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Curriculum Transaction in NIOS: Overcoming the Limitations of Packaged Instructions

Sutapa Bose

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Abstract

Low learning outcomes in Indian schools and the promotion of rote learning by their instructional systems have been documented time and again. Schools are therefore required to adopt India's National Curriculum Framework (NCF) (2005) that includes guidelines for curriculum transaction. However, the learning outcomes and the kind of learning likely to be promoted by the instructional system of open schools in India, including the National Institute of Open Schooling (NIOS) remain excluded from these deliberations. So these two aspects of NIOS have been examined and it has been inferred that the learning outcomes are unsatisfactory; the instructional system is not designed for meaningful learning; and the self-learning material used for delivering instructions is a barrier to the adoption of the NCF guidelines. Thereafter, it is proposed that the personal contact programme (PCP) is a component of the instructional system of NIOS that will lend itself to the adoption of the NCF guidelines, provided it is designed suitably. Subsequently, a PCP design based on the NCF directives for organising instructional processes is suggested in the context of NIOS.

Introduction

The sixth goal of the Dakar Framework for Action (2000) is about improving the quality of education and the achievement of recognized and measurable learning outcomes. Learning outcomes are the intentional and expected effects of the educational system (UNICEF, 2000). In India, poor quality education results in poor learning outcomes in every stage of education and, as per the current five-year-plan (2012-2017), this is the greatest challenge to India's educational sector (Planning Commission [Government of India], 2013). However, now the focus is not just on learning outcomes but also on the quality of instructions. It is felt that the quality of education may not be high even in schools with higher learning outcomes, as they may still emerge from rote learning. This is indicated by the Quality Education Study (QES) (2011), carried out on the students of the fourth, sixth and eighth grades of schools of India to investigate whether they were able to apply learning and think critically.

The QES study revealed that students cannot answer questions that require them to think and that they were not progressive in thought on social and environmental issues. As per the report of this study, there is an apprehension that students unable to think critically will not be able to think rationally and discriminate between good and bad decisions with regard to various social and ecological issues. This study also revealed that though the fourth graders performed below the international average, by the time they reach the eighth grade their performance was on par with the global average, because they performed better answering questions that require straightforward use of learnt techniques or procedures but not as well on those that require the application of concepts and critical thinking. More unsettling is the revelation that the study was not based on students from public schools in

rural areas but from the top 89 private schools catering to students from well to do families located in five metropolises. Soon after this, India's dismal ranking in 2012 in the Programme for International Student Assessment (PISA), a worldwide study that measures 15-year-old students' scholastic abilities including problem solving, hit the headlines. India opted out of PISA in 2013 (Chhapiah, 2013).

The QES and PISA findings are not surprising. They are in line with the views expressed in several documents like the reports of the Education Commissions set up by the government of India in 1952 and thereafter in 1964, India's National Policy on Education formulated in 1986, the Learning without Burden report submitted to the government of India in 1993 and the National Curriculum Framework (NCF) (2005), that teaching and learning in schools were for short-term information accumulation meant to last only until examination. But rote learning still plagues the Indian educational system (Mukherjee, 2013) andthe instructional system in schools imparts instructions in a way that encourages it (Gohain, 2014; NCF, 2005; Planning Commission [Government of India] 2013). Moreover, teachers remain unable to integrate teaching, learning and assessment (Gohain, 2014). Hence, continuous assessment required for supporting meaningful learning is also lacking. It is now felt that the quality of education that promotes rote learning and ignores the development of higher order cognitive abilities cannot be rated as high (Venkataraman, 2011).

Unlike meaningful learning, which requires the learner to trace the interrelation between old and new learning, rote learning leads to the storage of new learning as discrete entities, in isolation from the larger cognitive structure and is lost after some time (Ausubel, 1962). Hence, the new learning has limited use for application and therefore, for problem solving. Its retention could also be for a short time, which could be till assessment, when it has to be recalled. This is true for situations in which the instructional system is dominated by the assessment system as in school education in India that has come to be driven by high-stake examinations based on information-loaded textbooks (NCF, 2005). Assessment carried out in Indian schools is also blamed for valuing rote learning more than analytical thinking (NCF 2005; Planning Commission [Government of India] 2013). As there is a fundamental link between assessment and teaching and learning (Kirkwood & Price, 2008), the instructional system favours rote learning and recall of fixed responses. Though earlier it had been pointed out by the Learning without Burden report (1993) that the teaching method and textbooks are under the pervasive effects of the examination system and textbooks are designed to pass on information, however, even now, textbooks are the main source of information and students often study only for marks (Mukherjee, 2013).

