

## A Learning Design for Deep Learning for a Distance Teacher Education Programme

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**Abstract:** Self-learning materials (SLM) generally lack the mechanisms for ensuring deep learning but help address the learning needs of large number of learners. Hence, it was retained as the key instructional component for a distance in-service teacher education programme offered by the Indira Gandhi National Open University (IGNOU), India. However, for the programme's personal contact programme, a learning design was developed with the aim of addressing the SLM's pedagogic limitations. This study aimed to determine how learners were using the SLM for learning while the design was being implemented at multiple units of analysis. It used the case-study method, and the findings suggested that the learning design encouraged deep learning processes that included the use of workplace learning as a context for interrogating the SLM and evaluating their relevance. Findings of qualitative studies are not generally generalisable. Nevertheless, this study will help in making informed decisions favouring 'learning designs' instead of instructional designs for IGNOU's future teacher education programmes.

**Keywords:** distance teacher education, self-learning material, pedagogy, learning design, deep learning.

### Introduction

The School of Education (SOE) of the Indira Gandhi National Open University (IGNOU), India offers various teacher education programmes through the distance mode. One such programme was the Certificate Programme for Professional Development of Primary Teachers (CPPDPT). It was an in-service programme of six months duration, with a target group comprising 11,068 primary teachers of the Kendriya Vidyalaya Sangathan (KVS), the apex organization of central schools. The KVS, an organisation under the Union Government of India, runs 1,068 schools across India.

Like other teacher education programmes of IGNOU, for the CPPDPT, too, Self Learning Materials (SLM) were the key instructional component. SLM are designed for imparting text-based instructions and involve instructional design. Use of SLM, therefore, involves the transmission mode of delivering instructions but it helps to train large numbers within a short duration, makes management of instructions easy, and ensures quality of theoretical content (Bates, 2015). During the past few decades, delivering instructions in this way helped in clearing a backlog of untrained teachers. However, SLM lead to individualised, teacher dominated learning with an absence of social presence (Anderson & Dron, 2011; Bates, 2015). Activities built into the SLM attempted to shift the pedagogy from behaviourism towards cognitive-behaviourism (Carr, Fung & Chan, 2002). Nevertheless, behaviourism primarily guided SLM development (Kasworm & Yao, 1992). Behaviourism, however, conflicts with the more recent cognitive and constructivist approaches to learning (Murtonen, Gruber



& Lehtinen, 2017). There is no empirical evidence about the superiority of face-to-face teacher education over distance teacher education; however, the latter is generally associated with packaged instructions and behaviouristic pedagogies. In view of the thousands of teacher trainees comprising the CPPDPT's target group and the SLM's utility for training large numbers, the instructional strategy with SLM as the key instructional component was retained.

The other instructional component of the CPPDPT was the personal contact programme (PCP) of 15 days duration in the entire programme cycle. The PCP involving face-to-face meeting is an essential part of distance teacher education programmes (Daniel, 1979, as cited in Keegan, 1986; Sampson, 2003). However, a major part of the PCPs of IGNOU's teacher education programmes offered prior to the CPPDPT used to be reserved for expository instructions, making it an additional channel for delivering instructions. Therefore, a 'learning design' was developed for the PCP to ensure that SLM-based learning involves deep learning processes. The PCPs began in 2014, when the CPPDPT was started. The CPPDPT was offered for the next few years till its closure in 2019. During this phase, this study was carried out when several institutions hosting the PCP were visited. This article describes the learning design, followed by a description of the research method and the findings. The study being qualitative in nature, its findings are not generalisable. Notwithstanding this limitation, the study has implications for IGNOU's future teacher education programmes, and these have been discussed toward the end of this paper.

## **Description of the Learning Design**

The learning design is described below in terms of its theoretical underpinning and its framework.

### **Theoretical Underpinning of the Learning Design**

The learning design was developed with the aim of addressing SLM's behaviouristic attributes. Hence, it was developed with cognitive and constructivist underpinnings.

Cognitivists view learning as an active process of information processing that connects new information with existing knowledge. Because of the emphasis on mental structures and information processing, cognitivism explains complex processes like reasoning, problem-solving and metacognition (Schunk, 1991). Hence, the learning design was developed for ensuring learners' active engagement in problem solving, debates and critical discussions. Further, to facilitate information processing the design used cognitive strategies involving logically sequenced learning tasks, designed for stimulating reflection and revision.

