants' Handbook

TABLE 9.6 Checklist for Developing a Participants' Handbook

	Format
1.	Do the front cover and the back cover follow the prescribed format?
2.	Is the 'Acknowledgment' section as per the prescribed format?
3.	Is the 'About this Book' section as per the prescribed format?
4.	Is the page with the Prime Minister's quote placed as per the prescribed format?
5.	Does every module have a module separator page?
6.	Does the module separator page follow the prescribed format?
7.	Have the prescribed fonts been used?
8.	Have the modules, units, sections, etc. been numbered according to the format?
9.	Has the pagination been done according to the prescribed format?
10.	Is the header correct?
11.	Have the logos of Skill India, Government of India, National Skill Development Council, and the Sector Skills Council been placed correctly?
12.	Have the prescribed icons been used correctly?
	Content
13.	Is the sector, name of the job role, sub-sector, occupation, reference id, version no. and National Skills Qualification Framework level correctly mentioned?
14.	Is the name of the job role, qualification pack code and National Skills Qualification Framework level on the certificate correct?

	Content
15.	Is the certificate duly signed?
16.	Have high resolution images been used?
17.	Have all the images/photographs/infographics been named and numbered according to the prescribed format?
18.	Is the National Occupational Standards code specified for each module in the table of contents?
19.	Have key learning outcomes been defined at the start of every module?
20.	Have unit objectives been defined at the start of every unit?
21.	Do the key learning outcomes and unit objectives start with measurable verbs?
22.	Have all the National Occupational Standards been covered?
23.	Does the module reference the correct National Occupational Standards code?
24.	Have all the units and sections been correctly numbered?
25.	Have gender biased statements or examples been used?
26.	Has the 'Entrepreneurship and Employability' section been added?
	Language
27.	Has the book been edited and copy-edited?

Source: List provided by National Skill Development Corporation.

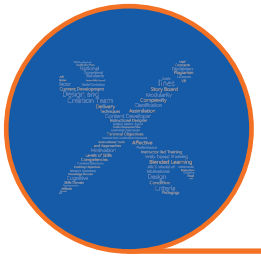
9.5.2 Facilitators' Guide

TABLE 9.7 **Checklist for Developing a Facilitators' Guide***

	Format
1.	Has the prescribed format for design and layout been followed?
2.	Are the sector, sub-sector, and occupation on the cover page correct?
3.	Are the qualification pack code (Reference ID) and version number correct?
4.	Is the National Skills Qualification Framework level correct?
5.	Is the 'Acknowledgement' section specific to the Facilitators' Guide? Is the message here tailored to address facilitators, not students)?
6.	Does the 'Symbols Used' section have only those icons that have actually been used in the manual?
7.	Are the modules and units in sync with the ones in the Participants' Handbook?
8.	Is the table of contents organized in terms of modules and their units?
9.	Do the module headings in the table of contents carry the National Occupational Standards codes?
10.	Does the module separator page carry the correct National Occupational Standards code?
11.	Has the 'Employability' section of the Facilitators' Guide been added?
12.	Has Annexure 1: Training Delivery Plan, been added at the end?
13.	Has Annexure 2: Assessment Criteria, been added at the end?
14.	Have all the modules/National Occupational Standards mentioned in the model curriculum been covered?
15.	Have all figures and tables been labelled and numbered according to the prescribed format?
16.	Do the assessment criteria in the manual match those in the qualification pack?
	Instructional Design
17.	Does every module start with key learning outcomes?
18.	Have unit objectives been specified for each unit?
19.	Does it flow in sync with the Participants' Handbook for the job role?
20.	Has content been bulk pasted from the Participants' Handbook?
21.	Have skill practice activities been added?

	Instructional Design
22.	Are the images/illustrations/infographics clear and legible?
23.	Is the training delivery plan detailed?
	Language
24.	Has the Facilitators' Guide been copy-edited?

Source: List provided by National Skill Development Corporation.



