2.2. Lecture-based learning

2.2.1. Description of the type of method/strategy (300-400 words)

Lecture-based learning (LBL) is an oral presentation intended to present information or teach people about a particular subject, for example by a university or college teacher. Lectures are used to convey critical information, theories, history, background and equations. Lectures have a significant role outside the classroom, as well. Academic and scientific awards routinely include a lecture as part of the honor, and academic conferences often center on "keynote addresses" i.e. lectures. Lectures represent a continuation of oral tradition in contrast to textual communication in books and other media.

Traditionally, universities have been using "lecture" as the main and prevailing teaching method. During lectures students’ role is rather passive, seating in rows and receiving the “messages” delivered by the lecturer who stands in front of them. Lectures are generally described from the instructor’s point of view, and the student’s need for interaction with the instructor is not addressed. In fact, lack of interaction is considered one of the major limitations of the traditional lecture (Munson 1992). Given that most educators learn how to teach based on their experiences as students, this “teach as I was taught” approach tends to perpetuate the lecture as a passive, one-way method of transferring information.

Compared with the past, today's lecture is enriched with interaction and feedback from students through questioning, brainstorming and various discussion techniques. This way LBL becomes active and communicative approach involving students in a variety of activities with supporting media. An effective LBL can be exciting and rewarding aspects of an educator’s responsibilities. The educator who is able to maintain participant interest with an exciting, dynamic delivery using a variety of instructional methods is more likely to be successful in helping students reach the learning objectives. The time and effort invested in planning pay off as educator and learners interact, discuss, question and work together. Cavanagh, Hogan and Ramgopal (1995) recommend using a variety of teaching styles with an emphasis on participatory and experiential learning. Renner (1993) recommends that lectures last no longer than 30 minutes. Interactive lectures should last no longer than 60 minutes without giving the students a break, based on the authors’ experience. The number of participants attending a lecture has a significant impact on how the lecture is presented. Group size determines the use of questions, amount of interaction, selection and use of media (e.g., overhead transparencies, slides, computer-based projections, and video, audio) and use of small group activities such as case studies, role plays and problem-solving exercises.

2.2.2. Its underpinning theory (150-200 words)

According to Swanson and Torraco (1995), the lecture was established formally centuries ago as a teaching process that began with a literal reading of important passages from the text by the master, followed by the master’s interpretation of the text. Students were expected to sit, listen and take notes. Ruyle (1995) describes the lecture simply as an oral presentation of instructional material.

The virtues of a well planned LBL are numerous: it sharpens the use of language; it requires thinking ideas through to clarify opinions; it helps to learn to
listen to the ideas of others, it allows for the sharing of information, the logical progression and pooling of ideas; and eventually fosters the formulation of solutions (Scoullos, 2004).

2.2.3. Its strengths and weaknesses in the context of ESD (200-300 words)
The strengths (S) and weaknesses (W) of the method of lecture based teaching and learning are presented in the following table.

<table>
<thead>
<tr>
<th>Strengths (S)</th>
<th>Weakness (W)</th>
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</thead>
<tbody>
<tr>
<td>LBL can be based on two-way communication and interaction between the educator and learners, thus promoting shared responsibility for active learning</td>
<td>If it’s limited on “one-man show” without no encouragement of discussion it remains an “old fashion” and boring technique</td>
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<tr>
<td>It is basic component for almost all learning strategies and especially for problem-solving and values laden activities (see “maieutics”)</td>
<td>The educator needs to encourage participation and provide input in times of “fatigue”. LBL process needs to be supportive.</td>
</tr>
<tr>
<td>It may be combined with a variety of supporting media and when delivered by inspiring educators can be highly stimulating</td>
<td>Educator should be well prepared in terms of providing and presenting with various media information given in such a method learners depend on the educator for the provision of data, etc.</td>
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<tr>
<td>It is cheap and efficient way of introducing large numbers of students to a particular field of study.</td>
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</tbody>
</table>

2.2.4. How it can be applied to advance ESD (300-500 words)
Nowadays, the evolution of educator-centered lectures to LBL in HE is a reality. LBL is fully compatible to the ESD objectives and principles. LBL may include the main lecture/presentation, and move on with questioning and brainstorming, and proceed with discussions in groups, and even, student-led debates. Questioning and brainstorming techniques throughout the learning process can be used to trace learners’ knowledge and ideas on the topic, to stimulate interaction and summarize content. Involving students through questioning helps to maintain their attention, which is critical when topics are complex and lectures are long.

The starting point of LBL (introductory phase) should be something the students have experienced i.e. asking them to present related ideas, knowledge and experiences (project, research, etc.) about the topic. Objects, articles, pictures, etc., may all be used as stimuli. Naturally, variety of input is crucial in stimulating questions, creativity and inventiveness. Interest can be stimulated i.e., by drawing from the highly advanced knowledge and experience they have in certain issues (e.g. computers); by stressing that often there is no single objective view to an issue, but rather many subjective ones (especially within ESD); by asking learners to state their queries, etc; by using a variety of audiovisual media (internet, presentations, video, etc.).

Regarding questioning, it is preferable to use simple open-ended questions, asking for an opinion, rather than knowledge on an issue (e.g. ‘What do you think about …?’ instead of ‘What do you know about …?’). It is important to allow enough time for a student to answer a question is an important aspect, often forgotten. In the case of a wrong answer the educator could rather build on the reply by giving more clues for
the student to re-think or, when appropriate, engage the whole class in an open dialogue to test the accuracy of the initial reply, and help to ‘correct’ it.

Non-verbal communication is crucial within LBL and also promotes student participation. Educators should keep eye contact with the student they talk to, address them by their names, attend to their feelings and avoid standing still in class. They may use facial expressions to show their satisfaction about a correct reply, but should avoid expressing strong feelings of rejection on a wrong reply. The use of slang or repetitive words, phrases or gestures that may become distracting with extended use should be avoided as well as the use of expressions such as “um,” “you know”, etc.

Last but not least, LBL should have clear and meaningful results. The clarification process can be supported by the educator who should undertake to summarise the main discussion points, draw conclusions at the end, highlighting the ecological footprint and social footprint.

2. 2. 5. Provide cases/examples using this type of method with ESD themes (2-3 examples with different themes)

1. **Interactive Lectures in Geoscience students** (College of William and Mary, Carleton College, USA). This module on Interactive Lectures presents examples of activities to involve students in large and small lecture-based classes.

2. **Lectures in problem-based learning**. The paper (Department of Medicine and Care Faculty of Health Sciences, Linköping University, Linköping, Sweden) discusses and argues that lectures are a common form of instruction in Problem Based Learning curricula.

**Bibliography**