Constructivism considers learning not only as an active process of information processing but also interpretation of information for constructing knowledge (Duffy & Jonassen, 1991). Social constructivists underline the significance of social setting for knowledge construction. Hence, the learning design required learners to interpret the SLM collectively. Furthermore, it visualised classroom talk as the means for drawing in multiple perspectives and negotiated meaning making within a social setting. Talk, however, becomes an academic discourse when it is orchestrated (Michaels, O'Connor, Hall & Resnick, 2002) for knowledge construction through guidance and scaffolding (Chapin, O'Connor & Anderson, 2003; Mercer, 1995). The design, therefore, required instructors to carry out these roles.

As the design was developed with cognitivist and constructivist underpinning, the activities were designed for reflective thinking; interactive processes involving collaborative learning, peer-learning, meaningful engagement with the content of SLM; and application of learning. These processes, according to authors like Biggs and Tang (2003); Drew and Mackie (2011) and Marton and Saljo (1976) lead to deep learning.

### **Framework of the Learning Design**

Unlike an instructional design, a learning design focuses on learning. Its framework describes 'learning processes' and, hence, activity structures in terms of learning tasks, resources, and support for learning (Dalziel, 2009; Donald et al, 2009; Koper, 2006). Moreover, being a generic device, it is reusable at different times and places for more or less similar units of learning (Koper, 2006). The CPPDPT's learning design too was reused temporally, during successive admission sessions, as well as spatially, across India.

While developing the design's framework, 36 themes, which could be learnt better with reflection and discourses, were selected from the CPPDPT's theory courses. Since learner centered pedagogies support deep learning (Pedersen & Liu, 2003), brain storming, debates, and collaborative problem solving were selected for the themes – 'professional ethics for teachers', 'folk songs and folk tales as repertoires of traditional knowledge regarding environmental science', 'linking mathematics with children's daily life', and so on. Role play was the pedagogy for themes like stress management, while the pedagogy for inclusive education was introspection for identifying teachers' own biases that restrict inclusion. For teaching these themes the learning design included activities and structured these in terms of learning tasks; resources for learning; learning outputs; and support (see Table 1 for an example of an activity structure).

The first learning task was reading 'resources' listed for learning. Resources for learning included the SLM unit(s) from which a theme had been selected, and documents supplementing it such as, India's Right of Children to Free and Compulsory Education Act, India's National Curriculum Framework for schools, and so on. It was presumed that the understanding gained through individualised interaction with the SLM units would inform interaction with peers and guide collective interpretation of the SLM. The second task was discussing the content with team members. The third task involved application of the shared understanding gained through group discussions for collaborative development of the 'learning output' specified for an activity. The outputs included audio/video programmes, action research proposals, blueprints for achievement test, assessment tools for scholastic and co-scholastic domains, and teaching aids like games, puzzles, crosswords, activity reports, and other such artefacts. The fourth task required teams to present the learning outputs to the class and revise them using peer feedback before submitting them to instructors for summative assessment.

An example of the tasks of an activity for the theme 'child rights' is as follows:

- Task 1: studying the resources listed (literature on child rights including SLM units);
- Task 2: discussion within teams on factors leading to child rights violation at schools;
- Task 3: collaboratively listing measures for protecting children's rights in schools; and
- Task 4: presenting the measures and strengthening these using peer feedback.

Apart from these tasks, the design included instructions for learners to read the SLM unit titled ‘Teacher as a Reflective Practitioner’ and write a reflective journal every day during the contact programme. This task was included to encourage reflection. The design also included mechanisms to provide ‘support’ to learners. For this it required instructors to supervise and scaffold learning and assess learning outputs using the assessment criteria mentioned for an activity. The learning design thus required assessment ‘for’ learning besides assessment ‘of’ learning. This integrated and iterated assessment and learning. Furthermore, as the design scheduled the activities, it fixed the duration of the tasks comprising them.