Annexes

A-1 Recognising a Robust Model Curriculum for Drafting TOC

1. In a robust MC, the terminal objectives of the skilling programme will always be precisely articulated and in complete sync with the demands from the job role as described in the QP.
2. The MC is always mapped to the QP–NOS to address the demands from the job role by ensuring that:
   i. outline for each module reflects the relevant NOS;
   ii. enabling objectives are defined through the module KLOs;
   iii. units comprehensively cover the KLOs for a module;
   iv. bridge modules have been added based on learner requirements and instructional flow;
   v. theory and practical hours for core modules with their NOS codes have been specified;
   vi. the equipment required to conduct training effectively has been listed;
   vii. the facilitator prerequisites have been defined; and
   viii. the assessment criteria included.

While drafting the TOC based on the MC, CD/ID must ensure that the final TOC is approved by the SME, reviewed by ID Reviewer, and accepted by the SSC or the content creation and/or commissioning body, whichever applies.

A-2 Elements and Tips for Publishing a Participants' Handbook[1]

A-2.1 Elements of a Participants' Handbook

1. **Cover Page:** Name of the sector/sub-sector/occupation/QP code/version no./NSQF level
2. **Copyright Page:** Provides publisher, printer, and details related to intellectual property rights (IPR)
3. **Disclaimer:** Offers the position of the publisher on the contents
4. **About this handbook:** Information on sector, programme, its purpose, and objectives
5. **Symbols used:** A list of all the symbols used in the book
6. **Table of Contents:** Details of the modules and the units in each of them

A-2.2 Elements of a Module

1. The module's KLOs
2. Name of units
3. Content for units
4. Unit objectives
5. A 'Check Your Understanding' assessment at the end of each unit

A-2.3 Recommendations for Writing Objectives

1. Articulate objectives that the learner will accomplish after a unit.
2. Unit Objectives must be actionable, measurable, and observable.
3. Avoid verbs that are difficult to measure (such as understand, know, believe, realise, and feel).

A-2.4 Formatting Tips for Content

1. Headings and Subheadings that contrast well (bolder, larger, etc.) against running text matter
2. Highlighted keywords (bold, italics, etc.) to emphasise on certain words
3. Bulleted or numbered lists to help present the content into more manageable pieces

A-2.5 Graphical Elements

1. Substitute text with visuals wherever possible.
2. Use flow charts and process maps to depict processes.
3. Use visuals and diagrams to depict equipment and use of equipment.
4. Name and number all graphical elements.

A-2.6 Formative Assessment within or Following the Unit

1. Practice test items
2. Problem-solving exercises
3. Other formative assessment methods

A-3 Elements in a Facilitators' Guide[2]

A-3.1 Elements of a Facilitators' Guide

1. **Cover Page:** Name of the Sector/Sub-sector/Occupation/QP code/Version No./NSQF Level
2. **Copyright Page:** Provides publisher, printer, and IPR details
3. **Disclaimer:** Offers the position of the publisher on the contents
4. **About this guide:** Information on sector, programme, its purpose and objectives
5. **Symbols used:** A list of all the symbols used in the book
6. **Unit-wise instructions:** Detailed session-wise instruction on planning and delivering each unit
7. **A training delivery plan:** Listing training outcomes and outlining session details (duration, methodology adopted, training approaches and tools, etc.)
8. **Assessment criteria:** This is taken as is from the QP being targeted for skilling

