

# ODL Printed Materials and the Provision of Interaction

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**Abstract:** The Open University of Sri Lanka the only open and distance University in the country still depend somewhat heavily on printed course materials for some of its courses. This is especially the case in teacher professional development courses conducted by the faculty of education of the University. In Open and Distance Learning (ODL) the need to ensure the interactivity with the learners is still a major issue. With the commencement of conducting online courses the issue of ensuring interaction with learners has been simplified to a certain extent. However the Universities which conduct ODL courses using printed material as the main delivery method such as those mentioned above need to include various components in the printed course materials to enhance interaction. Such a provision would contribute to proper open educational practices. The data obtained in respect to the printed modules of the Principles of Education (ESP2202) of the Post Graduate Diploma in Education Programme (PGDE) conducted by the department of Secondary and Tertiary Education were considered for the paper. The main interactive components in the modules were the Pre-Tests, Activities and Assignments. The main objectives of the study were to find the students' perceptions about the interactive components, the extent to which they utilize them, find which of the interactive components they mostly interact with, investigate whether there is a relationship between utilization and their performance in doing course assignments and make suggestions to enhance their effectiveness. A random sample of 80 was initially selected from the student teachers attached to the Colombo Regional Centre which had a population of 325 students following the programme in Sinhala, Tamil and English media in 2015/2016 academic year. A mail questionnaire, which was one of the data collection instruments were posted to the sample and only 38 students responded. Therefore the final sample stood at 38. Out of them telephone interviews were conducted with 5 students who agreed to be interviewed over the phone. The analysis done both qualitatively and quantitatively revealed that the perceptions were both positive as well as negative. One of the positive perceptions was that doing the interactive activities help them in facing the final examination. A negative perception was that as feedback is not provided there is no point in doing them. The utilization was highest for the pre-tests and lowest for the activities. The calculation of the Pearson's correlation coefficient for both pre-tests and activities revealed that although positive relationships are found for both components they are not strong and therefore not significant. One of the major suggestions was to provide feedback in the modules itself or at least at day schools.

**Keywords:** ODL, Printed Materials, Perception, PGDE, Sri Lanka.

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## 1. INTRODUCTION

A major criticism leveled at distance education since its inception was that without the face-to-face interaction between the teacher and the student, education cannot be effective. Therefore distance educationists, over the years have been continuously attempting to stimulate this interaction in the delivery methods of distance educational content. In the early years of distance education, where the delivery of content was entirely through printed materials, the distance

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educationists attempted to provide some sort of interaction through two-way communication in the printed material. However in this digital era with the advent of the Internet and the designing of online courses, it became possible to provide not only asynchronous but even synchronous interaction between the teacher and the distance learner.

There are distance educational institutions, especially in the developing world for whom the major medium for delivery of the content in at least some courses or programmes is still the print medium. One such institution is the Open University of Sri Lanka (OUSL) which offers many online courses, but depends mostly on print medium for some of its teacher training programmes. One such programme is the Post Graduate Diploma in Education (PGDE) programme conducted by the Department of Secondary and Tertiary Education of the Faculty of Education of the University, with the aim of developing large numbers of untrained graduate teachers serving in the school system of the country as professionally qualified teachers. This programme has an average enrolment of around 3000 for each academic year and is conducted throughout the island by way of around 25 Regional and Study Centres of the OUSL in Sinhala, Tamil and English media. Although a number of face-to-face sessions are conducted and a number of video cassettes are also used, the major medium for the delivery of the content continue to be the print medium. According to the practice of the OUSL and following the 'house style' adopted by the University, some interactive components are integrated into the printed modules of this programme.

This study was intended to find the perceptions of the students about those interactive components, their utilization of the interactive components and also to find out whether utilization has any relationship to students' performance in doing course assignments. This paper deals with the interactive components in the modules of two core courses of the PGDE programme namely the 'Educational Psychology' course (ESP2201) and the 'Foundations of Education' course (ESP2202). Both those courses have two printed modules each and they are known as unit 1 and unit 2. The interactive components mostly used in the printed modules of the two courses under investigation were the pre-tests, activities and assignments. Data for the study were gathered from a sample of PGDE students attached to the Colombo Regional Centre (CRC) of the OUSL.