**Table 1: An example of an activity structure**

Day and Session	Activity	Pedagogy	Resources	Learning Tasks	Instructor’s Role	Learning Outcome	Assessment Criteria
4th day, 2nd session	Development of action research proposal	Group discussion	Unit 6 (Course-053)	Identification of problem	Scaffold learning	Proposal for action research	Rationale of research; objectives; research design; tools for data collection
5th day; 3rd and 4th sessions		Group work		Development of research proposal	Scaffold learning		
4th day, 2nd session		Group work		Presentation of proposal; improvement using feedback	Scaffold learning; encourage feedback; grade proposal		

## Research Questions

Research questions are drawn out of the theoretical propositions guiding a case study and provide a framework for investigation (Cho & Lee, 2014). The design was based on the theoretical propositions about deep learning. Hence, for answering the overarching question of how learners were using the SLM for learning, the investigation sought data that answered the following research questions:

- Does the design lead to interactions during the conduct of learning tasks?
- Is the design leading to reflective learning ?
- How are learners applying their SLM-based learning?

## Methods

A manual describing the learning design had been developed but it was being translated into practice by those who had no role in crafting it and were possibly used to programmes based on instructional designs. Therefore, the need to examine the design’s effectiveness, rather than the related literature, led to this study. Hence, research questions were drawn out of theoretical propositions about deep learning processes, underlying the design.

The study adopted a qualitative approach. Like a case study that can answer 'how' questions about contemporary events (Yin, 2018), this study, too, examined how learners used the SLM for learning while the learning design was being implemented. Furthermore, research questions bounded the study (Creswell, 2007) and theoretical propositions (underpinning the learning design) provided the logic and criteria for interpreting the findings. Furthermore, the study was replicated at various units of analysis (personal contact programmes) in different parts of India. The study thus included the elements defining a case study (Yin, 2018). Moreover, like a descriptive case study, this study also yielded contextualised description of the phenomenon studied (Yin, 2018). The descriptions were based on qualitative data collected from the units of analysis. Hence, multiple units illustrated the findings (Yin, 2018).

### **Sample**

Study centres are established across India by IGNOU within conventional educational institutions to support learners through tutoring and counselling. These centers hosted the CPPDPT's personal contact programmes (PCPs). A batch of a few thousand learners were admitted to the CPPDPT in an academic session, and about 50 learners were admitted to one study centre. The study was carried out at a few of these study centres when these organised the PCP. At these centres it was found that out of 50, only 30-35 learners attended the PCP. All these learners attending a PCP were the participants of the study. The sample was thus purposive. The study centres where this study was carried out were located in different parts of India: Delhi, Haryana, West Bengal, Assam, Kerala and Rajasthan. The PCP at the study centre of each of these places was treated as a unit of analysis. Multiple such units and, hence, cases were therefore studied. These units of analysis were, however, not selected randomly but qualitative studies allow such non-random sampling procedures (Cohen, Mannion & Morrison, 2007).

### **Tools for Data Collection**

Data collection for a case study involves gathering evidence (Yin, 2018) relating to several variables (Woods & Calanzaro, 1980, as cited in Heale & Twycross, 2017). Discussions with colleagues monitoring the implementation of the PCPs helped to validate the variables to be examined. Observation was the main tool for gathering evidence for the research questions (RQs). Focus-group discussions were also held and this enriched the data collected through observation. However, observations instead of a predetermined interview schedule elicited questions for focus-group discussions. This helped to ensure the congruence of the variables examined.

Variables examined for RQ 1 (interaction with SLM, peers and instructors) were: a) citing from SLM during discussion with peers; b) adherence to process described in the SLM while developing artefacts; c) reading the SLM during activities, and d) interactions with peers and instructors during activities.

Variables examined for RQ 2 (reflection on SLM) were: a) maintenance of reflective diaries; b) peer review of artefacts; and c) validation of SLM by learners.

Variables examined for RQ 3 (application of learning) were: a) use of concepts explained in SLM during discussions; b) of RQ 1; and c) of RQ 2.

## **Procedure of Data Collection**

There was informed consent from participants for data collection (Cohen, Mannion & Morrison, 2007). Research questions guided data collection and organisation. Hence, observations were made while learners engaged in various learning tasks, like discussing and debating concepts; creating artefacts using the concept; and presenting and improving artefacts on the basis of the feedback received from peers. Observations led to focus-group discussions and learners were asked questions to understand their viewpoints about an ongoing activity.