National Curriculum Framework (NCF) Guidelines for Curriculum Transaction

The NCF (2005) aims to guide the development and transaction of curriculum in schools and to address the problems of transmission of information and rote learning. It includes guidelines for curriculum transaction to make learning active, social and meaningful. Schools are supposed to adopt these guidelines and the current five-year plan of the Indian government reiterates this. The guidelines are as follows:

1. Connecting knowledge to life outside the school;
2. Ensuring that learning shifts away from rote methods
3. Enriching the curriculum so that it goes beyond textbooks;
4. Making examinations more flexible and integrating them with classroom life; and
5. Nurturing an overriding identity informed by caring concerns within the democratic polity of the country.

The first guideline aims to contextualize learning and ensure that the content gets a broader perspective as it is linked to the life of the learners during the instructional process. The second guideline intends that learners are enabled to link new and old learning so that they develop conceptual clarity and are encouraged to think critically and apply learning. The third guideline aims to address the problem of considering textbooks as the sole and final source of knowledge. It is in fact an extension of the first guideline and requires that learners be introduced to various sources of knowledge. This will introduce learners to various views, sometimes even contradictory ones and help them to build a perspective that may accommodate diverse opinions. The fourth guideline seeks to make assessment a formative process so that teaching and assessment determine each other and the meaningfulness of learning can be ascertained on a continuous basis.

The language of the fifth guideline is complex and so is its intention. It underscores the need to raise awareness, nurture a sense of identity and the ability for critical thinking on socio-political realities. It also intends that learners are helped in internalizing India's constitutional values of equality, justice, liberty and fraternity so that democracy does not remain only as a form of governance but becomes a way of life for them. Thus, while

making learning an active process to be carried out through group activities, it seeks to impart training in citizenship for India, a democratic polity.

For implementing these guidelines the NCF suggests pedagogies involving activities of various kinds like reading, discussion, sharing experiences, creating things and so on, to be carried out collaboratively.

Concern for Quality in India Doesn't Extend to Open Schools

The documents that indict the instructional system of schools for low learning outcomes and rote learning and the ensuing concern about the quality of school education, exclude open schools, including the National Institute of Open Schooling (NIOS). This is in spite of the fact that these schools enroll millions and are taking India closer to the goal of Education for All. The current five-year plan of India (Planning Commission [Government of India] 2013) is also concerned about the transactions and assessment in classrooms and urges schools to base these processes on the NCF, but it is oblivious to these processes in open schools. Even the NCF that provides guidance to the instructional processes in schools is silent on the transaction of curriculum in open schools. Though open schools are widening access to schooling, their learning outcomes and the kind of learning their instructional system is likely to promote are overlooked. Therefore, inferences about these two aspects have been drawn on the basis of the results of the pubic examinations held for the secondary and senior secondary levels, and the features of the instructional system of NIOS. However, the inferences are only in the context of India, Indian schools and the NIOS.

Learning Outcomes of National Institute of Open Schooling

NIOS learners appear at public examinations held at the end of an academic session, twice every year. The percentage of candidates from the academic stream passing the secondary (X grade) and senior secondary (XII grade) level academic examinations from 1991 to 2013 are available in the Examination Profile of NIOS, on its website (http://www.nios.ac.in/stastical-report/academic-examination-profile.aspx). The data on this site indicates that the percentage of those passing the secondary level examination has exceeded 50% only three times: in May 2003, April 2012 and April 2013. Otherwise, it has been less than 50%. At the senior secondary level, the percentage of those passing has always been well below 50%. The Handbook for academic facilitators of NIOS (n.d.) says that examination results show that the level of performance is low and there is need for academic support.

The QES Report cautions that that the outcome of rote learning is often deceptive and appears as apparent learning but does not make students capable of higher order thinking skills. So the learning outcomes do not necessarily imply that those who passed did so because learning was meaningful for them. But consistently low learning outcomes imply that many have not been able to learn. This indicates that the transactional distance, which is the psychological or communicative space that separates instructor from learner in the transaction between them (Moore, 1997), has not been bridged by the instructional system.