## 2. LITERATURE REVIEW

According to Rowentree that there exists a method to create the concept of a tutorial in print by way of changing the design of teaching materials [1]. In 1992, this idea was further elaborated by saying that such a tutorial is an interaction between the tutor and the learner. The focus for such ideas was the instructional package in distance education [1]. It was also said that learning is assumed to happen while the learner is interacting with the package [1].

Before those ideas were known, a theory of 'Guided Didactic Conversation' of distance education accepted that didactic conversation which is a major feature in the face-to face structure and also essentially a two-way communication is important for learning [2]. Even earlier, the possibility of providing some kind of two-way communication within the material by the inclusion of various means or components had come to light [3]. In the research on enhancing two-way communication in correspondence education, various models of teaching were analyzed to test their having two-way communication and therefore the suitability of those models for distance education. As a major outcome of this research, various strategies were devised for the provision of two-way communication in course materials [3].

Similarly, Holmberg also placed a lot of emphasis on the provision of two-way communication by integrating interactive components into the printed modules. In his theory mentioned above, he placed a lot of emphasis on the provision of two-way communication in learning materials, and telephone conversations. He saw distance education as a didactic conversation. He said this could be real or simulated. One of the most important contributions for distance education by him could be his ideas/research on providing guided didactic conversation through learning materials. He presented some characteristics such as the use of simple language, availability of opportunities for interaction and providing detailed instructions that should be present in learning materials for providing guided didactic conversation.

In presenting the theory of 'reintegration of the teaching and learning acts' Keegan stated that for the distance students, the recreation of the link between teaching and learning, must be accomplished through interpersonal communication which is deliberately planned and that the printed instructional material can be designed to include many of the characteristics of interpersonal communication [4].

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### 2.1 Interactive components that can be used in printed instructional materials:

The potential role of ‘questions’ in texts were explained and illustrated by Macdonald-Ross in encouraging an active response during students’ study [5]. Faw and Waller from their study on facilitating learning although not directed on distance learning, found that both pre-questions and post- questions facilitated intentional learning [6]. The interactive components that could be used in printed course materials were identified as exercises, questions and self-check tests [3]. Peters among other proposals submitted by him stressed the need to add self- testing questions [7]. Similarly Rowntree also mentioned activities, questions, tasks and exercises as vital features of self-instructional material [8].

The review of literature reveals that it is not enough to include interactive components such as questions and assignments and that some sort of feedback has to be provided in the printed material itself. For example, Bååth while commenting on the types of interactive components that could be integrated to the printed instructional materials stressed the need to provide detailed model or specimen answers [3]. Similarly, Peters also recommended the inclusion of model answers in the printed text to ensure two-way communication [7].

### 2.2 Need for interactive components in printed materials:

Lockwood provided a veritable host of examples of activities used across a broad variety of situations and disciplines. He also gave some brief but concise background regarding the evidence supporting the need for such activities [9]. Among the benefits Lockwood has included the following. Activities:

- act as a tutorial in print
- allow the students to engage in a dialogue
- are assignment focused
- enable the application of learning
- provide opportunities to relate to experiences
- provide opportunities for learning
- act as a reflective action guide
- are course focused
- help students to think for themselves
- help to refine learning
- help to find out examples
- assist in monitoring their progress [9]
- check their understanding

According to Holmberg the components that include opportunities for interaction if present in learning materials would attract students, motivate them and facilitate their learning [2].

### 2.3 Student perception on interactive components in printed materials:

Chao, conducted a survey study in Open Learning Institute of Hong Kong, presently called the Open University of Hong Kong. It was found that the majority of the students had favourable attitudes towards instructional design elements in print materials and agreed that interactive materials were useful for their studies. For this study Chao selected a sample of 375 students but when a mail questionnaire was sent only 147 of them had responded [10].

## 3. METHODOLOGY

### 3.1 Research design:

The study is conducted as a sample survey.

### 3.2 Objectives:

1. Find the perception of students about the interactive components
2. Identify the interactive components utilized mostly by the students
3. Investigate whether there is a relationship between utilization of the interactive components in ODL printed modules and students’ performance in course assignments
4. Make suggestions to enhance the effectiveness of the interactive components

### 3.3 The Population and the Sample:

The population was the batch of students of the PGDE programme in the academic year 2015/2016. A random sample

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was drawn from the PGDE student group attached to the CRC which was the target population. For this purpose a sampling frame and a random number table were used. Initially a sample of 80 was selected and the questionnaire which was the main data collecting instrument was mailed to them. However, only 38 completed questionnaires were received back, restricting the final sample of the study to 38. The details of sampling are given in table no 1.