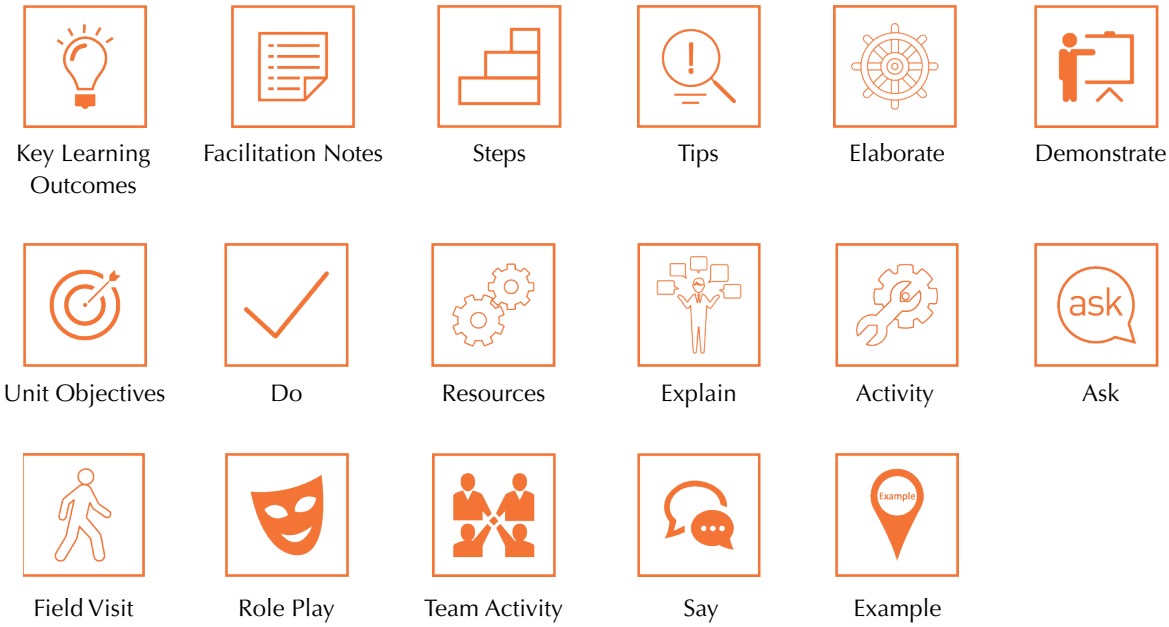
A-3.2 Elements of Unit-wise Instructions

Each module may begin with the **KLOs.** Unit-wise instructions may contain:

1. **Name** of the unit
2. **Unit Objectives** to be introduced to the trainees. This includes the objectives or what a trainee should know at the end of the unit (competencies to be acquired by the end of the unit).
3. **Notes for facilitation** to plan the session and the resources to be used for the same.
4. **Resources to be used** such as books, handouts, pen and paper, whiteboard, slides, computer, LCD projector, flipcharts, Post-it stickers, etc.
5. **Do/demonstrate** instructions on how the trainer should move ahead with the activity.
6. **Say** what the facilitator may verbally communicate following something similar to the script. This includes linking topic to prior knowledge, from simple to complex, etc.

7. **Explain/elaborate section** provides the trainer with ideas and information to explain a topic. Examples may be written here to assist the facilitator in illustrating a topic.
8. **Activity section** (role plays, workbook exercises, discussions, games, etc.) carries instructions for the trainer to help the trainees understand and internalise what they have learnt.
9. **Field visit section** enlists the steps for organising a field visit for the trainees to help increase their interest and engagement in their future job role and add a positive attitude for the course.
10. **Tips** to help the trainer facilitate interaction with participants. It may include questions.
11. **Ask section** includes questions to test the participants' mastery of knowledge and skills for evaluation.
12. **Frequently Asked Questions (FAQs)** assist the facilitator prepare for the unit.

A-3.3 Icons that May be Used in Facilitators' Guides



A-4 Inclusive Skilling for Persons with Disabilities

Building Awareness about Disability-specific Content Adaptation and Delivery Techniques

As inclusion becomes central to the growth of the country, the word attains greater significance from diverse perspectives. Digital inclusion, financial inclusion, and inclusion of socioeconomically deprived sections have all received legislative and implementation support through the years. The most challenging in this series of inclusive policies is that of skilling of the persons with disabilities (PwDs)—*Divyangjan*.

