

How do Distance Learners Use Activities in Self-Instructional Materials?

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Abstract : *Self-instructional materials form the centre of all learning activities in Distance Education. However, very little is known about its use by distance learners. This paper presents the results of a study on the use of activities in self-instructional materials by distance learners of the Indira Gandhi National Open University (IGNOU). It shows that learners make use of the activities extensively as they have positive perceptions about the benefits of Self-Assessment Questions (SAQs) and Terminal Questions (TQs). Respondents in the study preferred descriptive questions as SAQs, which indicated the maturity level of the learners as reflective thinkers.*

Introduction

Though Distance Education is more than 150 years old and has passed through various evolutionary developmental phases since the shorthand lesson of Isaac Pitman, research in distance education is relatively of recent in origin. Systematic research in distance education started in the late 1950s (Mishra, 1998). With the establishment of more distance education institutions, research in the area progressed. Ljosa (1980) observes that the bulk of research in distance education derives from three sources: strong institutions with large research units, scattered individuals with a special interest in the field and specially funded major projects. In India, too, research in distance education was a neglected area, limited only to individuals with interest in distance education. However, the establishment of Staff Training and Research Institute of Distance Education (STRIDE) at Indira Gandhi National Open University (IGNOU) in 1993 marked the beginning of systematic institutional research in Distance Education.

In distance education, Self-Instructional Materials (SIMs) form the centre of all learning activities, and very little is known about their use by distance learners, especially in India and IGNOU. Therefore, it was decided to undertake a study related to SIMs at micro level. For this purpose the provision of interaction in SIMs was considered to be very significant to study in-depth, as interaction has been emphasised as the means to encourage active learning. Also a lot of efforts from the course-developer's side go into the making of a good SIM that includes a number of interactive devices, called activities. Because of the significance attached to activities from the designer's as well

as the learner's point of view, the topic was chosen for investigation. At IGNOU, *activities* are defined and characterised as "things that can be used to ask the learners to do and involve in active learning, apart from reading of self-learning materials and watching of or listening to audio-video programmes. These are questions or tasks designed to help the learners think for themselves and understand better. These activities also help to apply learning to do practical problems" (IGNOU, 1997, p: 8-9) e.g. Self-Assessment Questions (SAQs), Unit end exercises, etc.

Objectives of the Study

The objectives of the study were to find out

- a) IGNOU learners' use of activities in self-instructional materials;
- b) their preferences of specific types of activities; and
- c) their perceptions about learning from activities.

Methodology

To achieve the objectives set for the study, a design consisting of both quantitative and qualitative approaches was thought of. A questionnaire based mail survey was used to know the actual use of activities. For this purpose, a questionnaire was designed that contained questions related to background of the learners, use of activities, and achievement of objectives. The research instrument was administered amongst a sample group of FST (Foundation Course in Science and Technology) students who appeared for the December 1997 term-end examination. Since, not taking the final examination is not related to the quality of the materials (Valcke et al, 1993), conclusion can be safely drawn from the data collected from the sample. The number of students who gave FST December 1997 examination was 6394, and a random sample of 639 (10% of the total) students were sent the questionnaire by mail. The sample size is in accordance with the Krejcie and Morgan (1970) table for sample size determination. A total of 114 students responded to the questionnaire with a response rate of 17.84 per cent. Though we are not satisfied with the response rate, it is normally in tune with that of surveys and mailed questionnaire based research.

Review of Literature

Activities are a key component of self-instructional distance teaching materials. An ICDL database (January 1997 CD-ROM) search on 'Activities in Distance Learning Materials' under the 'Course and Curriculum Development' subject group resulted in only 27 hits. This shows the paucity of research studies in this important area. Moreover, a critical analysis of the available literature reveals that the studies are dominated by surveys.

The use of activities in self-instructional materials started with the concept of tutorial-in-print propounded by Rowntree (Lockwood, 1992). However, it was MacDonald-

42 / How do Distance Learners Use Activities in Self-Instructional Materials ?