## **Data Analysis**

Qualitative data analysis involves data interpretation and meaning making. Search for meaning is essentially a search for patterns in the data (Stake, 1995). Thematic analysis (Braun & Clarke, 2006) searches data for recurring themes. Data analysis for this study, however, involved searches for patterns formed by instances (Stake, 1995). Theoretical propositions underpinning the design provided the perspective for interpreting instances. Extraction of instances from the data, their interpretation and categorical aggregation (as per research questions) helped to identify patterns in the data (Stake, 1995). However, the instances were not discrete events but often answered more than one research question. Categorical aggregation as per research questions, hence included several overlapping instances. Patterns emerging from repetitive instances were interpreted and described in the light of research questions. Meaning made from the data collected at each unit of analysis inductively led to the overall findings for the study. There were thus multiple sources of evidence for the findings (Zainal, 2007).

## **Findings**

Trends emerging from data have been stated as findings. For stating the finding for a research question, first the trends have to be described, and, after that, data excerpts have to be used to substantiate these. The findings and the data excerpts underlying these are as follows.

### **Findings about Interactions (Research Question1)**

Three types of interactions were observed. Learners were found to be interacting with the SLM, peers and instructors in the following ways.

#### *Interactions with SLM*

Instances evidencing learners' interaction with SLM were of three types. These instances, besides evidencing the interaction, also clarify the process of interaction. First, discussions within teams were found to be informed by the content of the SLM, as learners cited content from SLM for supporting their views. Such instances indicated interaction with the SLM. The second type of instances were of learners following the steps described in the SLM for developing artefacts. These two types of instances indicated learners' interaction with the SLM before the activity. The third type of instance was of learners suspending a task for reading and re-reading the SLM individually, reading them aloud to team members and interpreting them.

On being asked whether they read the SLM, most of the learners said that they started reading after the PCP began. They also said that KVS teachers were posting (on social media) that they were opening SLM packets because of the PCP. A post said, "Can no longer put off unpacking the packet (of SLM) IGNOU had sent. Not opening it now means an E grade (in the contact programme)."

Hence, the trend emerging from the data was that the learning design initiated and sustained learners' interaction with the content (SLM). There were, however, a few instances when learners did not seem to have read the SLM. They appeared to be unfamiliar with the structure of the SLM and this was obvious while they navigated them. Participation of such learners in teamwork was relatively less and their inputs during discussions were general ideas about the theme rather than the content explained in the SLM.

#### *Interactions with Peers*

Two types of instances indicated learners' interaction with peers. These were instances of interactions within teams and interactions across teams. Interactions within teams usually pertained to the content of the SLM, development of learning outputs and ways to improve the learning output in the light of peer feedback. Instances of discussions on the content turning into debates within teams and other teams joining in were also common. Learners across study centres said that themes, like measures for ensuring quality in primary education, implementing constructivist pedagogies, addressing ethical dilemmas, professional ethics for teachers, and codes of conduct for teachers made arguments inevitable. Interviews revealed that learners welcomed the scope for interaction with peers, and there were views expressed, such as, "Discussions make learning informal and it is easier to understand." "In our classrooms we discourage talking, but it is helping us to understand the content."

Apart from interaction within teams, there were also instances of interaction across the teams of a study centre. This was a trend that showed that learners also preferred help from other teams rather than the instructor. A learner at Kerala said, "Our colleagues being KVS teachers, they think in terms of KVS classrooms. Their language is simpler and informal unlike IGNOU's books (SLM). Their suggestions are also more practical than the instructors' suggestions." Interaction among teams was also observed when an output presented by a team was critiqued by others. For instance, at a study centre, some of the comments after watching a video presented by a team, were: "Technically good but does not explain much." "Good but too long, trim the introduction." Similarly, for a language game that required children (representing alphabets) to form meaningful words, one of the comments was, "Children will surely not walk, but run to join others and you will have 50 children running around and some running away." Learners used such peer feedback for revising learning outputs before submitting them for grading. For instance, the team working on the language game altered it to engage five children in the game and the rest in assessing the words formed by the players.