A-4.1 A Statutory Requirement

Inclusive skilling is not just a societal need but also a statutory requirement. As a pioneering participating country that ratified the sustainable development goals (SDGs) of the United Nations in September 2015, India is committed to ensuring that Goal 4 (Quality education) targets are met.[3]

'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (Goal 4). Targets enshrined in the SDGs of the UN relate to skilling of persons with disabilities[4]

- By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples, and children in vulnerable situations.
- Build and upgrade education facilities that are child-, disability-, and gender-sensitive and provide safe, non-violent, inclusive and effective learning environments for all.

The Rights of Persons with Disabilities Act, 2016 (RPwD Act, 2016) too highlights the principles of 'full and effective participation and inclusion in society' and 'equality of opportunity' drawn from the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). These two, in addition to the other enabling ones such as 'accessibility' and 'non-discrimination' together create the rights-based legal justice system that allows nurturing of educational ecosystem for PwDs.[5]

Education and skilling related provisions in the Rights of Persons with Disabilities Act, 2016[6]

The Rights of Persons with Disabilities Act, 2016 aims to facilitate inclusive education and skilling by various specific provisions such as,

- Promoting the use of appropriate augmentative and alternative modes, means, and formats of communication, such as Braille and sign language to fulfil the daily communication needs.
- Providing books, other learning materials, and appropriate assistive devices free of cost up to the age of eighteen years to students with benchmark disabilities.
- Making suitable modifications in the curriculum and examination system to meet the needs of students with disabilities, such as extra time for completion of examination paper, facility of scribe, exemption from second and third language courses.

Appropriate level of government are encouraged to formulate schemes and programmes that will support employment/self-employment of persons with disabilities through vocational training. Such schemes, among other things, will enable:

- Inclusion of persons with disabilities in all mainstream formal and non-formal vocational and skill-training schemes and programmes
- Exclusive skill-training programmes for persons with disabilities with active links with the market, for those with developmental, intellectual, multiple disabilities, and autism

Expanding the scope of the erstwhile PwD Act, 1995 that listed seven disabilities, RPwD Act, 2016 includes 21 disabilities listed below:[7]

1. Blindness
2. Low-vision
3. Leprosy-cured persons
4. Hearing impairment (deaf and hard of hearing)
5. Locomotor disability
6. Dwarfism
7. Intellectual disability
8. Mental illness
9. Autism spectrum disorders
10. Cerebral palsy
11. Muscular dystrophy
12. Chronic neurological conditions
13. Specific learning disabilities
14. Multiple sclerosis
15. Speech and language disability
16. Thalassemia
17. Haemophilia
18. Sickle cell disease
19. Multiple disabilities including deafness and blindness
20. Acid attack victim
21. Parkinson's disease

A-4.2 Disability-specific Approach to Skilling[8]

A prerequisite for inclusive skilling is to view and value all learners as equals and enable conditions that help maximise participation from PwDs. For that, accessible curricula and skilling content need to be developed without compromising on the delivery of skilling standards. This can be achieved by taking physically and academically barrier-free routes. Skilling content and approaches for PwDs need to be even more learner-centric and customised than it is for trainees without disabilities.

The following section briefly outlines the bridging mechanisms, technologies, and techniques that could be deployed to make skilling content of select job roles accessible to learners in the context of four key disabilities.

A-4.2.1 Speech and hearing impairment[9]

Two common accommodations or services that the fully or partially hearing-impaired learners may benefit from, are sign language interpreting and captioning.

A-4.2.1.1 Sign language interpretation

- Sign language interpreters use language and finger spelling skills.
- Oral interpreters silently form words on their lips for speech reading.
- Interpreters convert all sign language information into spoken words, if requested.

A-4.2.1.2 Communication access real-time translation—captioning

- In Communication Access Real-time Translation (CART), spoken communication used in the training room is simultaneously transcribed and captioned using a computer.
- Captioned information is displayed, with minimal delay, on a computer or monitor for the trainee.
- The captions are scripted in a way that is easy for the reader to follow.
- The captions of different speakers are displayed in such a way that the trainee can distinguish between the dialogues. For instance, it is often done by assigning speaker-specific colour to the captions or inserting a speaker photo.