Ross (1978) who first argued for the integration of questions in Open University teaching materials. He went on to recommend that activities should be decided before unit writing starts. Lockwood (1992) discusses the following major aspects of activities in self-instructional materials:

- they are an integral part of the teaching;
- interest and enthusiasm can be created via activities;
- a variety of formats and types of activity could be presented to learners;
- activities contribute to the order and structure of the materials; and
- completion of activities would foster learner independence.

Learners' Use of Activities

Responses to the use of activities by distance learners have been mixed. Duchastel and Whitehead (1980) reported that for the unit that did not contain any activities, nearly 60 per cent of students considered the absence of activities hindered their study, with none indicating the absence of activities helped. Henderson (1977) concluded that activities perceived as trivial are likely to discourage students from attempting them. Clyde et al (1983) found that students do not always work through self-assessment activities, but concluded that

“Assessment activities clearly influence the way in which some students use their time; students who complete modules relatively quickly tend to focus mainly on assessment activities; and longer study sessions are evident when an assessment activity is being done, perhaps because deadlines to be met” (p.25)

Marland et al (1984) found that in response to some in-text assessment activities, students scanned the text to locate ready-made answers and recorded them verbatim. This raises several questions on the use of activities as a learning device. Marland et al (1990) reported that students avoid in-text questions and activities wherever possible. Therefore, they suggested that in-text questions should be re-designed to make them appealing to students. Students tend to pass them by, because they are time-consuming and peripheral. In another study on actual use of embedded support devices, Valcke et al (1993) found that more than 60 per cent of students make use of them.

Choice of Activities

Since the use of activities by distance learners is not uniform, it is necessary to know what kinds of activities they prefer to use. Henderson (1977) reported in his study that over 90 per cent of students actually preferred close-ended questions. Also, for open-ended questions where no space was provided, student response was below 40 per cent. But when there was space to write, nearly 90% made use of the open-ended questions. Based on this he concluded:

- i) “Close-ended ITQs motivate high proportions of students to attempt them.
- ii) Students are more likely to respond to an open-ended ITQ, if an appropriate space is provided in the text for them to write their answer” (Henderson, 1977, p.7, quoted in Lockwood, 1992).

Benefits of activities

It has always been perceived by the course authors that activities help learners to learn better. Lockwood (1992), on the basis of his study which used self-recorded tape and questionnaire identified three benefits: Course-focused, self-focused and Assignment-focused. Valcke et al (1993) found that students who use embedded support device at a deep level have a high examination score and need fewer examination attempts. However, Lockwood (1990) after having identified the benefits, tried to analyse the cost involved. The major cost was the study time the activities consume. Based on the use of activities and perceived benefits, Lockwood described three types of emotional and intellectual costs: Degradation (reducing the activity to less demanding and less time consuming), Deference (showing no confidence on one's own response to activities and accepting the course writer's comment only) and Inadequacy (though recognise the benefit of activities, learners skip activities to save time and also feel guilty).

While discussing inadequacy, Lockwood (1986) reported

“When students were asked what their reaction would be, if activities were omitted from future teaching material, many said they would feel relieved, it would remove the feeling of guilt they experienced when skimming over or ignoring them”.

However, Thorpe (1986) analysing the findings of Lockwood, said that ‘the students’ reactions need careful interpretation – the sample size was very small, the study does not distinguish between different kinds of ITQ, and students of advanced courses may differ from degree level students’.

Parer (1988) in his study on textual design and student learning found that in-text activities are very important in helping students to study effectively. In this study, the deep learners tended to value the white space more for note-taking.

Research in this important area of self-instructional material shows that activities are perceived differently by learners. Some use them as instructed, whereas some try to skip them and directly read the model answers. There has been a mixed response of learners towards this instructional design characteristics. In the Indian context, no research has yet gone into this area, and the present study was an attempt in this direction to understand how distance learners use activities in SIMs.

Results and Discussion

Characteristics of the Respondents

- One-fourth of the respondents were female (24.56%) and 74.56% were male.
- Mostly the respondents were in the age group of 21-30 yrs (71.05%) followed by 31-40 yrs (17.54%).
- Medium of study of the majority of respondents was English (53.5%) and Hindi medium respondents constituted 43.9%.
- Majority of respondents were from 10+2 stream (74.6%) followed by 23.7 per cent from non 10+2 stream. The non 10+2 stream indicates, these students had un-

dergone the preparatory programme to study at undergraduate level.

