

SECTION – 4

Section 4: Educational Technology for Environmental Education

Introduction

You are aware that environmental Education (EE) is a multidisciplinary and interdisciplinary subject. Just as in the case of other disciplines, EE also has a wide variety of objectives. A few main objectives of EE are :

Awareness : To help the individuals and social groups acquire awareness and sensitivity to the total environment and its associated problems.

Knowledge : To help the individuals and social groups acquire basic understanding of the total environment and its associated problems.

Attitudes : To help the individuals and social groups acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection.

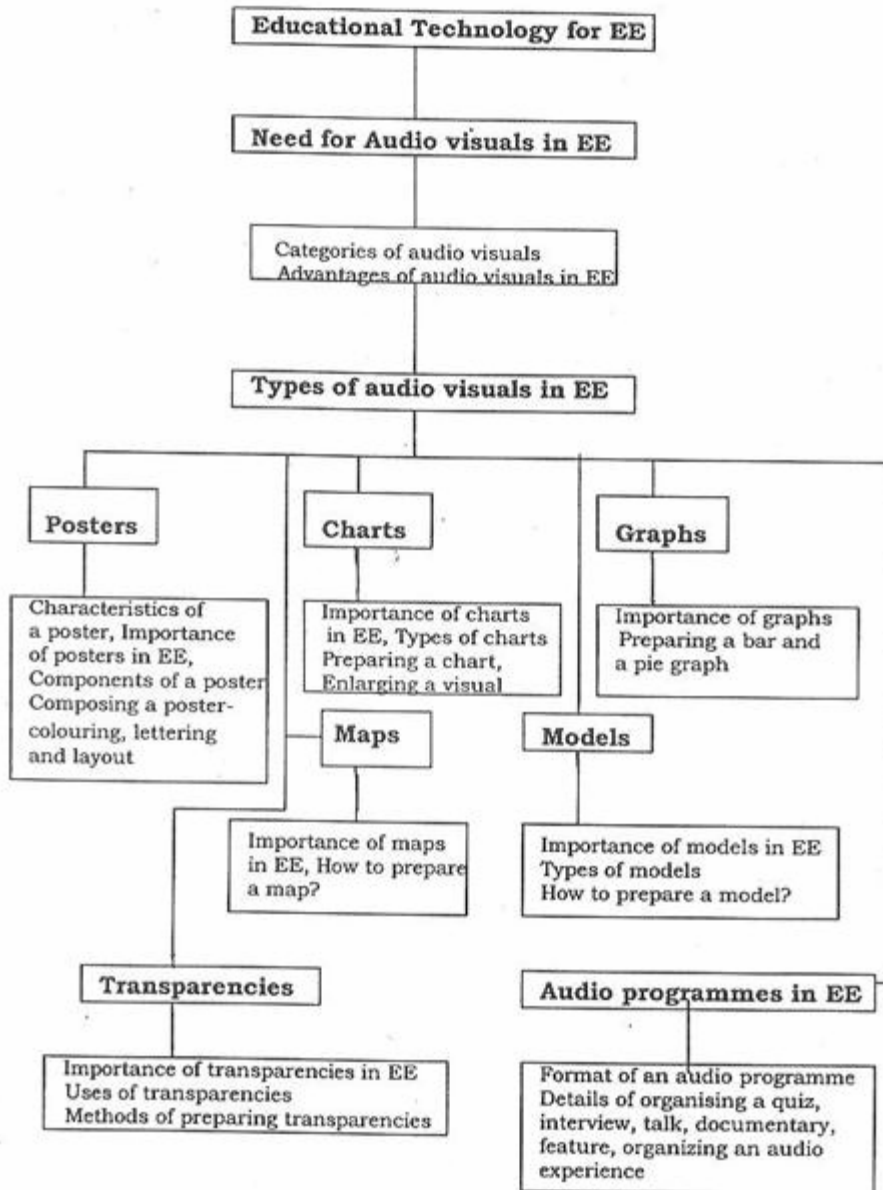
Skills : To help the individuals and social groups acquire the skills for identifying and solving environmental problems.