A-4.2.1.3 Assistive technologies[10]

- People who are either deaf or hard of hearing (fully or partially hearing impaired) often use vision as a primary means of receiving information.
- Hearing-assistive technologies or assistive devices:
  - Assistive listening devices (ALDs) help amplify the sounds that one wants to hear
  - Augmentative and alternative communication (AAC) devices help people with communication disorders to express themselves.
- Overhead projectors, blackboards, and portable computers, with speech output also help those with speech and hearing impairment to participate in class discussions.

A-4.2.2 Visual impairment[11,12]

Techniques to make content accessible to the visually impaired, are widely used and available.

A-4.2.2.1 Braille

- Textbooks, worksheets, and all materials used in instruction are provided in Braille.

A-4.2.2.2 Tactile graphics

- Printed maps, diagrams, and illustrations are provided in a format that may be touched to read.

A-4.2.2.3 Audio recordings

- Books and other learning materials are provided as audio recordings to hear and learn from.[13]

A-4.2.2.4 Addressing partial visual impairment

- Large-print books are used for instruction or portions of books, such as maps, are enlarged as needed in case of partial visual impairment.
- Visual contrast may be increased through the use of light (white or light yellow) thick letters on dark (black) background or vice-versa.
- Highlighters, line guides, page markers, and typoscope (blocks out the surrounding text) help such students focus on a word or track a line of print.
- Colour filters placed over the printed page darken the print and heighten the contrast of the print with the background paper.

A-4.2.3 Mobility impairment or locomotor disability[14]

Physical access as well as accommodation with schedule and workload, reduce learning barrier for participants with locomotor disability (LD).

A-4.2.3.1 Accommodations for trainees with locomotor disability

- Learners with LD are known to do well with disabled-friendly physical access, mobility, learning spaces, and support facilities.
- To overcome academic challenges accommodation in the form of flexible schedules, alternate methods of assessment, extension of assignment timelines, modified work load in labs, support in libraries, and deployment of appropriate assistive technologies have shown desirable results.

A-4.2.4 Intellectual disabilities[15]

A participant with intellectual disability may experience one or more barriers to learning, such as:

- Difficulty in understanding and learning from new experiences and information
- Short attention span and poor retention
- Difficulty with communication and social skills
- Higher cognitive processing time
- Slow comprehension of abstract concepts
- Poor listening skills
- Difficulty in expressing ideas and speaking fluently and coherently
- Poor reading including decoding, phonetic knowledge, and word recognition
- Poor eye-hand coordination and writing skills
- Poor language comprehension
- Difficulty in accessing written work, illustrations, charts, graphs, and maps
- Difficulty with mathematical calculations (computations), problem solving, etc.

A-4.2.4.1 Making skilling content accessible for persons with intellectual disability[16]

Participants with intellectual disabilities will need more support than will persons with LD. Accommodations for participants with intellectual disabilities include consultations regarding study skills and customised strategies in addition to those made available for LD (see A-4.2.3.1 above). Here are some tips to make content accessible for students with intellectual disabilities:

- Use simple words. Avoid difficult words. Necessary difficult words need to be explained well.
- Use examples from everyday life to explain things.
- Use a single word to describe the same thing throughout a document or programme.
- Avoid metaphors.
- Avoid words from other languages unless they are commonly known to the audience.
- Avoid abbreviations, acronyms, and initials. Present words and expressions in full.
- Mathematical concepts such as percentages, big numbers, fractions, decimals, etc. are hard to understand. Use these rarely and where necessary.
- Repeat important concepts often to help the participants with intellectual disabilities.