Features of the Instructional System of National Institute of Open Schooling

The NIOS imparts instructions mainly through self learning material (SLM) in print, which is supplemented by instructions in audio and video. A learner also has to attend the personal contact programme (PCP). Assessment is carried out for tutor-marked assignments and through public examinations (NIOS prospectus, 2013-2014). A critical look at these components of the instructional system reveals the following:

Self Learning Material (SLM)

The delivery of instructions is mainly through SLM. A number of quality assurance mechanisms are adopted by open distance learning (ODL) institutions to satisfy expectations of excellence (Arinto, 2007). Besides, the curriculum of NIOS being based on the NCF, the SLM includes the themes suggested by it and the content is enriched with cases and activities that the learners are supposed to carry out. So the quality of the content of SLM may be as good as and even better than that imparted in many conventional schools of India that, as per the current five-year plan of India, are grappling with the shortage of trained teachers. Still, the SLM has many limitations. First, learners are expected to be self-directed, independent and autonomous but even adults may not be prepared for self-directed learning (Knowles 1970, as cited in Moore, 1997) and a majority of NIOS learners are children. Though children today have better access to information technology and may be self-directed learners, and there are also no reasons to undermine the self directedness of any group of learners, nevertheless, from the learning outcomes at the public examinations of NIOS as mentioned earlier, it seems that the learners were not motivated

and self-directed enough to carry out activities, read and reflect on the cases given in the SLM. Also, the SLM on its own does not have the means to ensure it. So there may be passive reception.

Second, SLM-based instructions involve didactic exposition with transmission of information through the print medium. The recorded programmes in the audio and video media are also meant for reception. This type of instructions does not necessarily lead to rote learning, especially if the learner has relevant concepts in the cognitive structure; appropriate advance organisers are provided to anchor the new learning within the pre-existing cognitive structure, there is scope for drill so that new and old learning get integrated, and there is continuous assessment of new learning getting anchored appropriately in the old learning (Ausubel, 1962; 1963, as cited in Ivie, 1998). However, the SLM lacks the means to fulfill these requirements, as it comprises an inert package of instructions. The use of such pre-packaged instructions may lead to passive learning, which remains superficial or limited to surface information processing (Kasworm & Yao, 1992).

Third, the SLM presupposes a particular level of previous knowledge. But there is no mechanism to assess whether the learners of even the same grade actually have it.

Fourth, as per the *Handbook for Academic Facilitators of NIOS* (n. d.) learners are supposed to be using the instructional package developed by NIOS. The hypothetically perfect package of instructional materials (Sewart, 1993), produced in bulk is transported to learners who are supposed to be the recipients of pre-packaged past knowledge (Moore, 1986, as cited in Kasworm & Yao, 1992). This approach is criticized by situated cognition theorists like Brown, Collins & Duguid, (1989) for treating knowledge as an integral, self-sufficient substance, theoretically independent of the situations in which it is learned and used and activity and context for learning not being regarded as essential but merely ancillary to learning. Learning as individuals, using the information included in the SLM, has therefore neither a physical nor the social context. SLM-based learning being individualized, limits the scope for sharing experiences, which is required, especially when children are from an underprivileged background, which is true for NIOS, because their experiences and realities are underrepresented in school knowledge and also because it connects learning to life (NCF, 2005). But SLM on its own has no mechanisms to ensure discussions, collaborations and negotiations for co-construction of knowledge, making it closed to the knowledge, experiences and views that learners bring to the learning situation. Hence, the possibilities for instruction to the point of indoctrination rather than education are much greater (Sewart, 1993). SLM therefore promotes the banking model of education (Bouchard & Kalman, 1998) and a culture of silence.

The behaviorist tradition of imparting instructions endorses standardized, externally defined and controlled curricula, based on predefined objectives, defined independently of the learner, and undermines the possibilities for learners to construct meaning and for the educational programme to respond to individual needs (Education for all: the quality imperative, 2005). The SLM is a product of this tradition and none of the guidelines of NCF can be implemented through SLM-based teaching and learning.