Evaluation : To help the individuals and social groups evaluate environmental measures and educational programmes in terms of ecological, political, economic, social aesthetic and educational factors.

Participation : To help the individuals and social groups with an opportunity to be actively involved at all levels in working towards resolution of environmental problems.

For achieving these diverse objectives, a teacher may have to plan and provide a variety of learning experiences. For example, to develop an understanding of the fundamental concepts in EE, a teacher could use lecture and demonstrations, and similarly, to develop and foster environment friendly attitudes and behaviours, he/she could think of:

Overview



Before you begin, **ENSURE** that :

- You have read this section carefully taking down the important points for highlighting, details of the activities to be conducted and transparencies to be used during the various sessions.
- You have all the TRAN sheets, appended at the end of this section, photocopied on transparency sheets and sequentially arranged (Transparency sheets and available in any stationery shop). The process of photocopying is like any other paper that is Xeroxed.

- You have arranged the overhead projector, trial run one or two transparencies to ensure proper focus of the visuals.
- You have the stationery materials such as chart paper, poster colours, sketch etc., for use during the session.
- You have set up the model on soil erosion using the Activity sheet – 1.

Session 1: Introduction to Audio visuals and their Specific Advantages

- Recall to the trainees that **Instruction** is a systematic process of arranging and providing learning experiences to learners, helping them to achieve the desired objectives.
- Explain that effective teaching – learning process involves specifying the goals or objectives in behavioural terms, choosing the appropriate content and methods of teaching, identifying and using suitable audio-visuals for presenting the learning experiences and assessing the outcomes through appropriate evaluation tools or techniques. In other words, it involves a close matching of the instructional objectives, content and methods of teaching and evaluation criteria. TRAN-1 will help you in explaining this relationship.
- Conduct the following activity to bring home to teachers the importance of using audio visuals in teaching

Activity

- Ask one of the trainees how he/she would teach the concept of a **Table** to a batch of young children. Ask him/her which one of the following he/she would choose to explain the concept and why ?
 - Defining a table.
 - Presenting a picture of the table.
 - Showing an actual table, explaining its characteristics and uses showing pictures of different sizes and shapes of a Table and associating the object with the actual pronunciation of the word table.
- Ask the rest of the teachers to reflect on why use of both audio and visuals in teaching – learning situation makes it effective.
- Ask the teachers to name some of the common audio visuals they use in their teaching sessions. Let them develop a list on the black board.
- Using TRAN-2, explain the different advantages of using audio-visuals in teaching-learning situations.
- Help the teachers to classify the various audio visuals listed on the board, based on their characteristics. Elicit the different criteria considered to classify the audio visuals.
- Using TRAN-3, explain the classification of audio visuals and the various criteria used in classifying them.
- Use TRAN-4 to explain to the teachers the various factors that guide in selecting good visuals.
- Conclude the session by focusing the main points.

Session 2: Posters and Charts in EE

- Recall to the teacher the advantages of using audio-visuals in teaching, their specific advantaged in the teaching of EE and the different audio-visuals which teacher can make use for imparting EE.
- Brief the teachers about the importance of posters and charts in presenting learning experiences in EE. Explain how these audio-visuals make teaching-learning interesting, appealing and effective.
- Using TRAN-5, describe the characteristics of a good poster or a chart.
- Explain that a poster or a chart has two main components, namely the visual and the message or the caption on it. Highlight the importance of both of these in enhancing the meaning of the message communicated.
- Using TRAN-6, explain the different types of charts and their importance in communicating quantitative information.
- Put up the TRAN-7 and help the teachers recall the characteristics of a good visual.
- Using TRAN-8, help the teachers to examine some of the captions commonly used for promoting environmental awareness. Let them analyze the captions for the message they convey, and comment on whether they are attractive and meaningful.
- Conduct the following activity to impress upon the teachers the various considerations to be kept in mind while designing a good poster or a chart.