**Table 1: Population and Sampling details**

The Population	Target Population	Selected Sample	Final Sample
3000	325	80	38

The selected sample of 80 consisted of 33 Sinhala medium, 24 Tamil medium and 23 English medium students. However the 38 who responded consisted of 15 Sinhala medium, 10 Tamil medium and 13 English medium students.

### 3.4 Data Collection and Analysis:

The main instrument used as stated earlier was a questionnaire which included items on various aspects in relation to the interactive components in line with the objectives of the study and it was translated to Sinhala and Tamil languages so that each student in the sample would receive a questionnaire in his or her own medium of study. Accordingly, questionnaires were mailed to the selected sample with a covering letter and a self-addressed and stamped envelope. After one reminder the responses stood at 38. In the questionnaire, a request was made for their contact numbers if they are willing to be interviewed over the phone. Only 5 students responded positively to that. Thereafter, telephone interviews were conducted with those 5 students to clarify and obtain more information related to the study. The interviews were conducted in a semi structured manner. Students who were interviewed were asked about their perceptions regarding interactive components and also were requested to give suggestions for improvement of the interactive components.

Data analysis was done both qualitatively and quantitatively. While the data for objective no 1 was analyzed qualitatively, those for objectives no 2 and 3 were analyzed quantitatively. For the objective no 3, in order to find whether there exists any relationship between students' utilization of interactive components and their performance in doing course assignments, the Pearson's Product Moment Correlation Coefficient was calculated for the two variables utilization and performance. For both courses there are 3 assignments each and the regulation was to consider the marks of the best 2 assignments for the final examination. This paper deals only with the correlation coefficient obtained for the course ESP2202. Out of the 3 interactive components in the modules, the component of assignments were very few in number and therefore the calculation of the correlation component was restricted to the other two interactive components i.e. pre-tests and activities. For the calculation of the correlation coefficient, the variable, utilization for each student was calculated as the percentage of the component utilized rounded to the closest whole number. In the case of the variable, performance, the average marks of the best 2 assignments was calculated for each student. The Pearson's correlation coefficient was calculated using the online Pearson Correlation Coefficient Calculator for the two interactive components, pre-tests and activities for the course ESP2202. In order to calculate the Pearson Correlation Coefficient the following conditions have to be fulfilled.

- The scale of measurement has to be interval or ratio
- No outliers in the data
- Variables should be approximately normally distributed
- The association should be linear

It was considered that the values obtained for the two variables satisfy these conditions.

## 4. RESULTS AND DISCUSSION

### 4.1 Objective 1: Students' perceptions about interactive components:

The qualitative data obtained from the questionnaire on the perceptions of the respondents about the interactive components of the printed modules revealed that they have positive as well as negative perceptions. It was interesting to note that from the sample of 42, a majority, i.e. 31 had positive perceptions about the interactive components while the other 11 had negative perceptions.

Some of those perceptions are stated below.

**4.1.1 Positive perceptions:**

They are really useful for us Doing them facilitate understanding Help us for our exams. They are relevant to the subject content. Helps to prepare short notes.

**4.1.2 Negative perceptions:**

Doing them is not really necessary. Spending time on them is a waste of time.

We are short of time. Even if we do them we have no feedback. Some of them are not clear.

**4.2 Objectives 2: The interactive component mostly used by the students:**

A summary of students’ utilization of interactive components in relation to the two printed modules of the course ESP2202 are given in table no 2.

**Table 2: Students’ utilization of interactive components**

Interactive component	ESP2202		
	Total no	Done average	%
Pre-test	4	2.86	71.5
Activity	47	9.71	20.6
Assignment	7	4.71	67.3

The table 2 clearly indicate the differences in utilization in respect to different interactive components. In the column indicating the percentage utilization, the pre-test can be identified as the interactive component mostly used by students in respect to the ESP2202 course. It was also found that the activity was the interactive component least utilized by the students.