Personal Contact Programme (PCP)

The NIOS organises PCP on holidays and weekends at the Accredited Institutions (AIs) that are the study centers of NIOS. The AIs are usually housed in government-recognized conventional schools. Up to a maximum of thirty PCP classes are organised per subject and five additional practical classes are held for subjects requiring practical activity. The classes are held in the face-to-face mode by tutor-cum-counsellors. However, attendance is compulsory on only 15 days (NIOS Prospectus, 2013-14).

As per the *Handbook for Academic Facilitators of NIOS*, PCP is organised to supplement learning with the help of SLM. It intends to support learners who may be school drop outs, first generation learners, working children and street children, since they do not get enough support at home and may confront problems while studying with the help of SLM and, hence, they need help and guidance not only to continue learning but also for using the instructional package effectively. This Handbook also says that the PCP purports to bring together learners for interaction with teachers and peers; provide learners with counseling and tutoring facilities, feedback on assignments, access to library of the AI, additional learning inputs through recorded audio and video programmes of NIOS, practical work sessions for subjects requiring it, motivation to learn and assistance for learners preparing for term end examination.

The PCP is thus based on the assumption that the instructional package is adequate for learning and it is the learner, who perhaps being a school drop out, a first generation

learner, a working child or someone dwelling in the street, cannot get help from home and is, hence, incapable of decoding the information encoded and packaged in the otherwise perfect SLM. Therefore, these learners have to be supported for the problems they face. The validity of the assumption is debatable because how well the privileged children of the Indian schools would fare if they were left on their own with an SLM has not been studied. This assumption actually does not acknowledge the limitations of the SLM. Accordingly the aim of PCP is not to address the limitations of the SLM but only that of the learners. Moreover, the expectation is that learners including children can identify and list their learning problems and during PCP will approach the tutor-cum-councillors, whom they have never met, and articulate those problems. The onus is thus not on the institution to assess learning on a continuous basis and provide feedback. However, suggestion for carrying out group work, discussions, brainstorming and other activities during PCP has been made in the Handbook for Academic Facilitators. It implies that the institution feels that learning with SLM limits these activities. But these suggestions are not backed by a plan for implementation.

Assessment

Assignments make assessment a formative process and attaching weight to it is a mechanism for ensuring that learners take it seriously. Since 2013-14, the term end examination has 80% weight, as one tutor-marked assignment with 20% weight in the total assessment scheme has been made compulsory (NIOS Prospectus, 2013-14). But only one compulsory assignment for a subject hardly makes assessment a formative process. Also, the blueprint and question paper of the term end examination (available on the NIOS website) indicate that the weight for the items requiring application of knowledge is usually no more than 10%. Most of the test items therefore do not require learners to think critically and apply learning. Hence, rote and recall can help in passing the tests. Although information laden text books are not used by learners for rote learning but the SLM, loaded with information, substitutes for text books. So, given the type of learning the SLM is likely to promote, learning by rote for assessment cannot be ruled out.

Inferences about the Learning Outcomes and the Instructional System of NIOS

The learning outcomes of NIOS are, as pointed out earlier, low. They indicate the inadequacy of the instructional system and the need for academic interventions providing support to learners. The instructional system is designed more for transmission of information than for facilitating meaningful learning. Indian schools are being urged to adopt the NCF to address the problems of transmission of information and rote learning. NIOS, being one of the schools, also requires it and that, too, on an urgent basis (NIOS, 2012). But this has not happened and transaction of curriculum is still through an instructional package used for delivering instructions. The package comprises mainly the SLM, which will constrain the pedagogies that consider learning as an active and social process. Hence, the use of SLM is a barrier to the implementation of the NCF guidelines. There are also other barriers to the implementation of the NCF guidelines, like the isolation of learners and the huge number of learners accommodated every year, making effective formative assessment through assignments challenging.

The NCF criticizes the use of instructional packages but suggests no alternative for the packages used in open schools. Therefore, in spite of its weaknesses, the value of SLM in distance education is immense and it has to be continued. However, the PCP is a component of the instructional system that has the means to overcome the barriers to the NCF guidelines and especially because, now, attendance of learners in the PCP is compulsory for fifteen days, when the NCF guidelines can be adopted for curriculum transaction.