#### *Interactions with Instructors*

It was found that learners carried out learning tasks on their own. Their interaction with instructors was infrequent. Learners said that clearly articulated learning tasks eliminated the need for instructions from instructors. The design's role in facilitating self-regulated learning was summed up by a learner from Assam, who said, "Our need for completing activities on time and getting good grades keeps us working. We don't need teachers to keep us on track." Regarding the content, learners said that the SLM explained most of the concepts, and solutions from peers were better than those from instructors. A learner at the study centre in West Bengal said, "For a few topics, the SLM is not really SLM. Otherwise, when it explains well there is no need for teacher's help." However, while supervising activities, instructors asked questions and sometimes explained the concepts concerned.

Few instructors however provided detailed explanations. These instructors were of the view that learners who had not read the SLM required the explanation. An instructor said in this regard:

It is difficult to implement the design when learners have not studied the SLM. Some of them say that they received SLMs late while some say that they didn't have time to study. How can they apply the concepts when they have not studied these?

### **Findings about Reflections (Research Question 2)**

It was found that learners across study centres had taken a collective decision against reflective journal writing. A learner's view captured the reason for this. He said, "No point in working for reflective diaries, these won't be graded". However, the design's mechanisms, to encourage discussion on the content and to critique outputs, encouraged reflection. Instances like learners critiquing peers' learning outputs, questioning the applicability of the SLM in school situations, validating their assertions, and pointing out inadequacies in the content indicated reflection.

Learners critiqued videos, language games and other outputs while their peers presented these. For example, appreciation for the strengths of a video, like its technical soundness, and attempts to draw attention to its inability to explain the concept projected reflective thinking. Furthermore, learners across study centres where the implementation of the design was examined, were unanimous that many content areas of the SLM had been authored without factoring in problems that restricted transfer of learning to school situations. For instance, learners at Assam and New Delhi said that a barrier to the implementation of the policy for mainstreaming children with special needs was the lack of adequate teacher preparation for teaching mixed groups of children. Consequently, schools, instead of integrating them, begin their marginalisation. During interviews, too, the general view of learners was that not everything the SLM taught was doable. A learner from Kerala said, "For some topics SLM writers don't seem to be in touch with the realities of classrooms and uphold impractical propositions. One example is the suggestion on managing classrooms. We have better solutions." Such instances that questioned the SLM's relevance were evidence of reflection and described how learners were reflecting on the content.

Learners, although, questioned the relevance of content of some topics, and they were in agreement with some of the assertions made by the SLM. For instance, many learners, agreed with the SLM's idea about folk songs and folk tales being resources having pedagogic potential for teaching environmental science. Similarly, for the content on counselling, a learner from Haryana said:

While counselling we are quick to judge and label children as talkative, undisciplined and so on and children retort by becoming totally uncommunicative, but while carrying out the activity (pertaining to counselling), we felt that the SLM is right about being non-judgmental while counselling.

During interviews learners said that the activities they were carrying out helped them to understand the content but these also helped to verify its relevance in school situations. There were views expressed like, "The SLM seems more convincing after the activity, like after the role play we feel the SLM is right about strained relation being a major reason for stress." An actor in the role play said that the SLM seemed "So true" after the role play. Activities thus helped to elicit reflection required for validating the SLM's content.

Instances of learners identifying the SLM's inadequacies also indicated reflection on the content. For instance, a team in Rajasthan said that children's habit of using the subject-object-verb (s-o-v) order for sentence construction in most Indian languages interfered with their sentence construction in English, which requires the s-v-o order but the SLM does not suggest the need to address this linguistic barrier. Similarly, for making math learning fun, learners suggested techniques that seemed to be more appropriate than those suggested by the SLM.

Reflection on the content was also obvious when learners interpreted the SLM differently. Some agreed with the views of the SLM, while some opposed them. For example, at a study centre, after initially agreeing with the code of conduct that restricts teachers' engagement in political activities, a few learners re-read the code, and opposed the SLM. However, most of the time learning outcomes indicated the resolution of differences within teams. The design's mechanism for assessment of the collective performance of teams rather than that of individual team members seemed to catalyse collective reflection and reconciliation of differences while finalising learning outcomes. However, there were a few instances when teams agreed to disagree and learning outcomes in such cases accommodated multiple realities. For instance, a team leader while presenting an activity report said:

Some of our group members feel that the Right to Elementary Education (RTE) (2009) promotes every student to the next higher grade. Consequently, not even parents realise that children are not learning till it's too late. The rest of us however feel that grade repetition does not enhance learning achievement.