Activity

- Project the TRAN-9 which contains two posters.
- Ask the teachers to examine the posters and evaluate them in terms of the several characteristics of a visual and caption referred earlier.
- Conclude the activity by reinforcing that if a poster or a chart has to be effective, then
 - visuals used should be clear, visible, and bold
 - visual and the caption (message) should represent a single idea
 - both the visual and the message should compliment each other.
 - a colour visual should be preferred to a black and white.

However, it should be noted that the colours used should be appropriate and realistic and the message should be simple. If the words in the caption rhyme with each other, the message is likely to be remembered for a longer duration.

- Using TRAN-10 explain how the visual and the message are arranged on a poster or a chart to arrive at a good composition or balance.
- Put up TRAN-11 and explain the importance of a colour wheel, how different shades of colours could be obtained using a combination of colours. Brief them

about the harmony achieved using colours analogous, complementary and monochromatic.

- Using poster colour such as red, blue, green and yellow, demonstrate how colour harmony could be obtained in the preparation of a poster or a chart.
- Using TRAN-12, explain the importance of lettering on the posters. Emphasize that bold, visible, regular (not capitals) and writing enhances the readability of the poster or chart. Use of stylized and italicized writing should be avoided.
- Conduct the following activity to help the teachers in designing a poster.

Activity

Divide the group into 4 smaller groups.

Let each group choose a topic or a concept from the textbook or from the book on Content analysis of the textbooks of Karnataka State for Environmental Perspective for preparing a poster. Let them write a brief description of the visual and the message they are going to represent.

Provide the groups with poster colours, chart paper and other stationery items for preparing the poster. Ask them to indicate at the bottom of the poster how it can be used and the message it conveys. Let the posters so developed be displayed.

Session – 3 Graphs, Maps and Transparencies

Explain to the teachers the advantages of graphs, maps and transparencies in the teaching of EE. Highlight the advantages of

Graphs in: representing, comparing the contrasting qualitative data making large quantities of data – particularly numbers meaningful to children.

Maps in: showing different features or locations on earth, relative positions, wind and rainfall patterns, etc.

Transparencies in: reducing blackboard work, showing diagrams, pictures, figures etc. enlarging visuals / words for building the sequence of events.

- Using **TRAN-13**, explain how bar graphs and pie graphs could be effectively used in teaching environmental concepts.
- Project **TRAN-14** depicting a bar chart and ask the teachers to read and interpret the graph.
- Explain, using **TRAN-15**, how maps could be used for explaining different natural phenomena such as wind and rain fall pattern, distribution of forests, district boundaries, topography, soil types, etc.

- Conduct the following activity to enable the teachers in preparing a bar graph and a pie chart.

Activity

Divide the group into 4 to 5 smaller groups.

Put up **TRAN-16** showing data on the use of different types of fuels in home.

Ask them to convert this data into a bar chart and a pie chart.

Let them assess which is more appealing and meaningful.

- Explain to the teachers how these graphs could be made into transparencies for projection purposes and the different methods of converting them into transparencies – Free hand, Stencils & Templates and Photocopying.
- Explain to the teachers that in order to make the visuals more visible, many of them need enlarging. Describe how grid and projection methods could be employed in enlarging the visual without incurring a lot of expenditure.
- Conduct the following activity to help the teachers understand these two techniques.

Activity

Divide the teachers into two or three smaller groups.

Provide each group with a small picture of a bird or a tree or an animal for enlarging, using either the grid or the projection method. Help them with the overhead projector if any group is using projection method.

- Give the following activity to the teachers as a take home activity.