Designing Personal Contact Programme of NIOS for adopting NCF Guidelines

A learning programme needs a deliberate goal, a strategy for attaining it and the criteria for achievement (Moore, 1986). The four questions listed by the NCF for organising the instructional processes of a learning programme are in line with these requirements and can comprise the conceptual framework for the PCP in the following manner:

What are the educational purposes?

The PCP should aim to address not only the problems faced by the individual learners but also compensate the pedagogic limitations of the SLM. So it will not just bring together learners to solve their problems but will be an intervention for organizing activities to be carried out in teams, using multiple sources of information available in the AI. The activities presently supposed to be carried out at the PCP such as clarification of doubts; laboratory work and so on will be a part of the curriculum transaction process planned for the PCP.

What educational experiences are likely to help in achieving the purposes?

So that knowledge does not remain as a finished product for transmission but is built through meaningful experiences, the NCF requires learners to have various experiences such as experimenting, reading, carrying out activities, reflecting, sharing experiences and expressing oneself through speech, discussions, debates, role play, writing and so on.

The NCF also requires learners to make things. The experience of carrying out authentic tasks like designing and creating artifacts, requiring application of knowledge (Barron & Darling-Hammond, 2008) is also required by India's Central Board of Secondary Education (CBSE), that had initiated NIOS as a pilot project and now presently affiliates with about fifteen thousand schools. It has listed various activities, including those for the creation of artifacts for school subjects to be carried out as projects by learners during school hours under the direct supervision of teachers (CBSE, 2012). But in open schools, the scope for such project based learning is limited. However, since schools/institutions having proper facilities are selected as AIs during the PCP, it is likely that the library and technological facilities of AIs can be used by learners for carrying out these activities.

Learners of NIOS also need to be oriented to distance education, the programme in which they have enrolled and the role of a distance learner. This is likely during the induction programme organized for them but a recapitulation may be useful. Life skills education imparted in conventional schools is also needed. Experiences relevant to these elements are also to be provided during the PCP.

How can these educational experiences be meaningfully organised?

First, the relevant activities need to be conceptualized. Second, a schedule for 15 days with sessions earmarked for various kinds of experiences is required. The schedule needs to begin with a session for ice breaking so that learners get to know each other and the tutor-cum-counselors. Thereafter, sessions need to be included for orientation of learners to open schooling, NIOS, the academic programme, the role of learners, the support they can expect from the institution, and skills for reading, writing and studying, activities for developing life skills (like those listed by the CBSE in the handbooks it has designed for teachers) reading content from SLM and supplementing it from books, newspaper and magazines from the AI library; carrying out activities and solving the problems given in the SLM; discussions, debates, brainstorming, quizzes, role play on the topics identified by the learners and resource persons and especially on the cases included in the SLM; tutorials for difficult material identified by the learners and the tutor; writing assignments and journal writing to record experiences and reflections; demonstrations by teachers and laboratory work for subjects requiring it; carrying out projects; and using audio and video programmes of the NIOS. For all the activities, the objectives and learning outcomes need to be defined. Third, the sessions for listening to audio and watching video, as well as demonstrations and presentations made by the teacher, should allow time for interaction with the students.

Fourth, working as teams, learners can co-construct knowledge and use their collective knowledge for problem solving (Bielaczyc & Collins, 1999). Hence, teams need to be formed in a way that learners of different ages and, if possible, even with different learning problems, should be grouped. This will help in peer tutoring. Fifth, for the problems and activities included in the SLM and projects to be carried out, objectives, learning outcomes, steps to be taken by the learners, the resources required and a rubric for assessment need to be predetermined and shared with the learners. Sixth, the tutor-cum-counselors at the AI need to facilitate the activities, assess learning while learners are engaged in activities to ensure that learning is meaningful and provide feedback on a continuous basis. In keeping with the fifth guideline of NCF, they have to encourage interaction and steer it towards dialogue, which as per Moore (1997), is purposeful, constructive, mutually respectful, allows active listening as well as a contributing, and builds on the contributions of others.

How to ensure that the educational purposes are indeed being accomplished?