**4.3 Objective no 3: Investigate whether there is a relationship between utilization of the interactive components and students’ performance in course assignments of the course ESP2202:**

**4.3.1 Pre-test vs average marks:**

Pre- test utilization percentages

61.5,7.7,92.4,100,61.5,92.4,92.4,84.7,77,53.9,53.9,69.3,69.3,84.7,77,92.4,46.2,77,38.5,0,77,69.3,77,53.9,77,69.3,38.5,0,84.7,53.9,61.5,15.4,84.7,69.3,61.5,84.7,84.7,61.5.

Average marks of best two assignments

44.5,42,64.5,64.5,57,49.5,42,49.5,52,40.5,54.5,66,44.5,54.5,42,54.5,44.5,63.5,49.5,47,54.5,63.5,42,49.5,54.5,49.5,47,47,66,62,44.5,49.5,63.5,44.5,44.5,57.5,59.5,54.5.

Result Details & Calculation

Meta Numerics (cross-check)

$r = 0.4253$

The value of R is 0.4253. Although technically a positive correlation, the relationship between your variables is weak (nb. the nearer the value is to zero, the weaker the relationship).

Activities utilization vs average marks

Activities utilization percentages

8.2,4.2,25.2,26.6,16.8,22.4,23.3,19.6,9.8,16.8,14.0,22.4,15.4,25.2,12.6,15.4,12.6,11.2,16.8,0,19.6,18.2,14.0,22.4,19.6,11.2,16.8,2.8,26.6,16.8,19.6,8.2,28.0,22.4,11.2,7.0,12.6,16.8.

Average marks of best two assignments

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44.5,42,64.5,64.5,57,49.5,42,49.5,52,40.5,54.5,66,44.5,54.5,42,54.5,44.5,63.5,49.5,47,54.5,63.5,42,49.5,54.5,49.5,47,47.6,6,62,44.5,49.5,63.5,44.5,44.5,57.5,59.5,54.5.

### Result Details & Calculation

#### Meta Numerics (cross-check)

$r = 0.4385$

The value of R is: 0.4385.

The value of R is 0.4385. Although technically a positive correlation, the relationship between your variables is weak (nb. the nearer the value is to zero, the weaker the “relationship”).

The R values (the Pearson Correlation Coefficients) for both interactive components pre-test and activities were 0.4253 and 0.4385 respectively so that although positive correlations exist between both components and students' performance in course assignments, the correlations are not stated to be significantly strong according to the online calculator. The p-values (0.004989 and 0.003676 respectively) were significant at  $p < 0.01$  level [11]. On the other hand both those values have exceeded the Critical Values for Pearson's Correlation for two variables in a sample of 42 ( $\alpha = .05$ , 0.312 and  $\alpha = 0.402$  [12])

#### 4.4 Objective no 5: Make suggestions to enhance the effectiveness of the interactive components:

The following suggestions came up from the questionnaire and also from the telephone interviews conducted with 5 students.

- Provide model answers for assignments in the modules for assignments
- At least give main points required for answers at the end of each session of the modules
- Make activities more attractive and challenging.      • Give more details on activities.
- Discuss activities at day schools.      • Provide feedback.

### 5. CONCLUSIONS AND RECOMMENDATIONS

The fact that the majority of the students have positive perceptions about the interactive components in the printed materials is important for distance educational institutions which rely on printed materials at least for some courses or programmes. One disturbing fact which is highlighted by this study is the very low utilization of the activities given in the modules. Doing activities would have helped the students in better understanding of the subject matter and would have made learning more meaningful. Also doing activities is important because that makes learners become active learners. Therefore it is essential to motivate them to do the activities. One way of doing this would be making activities more challenging. On the other hand the high utilization of pre-tests and assignments indicate that students are mostly concerned about being successful in examinations. One very important recommendation would be to provide some sort of feedback for the students after they have utilized the interactive components in the printed materials. Then what Bååth (1979) and some others recommended as important could be put into practice. Although a positive correlation is indicated between utilization of interactive components and students' performance in course assignments no further interpretations or conclusions could be made from the coefficient values. One reason could be the very small sample size of the study which can be seen as a limitation. Perhaps more studies with larger samples would shed more light on this aspect. Also the restriction to just one or two courses might have further reduced the generalizability of the study.

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