A-4.2.4.2 Tips on content presentation for persons with intellectual disability[17]

- A screen-reader that reads out the words on the screen or short films where people read and explain texts may help.
- Closed captions or subtitles may be confusing for trainees with intellectual disabilities. So, any rich multi-media content for intellectual disabilities may include:

- only **simple and easy to read subtitles**
- that stay **on screen longer than usual**
- are **presented in higher contrast**
- at the **same screen position**
- while **allowing flexibility to switch them on and off.**

- Presentation slides must allow the slow reader to go through the details at their pace.
- Use 'sans serif' fonts in large font size.
- Avoid text effects that may distract the learner from the actual content.
- Having text that moves may also conflict with read aloud text options.
- Also, avoid all caps, as contrary to general perception these are more difficult for persons with intellectual disabilities to comprehend and process.

A-4.3 Desired Contribution from Partners in the Skilling Ecosystem

Various content creation and/or commissioning bodies (including SSCs), training partners, and other skilling ecosystem stakeholders are encouraged to actively participate in the inclusive skilling of PwDs. They may internally assign this responsibility for sector-specific time-bound action towards building awareness of members for inclusive skilling and recruitment of PwDs and facilitate such intent. Since some of the stakeholders have direct access to recruiters, innovative schemes and programmes may be envisaged to promote and encourage such recruiters to consider skilling and recruitment of PwDs parallel to their regular intake. Sector-specific innovative skilling techniques or methodology for identified disabilities could also give a fillip to ushering in a PwD-friendly ecosystem. One clear area where content creation and/or commissioning bodies (including SSCs) and training partners could make a difference is in the mapping of job roles to disability such that the role could be an advantage—or at least not a disadvantage for PwDs.

This will still leave the challenging task of recruiting enough interested PwDs for a certain course that follows the identified job role and disability combination within an accessible geography.

Content Development Teams (CDTs) are encouraged to actively consider some of the adaptation and delivery mechanisms, technologies, and techniques while developing content for regular job roles.

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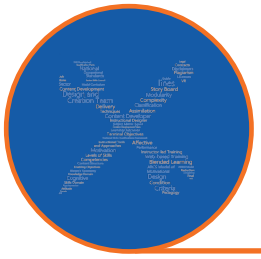

Abbreviations and Acronyms

AAC	Augmentative and alternative communication
ADDIE	Analysis, Design, Development, Implementation, and Evaluation Model
AICC	Aviation Industry CBT Committee
API	Application Programming Interface
AR	Augmented Reality
ARCS	Attention–Relevance–Confidence–Satisfaction Model
ALDs	Assistive listening devices
BL	Blended learning
CBT	Computer-based training
CD	Content Developer
CDT	Content Development Team
CTP	Computer to plate technology
FAQ	Frequently asked question
ICT	Information and Communication Technology
ID	Instructional Designer
ILT	Instructor-led Training
ITES	Information Technology Enabled Services
KLO	Key Learning Objective Outcome
LCMS	Learning Content Management System
LRS	Learning Record Store
LMS	Learning Management System
MC	Model Curriculum
MR	Mixed Reality
MVP	Motivation–Volition–Performance
NOS	National Occupational Standards
NSQF	National Skills Qualification Framework
PC	Performance criteria
PwDs	Persons with disabilities
QP	Qualification Pack
SCORM	Sharable Content Object Reference Model
SME	Subject matter expert
SSC	Sector Skills Council
TOC	Table of Contents
TOT	Training of Trainers
VLE	Virtual learning environments
VR	Virtual Reality
WBT	Web-based Training

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About National Skill Development Corporation (NSDC): National Skill Development Corporation, working under the aegis of Ministry of Skill Development & Entrepreneurship, is a unique public-private-partnership which aims to catalyze creation of quality vocational training ecosystem in India. The organisation provides funding to build scalable and profitable vocational training initiatives. Its mandate is also to enable support system which focuses on quality assurance, information systems and train-the-trainer academies either directly or through partnerships. Since establishment in 2009, NSDC has trained more than 2 crore people through its partnership with 600+ training partners, wide a robust network of 11,000+ training centers spread over 600 districts across the country. NSDC has institutionalized 37 Sector Skill Councils and is also implementing Government's flagship skill development schemes such as Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Pradhan Mantri Kaushal Kendra (PMKK), National Apprenticeship Promotion Scheme (NAPS), among others.

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