To ensure that the educational purposes are indeed being accomplished, formative assessment, on the basis of predetermined learning outcomes and rubrics, is necessary and feedback should be continuous and descriptive (CBSE, 2012). Monitoring the PCP will also help to ensure that the educational purposes are indeed being accomplished. Monitoring can be through visits by NIOS officials and also through perusal of the records maintained by the AIs for attendance of learners, as well as assignments submitted, records of lab based activities and the portfolios submitted by learners. Orientation of the tutor-cum-counselors of AIs for their role in the PCP is also required.

Conclusions

In Indian schools understanding has been bartered away for memory-based short-term information accumulation for examination, using information laden textbooks (NCF, 2005). The learning outcomes are also low. Therefore, the quality of school education is a cause of concern. However, the learning outcomes of open schools are overlooked and the use of information packaged as SLM for summative assessment is also accepted. Open schools, admitting the marginalized, thus remain at the margins of the educational system. This could be because doubts persist about the effectiveness of ODL institutions though they are educating millions (Arinto, 2007; Daniel, Kanwar & Uvalić-Trumbi, 2008). But ODL being one of the modes of imparting education, open schools are an integral part of the school system. Hence, the quality of instruction in open schools matters, especially because the learners, unlike those of conventional schools, are not likely to have access to learning facilities beyond those provided by the institution. Moreover those educated by open schools also become a part of the workforce and many may aspire to higher education. One of the mission statements of NIOS also says that efforts for ensuring equity in education do not end with providing access but also include deliberate measures worked out to ensure quality of education.

To improve instructional processes, schools are supposed to implement the NCF that includes guidelines for curriculum transaction. Although the NCF is now about a decade old, at least the QES does not indicate its implementation. Also, whether the guidelines will be a panacea for the deep-rooted problem of rote learning is yet to be ascertained. Nevertheless, they are rooted in modern views on learning and the current five-year-plan and also the NIOS require that they be adopted. However, adopting the NCF guidelines in NIOS is difficult because its instructional package comprises mainly the SLM that lacks the mechanisms to ensure active and collaborative learning. In spite of this the SLM cannot be discontinued because there is no alternative for it. Nor can the summative assessment system be replaced by an effective formative assessment through numerous assignments, because the number of learners accommodated annually is too large. However, during the PCP, though it is held for a limited duration, curriculum transaction can be based on the NCF guidelines, provided it is designed for it.

Though the PCP has been pinpointed as the component of the instructional system, which can be engineered to facilitate learning but it has to be admitted that learning in distance education is determined by many factors that are interrelated in a complex way. Therefore, the assumption that taking care of one component of the instructional system will guarantee significant enhancement in learning outcomes, is simplistic. However, it is a component that is more amenable to the changes sought for facilitating learning. Therefore, the design of the PCP can be based on a conceptual framework comprising the four questions raised by the NCF for organising instructional processes. This will make the PCP a goal oriented process with a definite strategy for implementation. It cannot be claimed that a PCP of 15 days, even if well organised, will fully address the constraints imposed by the SLM and the assessment system. But it is the only component in the instructional system that can be tailored for NCF based learning. Second, it will initiate learners into practices like working with peers, voicing their opinion, reading, thinking and carrying out activities and thus be better equipped for making optimum use of the SLM. Effective simulated conversation between the learner and the learning material (Holmberg, 1983) is more likely to happen after this type of PCP. Third, it will build an acquaintance with the AI and encourage learners to come back to it for guidance. Fourth, discussions and sharing experiences will introduce learners to multiple views and knowledge will be built through meaningful experiences, organised and conceived through language (NCF, 2005) and foster much needed communication skills and linguistic abilities. The PCP thus designed will not be meant for transacting the entire curriculum within fifteen days but for helping learners in learning to learn. Besides, unless it is implemented well, the changes expected may remain elusive.

Though, a design for PCP has been suggested to compensate the limitations of SLM,it is pertinent to mention that the concerns expressed about the instructional system and learning outcomes and the subsequent suggestions for designing the PCP are entirely in the context of India, and, in particular, to only one institution, the NIOS. Therefore, these conclusions as well as suggestions may have limited applicability. Still, given the enrolment of NIOS, if the design is implemented and if it is found to be effective for facilitating learning, the beneficiaries would number in thousands.

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Sutapa Bose *is an Assistant Professor at Indira Gandhi National Open University. E-mail: http://www.ignou.ac.in*