- Programme-wise analysis of respondents indicated that majority of them (57.9%) were from B.A. followed by BCA (17.5%), B.Com (14.9%), BTS (6.1%) and B.Sc. (1.8%).

Approaches to Studying and Learning

We tried to know how students view their learning and work through the materials sent to them. Majority (67.5 per cent) of the respondents were concerned about knowledge and insight, whereas 23.7 per cent said they prepare themselves to “get good mark/grades”. Only 7 per cent indicated that they “just want to pass the examinations”.

When asked about their approach to study a block or unit, 33.3 per cent respondents indicated that they “start reading from the beginning”, followed by 28.1 per cent indicating the use of “block introduction/study guide”. The approach to start reading a block/unit, indicates that learners make use of objectives, structure as well as study guides, to work through a block or unit. This is also significant, as majority of the respondents indicated that they are “concerned with knowledge and insight” and instructional designers recommend the use of these advance organizers to facilitate deep learning.

We also asked the learners to explain in their own words how they make use of the study materials. A content analysis of their views are presented in Table-1. Around half of the respondents answered this question. Mostly the learners take down notes while studying. However, a few significant statements provided by learners on their process of reading are as follows:

“After noting down main points, I normally discuss them with my friends”.

“I underline main points and take notes”.

“I don’t take any notes. I just read the unit and write the page no. of important issues on a blank sheet, if it is essential for the assignment. Before exam, I see it again”.

“While reading a unit, I take care that the topic I am reading is an important one for doing my assignments”.

“I try to understand the subject structure and question of the unit. It helps me to understand what the chapter is finally trying to say. Then, I start reading from the beginning and whenever I get important points, I underline that point/concept”.

Table 1 : Reading Process

Methods of Reading	No. of Responses
Read all the chapters, take note of the main points and prepare main questions	36
Rough notebook is used to practice diagram and structures	12
Make note after reading to refer during exam period	11
Make note during 2nd reading along the margin space	4
Just read the text to understand what meaning it conveys to the students	2
Study every matter of the book in detail	2

Use of SAQs and Terminal Questions

Respondents were asked to indicate how they use the self-assessment questions (SAQs) and terminal questions (TQs) given in the Block-1 of FST-1. There are 22 SAQs and 23TQs altogether in the block having four units. On an average each unit has about 5 SAQs and 6 TQs. These activities (SAQs) are well spread across the text, and TQs are placed as unit-end activities. The objectives of these activities are to enable the learner to understand the content, achieve the objectives, feel motivated as accomplishment of learning task, and become confident as independent learner. Therefore, their use as instructed in the text becomes very important. Table-2 indicates that nearly half of the respondents used SAQs as instructed. The tendency to skip SAQs (as Set Aside Questions) was found amongst 7.33 per cent, while another 9.17 per cent went directly to the model answers without putting efforts in the SAQs. Another group of 19.16 per cent indicated that they did the SAQs at mental level using the space provided for.

As in the case of SAQs, the use of TQs also shows similar trends with little increase in the percentage of persons who skipped (8.39%) and who used the model answers directly (10.6%) as indicated in Table 3. As a result, the number of respondents who did the TQs as instructed (41.76%) too dropped in this category. This might be due to the fact that the learners might be tempted to go to the next unit/block, as distance learners are mostly hard pressed for time.

Respondents were also asked about their action, when they go wrong in a SAQ or TQ. The response to this has been depicted in Table-4, which indicates that 78.7 per cent read the relevant section again. This is quite satisfying as the purpose of SAQs and TQs as immediate feedback mechanism is to allow deep learning. The response to this question has relation to the approaches identified by the learners, where 67.5 per cent were concerned with knowledge and insight. Overall, the use of activities (SAQs and TQs) is very satisfying, as a lot of effort goes into their preparation by the course writers.