### **Findings about Application of Concepts (Research Question 3)**

Learners used concepts explained in the SLM for building narratives, arguments and counter arguments during debates and discussions. They also applied learning for developing learning outputs and while reviewing learning outcomes presented by their peers. These three types of instances trending in the data furnished evidence of application of learning, and also described the way in which learners applied learning. For example, while deliberating on the dimensions of quality elementary education, learners used the quality parameters mentioned in the SLM for assessing the quality of teaching and assessment practices of their schools. This indicated application of learning about quality dimensions. Similarly, they applied the parameters of quality while developing a report about the quality measures their school adopted. Instances of application were also evident, when learners critiqued the measures suggested by their peers for improving the quality of elementary education.

There were many instances across study centres when learners said during deliberations on child rights that practices that teachers considered as normal could be actually leading to violation of child rights. They cited instances of resorting to light beating for disciplining children, subjecting children to punishments like asking them to quit the class and stand outside the classroom and reprimanding them in the presence of their peers. Learners said that these were common practices in schools but, since such practices hurt and humiliate children, they violate child rights. Instances like these indicated the application of understanding child rights and their violation.

Learners exhibited their ability to apply their understanding of educational policies, for instance, when they debated the feasibility of implementation of these policies at schools. Criticism of the Right to Education Act's no detention policy, and the policy for mainstreaming children with disabilities are

also instances reflecting application of learning for building arguments against these policies. Similarly, language games, action research proposals, blueprints for assessment, plans for providing customised interventions for remedial teaching and the like, projected the ability to apply learning for developing artefacts.

During interviews learners were asked whether the activities requiring application of concepts were helpful for learning. There were responses such as, “Explanations in the SLM become meaningful after the activities.” “We skip the activities suggested in the SLM but here we enjoy activities as we carry out these with our team members and this is definitely helping us to learn.”

### **Findings not Guided by the Investigation Framework**

Research questions framed at the beginning of the study guided data collection but some instances that emerged from data were not sought by research questions and, hence, did not fit into the investigation framework. Nevertheless, these offered insights about the design and led to the following findings.

#### *The Design Nurtured Creativity*

There were several instances of learners using diverse art forms like skits, songs and poems while presenting learning outcomes, even though the design did not suggest this. For example, at a study center in Rajasthan, a skit communicated the similarities of parents of first-generation learners and educated parents with demanding jobs. Both were portrayed as having unrealistic expectations from teachers and reluctance for attending parent-teacher meetings. Similarly, a few teams at New Delhi used poems to communicate that those regulating teachers and teaching were obsessed with constructivism and considered it as a solution for all learning problems. The poem also underlined policy makers’ silence about ways to practice constructivism and joyful learning in classrooms crowded with more than 50 students.

#### *Exclusion of Technology*

Many learners wanted to ‘see’ the implementation of constructivist approaches and universal learning designs in classrooms. A learner at Haryana summed this up by saying, “We are still at a loss about using constructivist pedagogy in our classrooms with 50-55 children, with none having any intention to learn. Managing classroom is far more important.” Since the design’s framework integrated content and pedagogy but not technology, videos demonstrating such practices within classroom settings had not been included in the resources.

### **Discussion**

Interaction at PCPs of IGNOU’s teacher education programme revealed learners’ tendency to postpone study (of SLM) till the term end examination (TEE). The learning design described in this study checked the procrastination by necessitating interaction with the SLM. By ensuring interaction with the SLM, the design enabled application of learning, and by creating the need for application, it facilitated learners’ meaningful engagement with the content and constructive engagement with peers and instructors. Thus, the design promoted interactions envisioned for deep learning. The design also promoted reflection. Even though learners did not write reflective journals, reflection was evident from peer feedback, learners’ agreement with some of the assertions of the SLM, and disagreement with some. Agreement with the SLM validated its content. On the other hand, critical discourses