Activity

Let the teachers form 4 to 5 smaller groups. Provide each group with a cassette on EE from the Dwani Surali series supplied by DSERT, Govt. of Karnataka. Alternatively, they could use any other cassette promoting EE. Let them listen to the cassette and comment on :

- the content covered
- the potentials of the medium in imparting EE concepts.
- appropriateness of the medium for the concepts conveyed.

Session 4: Models and Audio programme

- Review the impressions of different groups on the cassette they had listened to earlier day / sessions.
- Utilizing the points arising from the review, introduce the teachers to the potentials of Audio programmes in creating environmental awareness and understanding in children, its appeal to the children, how audio cassettes could help bringing in reality to the classroom, how it could be used to help children listen to original voices or sounds.
- Using **TRAN – 17**, describe to the teachers the advantages of audio programmes in imparting EE. Play the cassette on **Natural Sounds** and help teachers appreciate how some of the natural sounds could be effectively brought to the classroom with the help of audio cassettes, which other wise would have been difficult.
- Using **TRAN-18**, explain to them the different formats used in the preparation of an audio programme and the importance of a script in recording an audio programme.
- Conduct the following activity to give the teachers an experience in the actual preparation of an audio programme for their students.

Activity

Group the teachers into five groups.

Let each group choose one of the formats and a concept from the text book for preparing an audio programme. Keeping the format of the programme, let the groups develop a script on the concept for the audio programme.

Provide the groups with blank cassettes and allot separate timings for recording the programme.

Play back the recorded programmes asking the groups to review and comment on the message conveyed, appropriateness of the format for presenting the message, etc.

- Explain to the teachers the advantages of including pre-listening and post-listening activities as part of the audio experience. Conduct the following activity to enable the teachers to understand the different activities that could be undertaken during an audio experience.

Activity

Keeping the audio programme developed earlier, ask the different groups to think and suggest the various pre-listening and post-listening activities which could enhance the effectiveness of the audio programme.

Let the groups present their work for comments and refinement.

- Explain to the teachers that just as audio programmes help in bringing reality into the classroom, models could also be used for making teaching-learning realistic. By actually engaging students in the preparation of models, they could be made to understand the details of various processes and phenomenon in the environment.
- Orient the teachers to the importance of models in the teaching of EE by taking the teachers to the models set up outside the classroom. Refer *Activity sheet – I* on setting up of models for demonstrating soil erosion.
- Conduct the activity to demonstrate the concept of soil erosion using the models. Ask some of the teachers to actually carry out the activity to ascertain how vegetation helps in curtailing soil erosion.
- Re-assemble them back in the classroom and discuss the advantages of the models. **TRAN-19** can be used to highlight the different advantages of models.
- Using **TRAN-20**, describe the different types of models and their use in teaching.
- Conduct the following activity to enable the teachers to prepare models and experience the different stages in making them.

Activity

Divide the group into 4 smaller groups.

Ask them to choose concepts from the Science or Social science text books or from the book Content analysis of Textbooks of Karnataka for Environmental Perspective and identify the type of models that can be prepared to teach these concepts.

Provide the groups with necessary materials for preparing the models.

Allow time for groups to prepare the models. Let the models be displayed for comments and suggestions for their improvement.

- Reassemble the groups and ask each group to explain the concept using the models developed.
- Generate a discussion on the appropriateness of the models for teaching the concept/s whether the model is achieving the objectives it is meant to achieve, etc.
- De-brief the teachers on :
 - The advantages of using audio visuals in EE
 - Categories of audio visuals, criteria for the selection of visuals.
 - Importance of posters and charts in EE, their components, and characteristics.
- Different types of charts, criteria on which the composition and the layout of a poster / chart is based.

- Importance of lettering and colour scheme of the posters. Methods of enlarging a visual.
- Importance of graphs, maps and transparencies in EE and details of their preparation and use.s
- Importance of models, types and preparation.
- The different audio formats, their importance in an audio programme and the different steps involved in preparing an audio programme.