Respondents were also asked to talk about how they react when their responses to SAQs/TQs are similar or different. The responses to these questions have been critically analysed and presented in Tables-5 and 6. When the learners find that the responses are similar to that of the model answer provided, they feel highly satisfied. They feel confident and happy. Therefore, SAQs act as positive feedback to learning. Similarly, when their responses are different, the learners mostly feel dissatisfied. Some indicated that they felt angry and frustrated. While a few others said that they take it positively and try to understand the difference, read the text again, do more work. Some others responded as follows:

“I am not good at reading”.

“Failure is the pillar of success”.

“Feel happy to be different in case it is not a factual question”.

“I am confused”.

Some of these statements show that learners do feel discouraged and the guilt complex comes into play. To avoid such situations for the learners, it is necessary to design the

responses in a way that allows positive thinking and attitude towards learning.

Table-2: Use of SAQs

Nature of use	Frequency	Percentage
Did as instructed	1195	47.64
Skipped them	184	7.33
Did in mental level without actually using the space provided	492	19.61
Skipped and checked the model answer directly	230	9.17
Any other way	75	2.99
No reply	332	12.23

Table-3: Use of Terminal Questions (TQs)

Nature of Use	Frequency	Percentage
Did as instructed	1095	41.76
Skipped them	220	8.39
Did at mental level without actually using the space provided	473	18.03
Skipped and checked the model answer directly	276	10.60
Any other way	101	3.85
No reply	455	17.35

Table-4: Wrong response to SAQ & TQ: Use of feedback

Use of feedback	Frequency	Percentage
Read the relevant section	89	78.07
Did nothing	02	1.75
Sometimes read the relevant section	17	14.91
No reply	06	5.26
Total	114	100.00

Table-5: Reactions on similar response to model answers

Reactions	No. of responses
Feel satisfied	35
Feel happy	38
Gain confidence	26
No reaction	06

Multiple responses. Some left it blank.

Table-6: Reactions on Different response to model answers

Reactions	No. of responses
Feel unpleasant/frustrated/dissatisfied/angry	36
Read the text again	26
Know my mistakes	10
Try to understand difference	10
Wasted the time	2
Unable to understand the question in text	2

Table-7: Perceptions about SAQs and TQs

Perception	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
They help me to understand the text better	57 (50.0)	41 (35.96)	13 (11.40)	2 (1.75)	1 (0.88)
They help me to do TMAs	30 (26.32)	44 (38.60)	17 (15.91)	21 (18.42)	2 (1.75)
They help me to prepare for TEE	36 (31.58)	42 (36.84)	19 (16.66)	11 (9.65)	6 (5.26)
They take a lot of my time, but I like it	28 (24.56)	35 (30.70)	22 (19.29)	21 (18.42)	8 (7.02)
They save my time, as I skip them	6 (5.26)	15 (13.16)	24 (21.05)	34 (29.82)	35 (30.70)
They help me sustain my interest in studies	37 (32.46)	45 (39.47)	18 (15.78)	10 (8.77)	4 (3.51)
They give me a break while studying	20 (17.54)	51 (44.74)	24 (21.05)	10 (8.77)	9 (7.89)
They help me build confidence	51 (44.74)	39 (34.21)	14 (12.28)	7 (6.14)	3 (2.63)

Note: Figure in the brackets indicates percentage

Perceptions about SAQs/TQs

Table-7 indicates the kind of perceptions learners/respondents have towards SAQs and TQs. 50 per cent of the respondents strongly agree and 35.96 per cent agree that SAQs and TQs help them to learn better. Similarly, a majority of them agree that they help in doing tutor marked assignments. Respondents believe that the (SAQs) take time, but they (the learners) like them too. And normally the learners don't skip them as a time saving measure. Only 5.26 per cent strongly agreed and 13.16 per cent agreed to the statement on skipping SAQs and TQs as time saving measures. A majority of respondents believed that SAQs and TQs sustain their interest, build confidence, and also act as break points for the learners. It is very satisfying that learners have positive perceptions about the benefits of SAQs and TQs. This is perhaps because of the fact that the majority of learners identified themselves as those "concerned about knowledge and insight".