resulting from disagreements culminated in powerful narratives that challenged the SLM's assertions about issues like: constructivism as an ideal approach to learning; schools being the first step towards inclusiveness; no detention policy of the Right to Education; restriction on teachers' participation in political activities. The design, therefore, engaged learners in learning as a community of inquiry through collaborative engagement in purposeful critical discourse and reflection, for constructing personal meaning and confirming mutual understanding (Garrison, 2011; Vaughan, 2016). Such discourses involving reflection and reasoning enriched the content, contextualised the theoretical SLM, and converted the static instructional package (the SLM) into a dynamic and evolving entity. Furthermore, by structuring activities into tasks and clarifying roles and resources, the learning design promoted self-regulated learning with low dependence on instructors. Nevertheless, the activity structures had the elasticity for accommodating learner-driven initiatives like the use of performing arts for enriching oral presentations.

The design made learning and assessment iterative. Learners were keen for assessment by peers and instructors as this improved the learning outputs. A learner from New Delhi said in this regard, "IGNOU should replace its exams with such stress free assessment mechanisms." The design thus engaged learners in processes, which, as per the theoretical propositions of the study, were appropriate for deep learning. The design also encouraged participatory learning and demanded a leadership role. At the study centre in Assam, a learner said, "There are many women like me who gained confidence because of the opportunity for presenting, critiquing and defending learning outcomes."

The design also encouraged interrogation of the SLM, leading to diverse interpretations, critiques regarding its relevance and validity and even challenges to its authority. The design thus generated a liberal learning environment that empowered learners. However, the design lacked the mechanisms for grading reflective journals. Hence, learners carried out activities and delayed submission of outputs for grading till these had been improved on the basis of peer feedback but ignored reflective journal writing. The design also did not integrate technology. Therefore, learners did not benefit from video-based demonstrations facilitating transfer of learning to school situations, and technology-mediated collaborative activities. Moreover, KVS teachers are transferred to different regions of India. The learning outputs, therefore, comprised content that was not bound by the context of one school but had wider applicability. However, the need to create mechanisms to preserve such content as a repertoire of valuable learning experiences had not been foreseen.

### **Implications of the Study**

Findings of case studies are not generalisable. However, the study has implications for IGNOU's distance teacher education programmes. First, it underlines that a deep learning design can restrict the dominance of traditional pedagogies. Second, it shows that pedagogies that encourage discourses create a liberal and democratic learning environment that facilitates co-construction of knowledge and accommodates multiple realities. Third, the study underlines the potential of workplace learning, and in-service teacher trainees' capacity to use it as a reference point for validating and enriching the content developed by teacher educators. Fourth, it shows that learner centered approaches nurture creativity. Fifth, it highlights the potential of the performing arts for powerful delivery of messages. Sixth, it underlines that grades motivate learners more than the intrinsic value of a learning process and learners calculate the incentives for a learning process and the disincentives for ignoring it.

Hence, the general implication of this study is that for IGNOU's future programmes, designing learning rather than instructions would be preferable. This is also true for IGNOU's online programmes because technology can introduce an epistemological shift, only when the teaching-learning process has been designed suitably.

## Conclusion

Like music notation, a design (Dalziel, et al, 2016) needs to be interpreted in the same way by different users. The CPPDPT's learning design was interpreted in the same way and across study centres it stimulated interactions, reflection, application of learning and critique of the SLM in the context of its applicability in schools. The design thus introduced learning processes that the SLM on its own could not.

Even though the design's impact on teachers' performance at schools has not been studied, it underlines the need for shifting the focus of India's distance teacher education from instructions to learning. The shift will be essential as distance teacher education has been used in India for clearing backlogs of untrained teachers. This raised enrolment and lessened distance learning institutions' dependence on government grants. Nevertheless, it entrenched pedagogies suitable for training large number of trainees. However, factors like increasing access to technology and the COVID-19 pandemic are challenging the continuation of a model that uses printed SLM and face-to-face contact programmes. Hence, online teacher education programmes are being encouraged. However, the experience of satellite-mediated teleconferencing for IGNOU's teacher education programmes prove that the potential of advanced technology to support a pedagogic shift does not necessarily lead to a shift. Hence, online teacher education programmes could change the medium but retain the pedagogy unless teaching-learning processes are designed for learning.

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