Table-8: Preference for Type of SAQs/TQs

Types of SAQs/TQs	No Choice	Preferences						Total (Weighted Score)
		1 st	2 nd	3 rd	4 th	5 th	6 th	
Descriptive	17	44 (264)	9 (45)	7 (28)	6 (18)	15 (30)	16 (16)	97 (401)
Multiple choice	34	27 (162)	12 (60)	11 (44)	11 (33)	12 (24)	7 (7)	80 (330)
Fill in the Blanks	30	26 (156)	22 (110)	10 (40)	15 (45)	7 (14)	4 (4)	84 (365)
True-False	26	31 (186)	24 (70)	18 (72)	11 (33)	9 (18)	5 (5)	88 (384)
Matching	28	21 (126)	7 (35)	20 (80)	21 (63)	7 (14)	10 (10)	88 (328)
Diagrammatic	35	14 (84)	5 (25)	6 (24)	9 (27)	17 (34)	28 (28)	113 (222)

Note: Figure in bracket indicated weighted score

Preference for Type of SAQs/TQs

Table-8 shows the preference of the respondents to types of SAQs/TQs. The preferences were subjected to a weighted score of 6 to 1 for 1st rank to 6th rank. Interestingly descriptive (short answer) type SAQs/TQs received the most (44) 1st preference followed by True-false (31). Multiple choice received 27 as first preference. The weighted score method gives descriptive as the first choice of respondents with highest score of 401, followed by true-false with 384 score. Fill in the blanks came third with 365 weighted score, though it was 4th in 1st preference. Similarly multiple-choice became 4th preference in weighted score. The analysis explodes the myth about multiple-choice questions as highly preferred. Amongst the respondents 34 persons did not even choose it for any rank. However, descriptive type short answer questions getting the first preference, too, is a surprise. It could be due to the nature of respondents, who believed themselves to be primarily concerned with acquiring knowledge and insight. This shows the reflective dimension of the respondents and hence, the preference for descriptive type questions.

Omission of SAQs/TQs

Learners were asked to react to an open ended question on "ommission of SAQs/TQs in SIM". About half of the respondents (45) who answered this question feel that it would affect the learning process. Also 30 persons felt it would make no difference. Some of the unique statements on this question are as follows:

"These should not be removed, because they create our interest for reading the units".

"I do not use it often. Still it has got value and it will definitely affect the reading".

"Without SAQs and TQs, units will become bore".

"It should never be omitted".

Use of Side Margin

Respondents were asked to indicate on how many pages they have made use of the side margin provided in the self-instructional material. The inherent objective was to know, if the learners are not using it, then why to give so much space as blank and, of course, increase the cost of production too. But interestingly, 75.43 per cent of the respondents indicated that they make use of the side margin with only 21.1 per cent, indicating that they have not made use of a single page. The extensive use of space in side margin is corroboration of the instructional designers' premise that it is useful for learners to make their own notes while studying the text.

The self-instructional materials used in IGNOU usually consist of many blank spaces to allow the learners to actively use the text, rather than reading them just passively. To know the learners' reaction to the blank space, we asked two questions regarding the omission of blank space and quality of materials. Just about half of the respondents (50.88%) indicated that the quality of the material will go down if the blank spaces are omitted after the SAQs and TQs. However, 33.33 per cent said it would not matter and 12.28 per cent indicated, they can't say. This is precisely a very important issue, as it is normally not expected of the learners to evaluate the quality, but if they are making use of the blank spaces, and simultaneously feel it should not be omitted, then as instructional designers, we must appreciate their feelings. Moreover, instructional designers always recommend to provide space after SAQs.

In another question, we asked whether the blank space in the side margin is a waste? Not surprisingly, 78.07 per cent indicated that it is not a waste, with only 14.91 per cent saying it is a waste. This also proves the use of margin space made by the respondents, as 75.43 per cent have actually used them.

Based on the actual use of SAQs and TQs, and learners' reaction towards blank spaces, we can safely conclude that withdrawal of open space after activities will have negative impact on learners satisfaction about the quality of self-instructional materials. This requires a recommendation for instructional designers/course writers to give sufficient space for learners to work on while designing SAQs/TQs in self-instructional materials.

Respondents' General Comments

Respondents were asked to provide their general comments on any other aspects of activities. Mostly they were concerned with the space provided for the SAQs. A few also asked for the question papers of the previous term end examination. One respondent suggested that the length of the units should be shorter. Some of the comments of the respondents are presented below:

“There should be relationship between activities and assignments”.

“The space provided for writing answers is not sufficient for writing descriptive answers. So, it should be omitted from the books. Only practice questions should be given in the blocks. Along with these, questions from the previous year should be included”.

“The block should give the last year questions at the end of each chapter, so that we attempt the exam with an idea of what type of questions are being asked”.

“SAQs should be increased to cover the whole unit thoroughly”.

“If a few more pages are attached with the notes section, the block can be made into a complete workbook”.

“There should be small units, even if their number becomes more”.

“More descriptive questions with model answers may be added”.

Conclusion

The study corroborates the instructional designers’ perceptions about the usefulness of activities from the learners’ view point. Most of the learners use the activities as instructed by the course writers. Learners have positive perceptions about the benefits of Self-Assessment Questions and Terminal Questions given in the Self-Learning Materials. Interestingly, the respondents in this study preferred short answer type questions revealing the myth surrounding the multiple-choice questions as most preferred one. However, the results of this study should also be considered alongwith the nature of the respondents who described themselves as ‘knowledge and insight seekers’. Majority of the respondents use the blank space provided after the SAQs and in every page as margin space. They don’t feel it is a waste. Rather, many of them complained of the less space provided after SAQs.

The study being exploratory in nature, we have not gone beyond the use of activities. Further research is needed to relate the performance of learners with the use of activities. Nevertheless, the study establishes the usefulness of the present design of self-instructional materials used at IGNOU.

References

- Clyde, Anne; Crowther, Henry; Patching, William; Putt, Ian and Store, Ron (1983) How students use distance teaching materials: an institutional study, *Distance Education*, 4(1): 4-26.
- Duchastel, P.S. and Withead, D (1980) Exploring student reactions to inserted questions in texts, *Programme Learning and Educational Technology*, 17(1): 41-47.
- Henderson, E.S. (1977) ‘Student response rates to question in a 101 Texts’, Open University, Institute of Educational Technology, (Mimeo).
- IGNOU (1997) *Glossary of terms commonly used in Distance Education*, IGNOU, New Delhi, 49p.
- Krejcie, Robert V. and Morgan, Daryle W. (1970) Determining sample size for research activities, *Educational and Psychological Measurement*, 30: 607-610.
- Ljosa, E. (1980) Some thoughts on the state of research in distance education, *Distance Education*, 1, 99-102.
- Lockwood, F.G. (1986) ‘Activities in distance teaching texts: author’s assumptions and expectations contrasted with students perception and use’, IET, Open University, Milton Keynes (Mimeo, ICDL full text).
- Lockwood, F.G. (1990) ‘Activities in distance learning texts’, Unpublished Ph D Thesis, Open University, UK.

- Lockwood, Fred (1992) *Activities in Self-Instructional Texts*, Kogan Page: London.
- Mac Donald-Ross, M. (1978) 'Notes on objectives, assessment and activities', cited in Lockwood, Fred (1992) *Activities in Self-Instructional Text*, Kogan Page: London.
- Marland, Percy; Patching, William; Putt, Ian and Store, Ron (1984) Learning from distance teaching materials: a study of students mediating responses, *Distance Education*, 5(2): 215-236.
- Marland, Percy; Patching William; Putt, Ian and Putt, Robyn (1990) Distance learner's interactions with text while studying, *Distance Education*, 11(1): 71-90.
- Mishra, Sanjaya (1998) Distance Education Research: A Review of its structure, methodological issues and priority areas, *Indian Journal of Open Learning*, 7(3): 267-282.
- Parer, M.S. (1988) *Textual Design and Student Learning*, CDL, Monash University, Churchill.
- Thorpe, Mary (1986) How to develop good exercises, assignments and tests, *Epistolodidaktika*, 2:27-50.
- Valcke, M.M.A.; Martens, R.L.; Poelmans, P.H.A.G. and Daal, M.M. (1993) The actual use of embedded support devices in self-study materials by students in a distance education setting, *Distance Education* 14(1): 55-85.

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