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Abstract
For the past few years university teaching has been changing. With an emphasis on quality and a movement away from traditional modes of delivery most teaching academics are faced with finding more efficient and effective ways to teach.
MOLTA (a Model Of Learning and Teaching Activities): a teaching development tool.

Richard Caladine

For the past few years university teaching has been changing. With an emphasis on quality and a movement away from traditional modes of delivery most teaching academics are faced with finding more efficient and effective ways to teach.

Initiatives like Open Learning Australia, and Professional And Graduate Education, as well as the introduction of information technology and teaching to satellite campuses have served to highlight different ways of teaching and some teachers are faced with the difficult task of developing subjects for new modes of delivery or converting existing ones. Others reappraise the teaching activities they use in order to increase their effectiveness.

While there has been an explosion of publications on flexible delivery, open learning and distance education, there is a noticeable gap in the literature, namely that of models of teaching and learning activities which can be used to facilitate innovation in teaching and learning.

The model presented here is a categorisation of teaching and learning activities that will assist in the development, conversion and enhancement of teaching. In other words this model has been designed to assist in the conversion of existing subjects for different modes of delivery, the development of entirely new subjects and the enhancement of existing subjects where there may be no change in the mode of delivery.

It is not the purpose of this paper to produce a new theoretical analysis of teaching and learning, rather to produce an instrument of practical use. It must be noted that this model while complete in itself operates within the total teaching and learning environment. Hence such factors as student motivation, demography and culture must be considered in conjunction with the use of the model.

In MOLTA teaching and learning activities are classified into five groups and are graphically represented in figure 1.

• delivery of material (by the teacher)
• interaction with materials (by students)
• interaction with the teacher (by students)
• interaction with other students
• intra-action (by students)

The categorisation listed above performs several functions. The main function is that it allows a comparison of different modes of delivery without necessarily inferring equivalence between them. For example it is not intended to equate delivery of material face to face with that of television or other media, rather to enable comparison of kinds of activities.
Interaction with materials refers to the two-way process between a student and materials resulting in a learning outcome of some kind. It could be as simple as rewinding and reviewing part of a video tape for clarification or as complex as the process of archival research. Some examples of interaction with materials are:

- going over and expanding on lecture notes
- looking up definitions in reference books

Delivery of material is used here to describe the one-way process from teacher to student. Some examples of delivery of material are:

- the voice of a lecturer and the text and graphics on an overhead projector slide, powerpoint display or other
- the text and graphics in books, study guides, handouts or other printed matter
- the pictures and sounds of a television program or video
- the text, pictures and sounds of multimedia or World Wide Web resources

In this first category the term material has been intentionally used to describe that which is delivered. Terms such as knowledge, information or data were discarded as problematic. Use of the term knowledge in this context would require a detailed discussion of the constructivist debate on the nature of learning. Such a discussion, while acknowledged by the author as central is not within the scope of this paper.

The terms data and information also have drawbacks although they are of narrowness of meaning. The term information infers a recipient (someone who is informed) and data is often thought of as simply numbers. The term material is used to mean the words, pictures, sounds and other things that contain the content of the course.

Intra-action is dependent on factors that are outside the model and others that are inside it. Those outside include things like student motivation, abilities and the need to learn. When applying the model the category of intra-
action should be considered in part as the degree to which the other categories of the model stimulate and encourage the student to achieve the desired learning outcomes.

The model detailed above is intended to be used in the design or enhancement of subjects and in their conversion for alternative modes of delivery. In the design of a subject the designer considers each element of the model, firstly to ascertain if it is needed to achieve the desired learning outcomes and secondly to match the element to specific teaching techniques.

This paper concludes with two hypothetical examples that highlight the use of the model. In the first example a subject is converted for delivery to a satellite campus and in the second the use of a radio or television is investigated as a substitute for face to face delivery.

Example 1. Satellite Campus.

An undergraduate subject that has been taught locally for some time is to be delivered to a satellite campus. The satellite campus is linked to the main campus by video conference and has audio-visual facilities and a limited computer lab. The subject has traditionally been presented as fourteen lectures and thirteen tutorials.

The first step in using the model is to categorise the activities in the traditionally delivered subject.

The delivery of material was the dominant component of the teaching of the subject. Most lectures were characterised by a one-way flow of material from the lecturer to the students and a short time spent with questions and answers.

In terms of interaction with materials, as on-campus students they had access to university library, text books, lecture notes etc.

Apart from the limited questions and answers in lectures interaction with the teacher was generally in tutorials, as a group, and individually during consultation hours.

Interaction between students happened formally in tutorials and there were many opportunities for informal interaction on campus.

The last category of the model, intra-action, is in part dependent on the degree to which the other categories stimulated and encouraged students to achieve the desired learning outcomes. In the traditionally delivered course intra-action could result in things like students gaining confidence to undertake their own research.

The next step is to examine the facilities and the teaching activities that can be fostered at the satellite campus in the light of the categories of the model.

The satellite campus was located too far from the main campus for the lecturer to commute conveniently and video conference was first considered as the medium for the delivery of material. However after consultation with media specialists it was decided that video conference was not suitable for the one-way delivery of large amounts of material. It was suggested that a combination of video tapes and printed notes would be better ways to deliver the material.

Interaction with materials at the satellite campus would be limited by lack of access to the university library. As a substitute books of readings would need to be prepared and other sources of material provided.

Group interaction with the teacher could be achieved by video conference while individuals could consult the teacher by telephone, fax or email. Formal interaction between students could happen locally with the video conference presence of the teacher or if a wider group required a synchronous tutorial at both campuses could be held with a video conference link connecting them.

Again intra-action was considered to be dependent in part on the degree to which the other categories stimulated and encouraged students to achieve the desired learning outcomes. At the satellite campus intra-action may not have given students the confidence to undertake their own research, however these students may have acquired skills in self-motivation and independent learning.

The categories of the model for each campus are compared in table 1.

While, in this instance, none of the categories is missing from the model as applied to either campus, it is important to complete the third step in the process which is to compare each category of teaching and learning activities at each campus and ensure that they are effective and will lead to the desired learning outcomes. Other variables such as differences in student profile and motivation need to be taken into account.

Example 2. Radio or Television

In this example an on-campus subject, consisting of lectures and tutorials is to be converted to broadcast radio or television and printed materials for distant students. As the application of the model to the traditionally delivered subject is the same as in example one we will move to the second step and apply the model to the subject delivered by radio or television.

In both cases (ie, television and radio) the programs are to be prerecorded and delivered in weekly episodes. So the delivery element of the model will consist of the broadcasts and printed materials. The distant students will be able to...
interact with the materials sent to them which may include things like a book of readings as well as interact with the broadcast material if they make recordings of them.

Interaction with the teacher is on a one to one basis only and usually by phone, fax or email.

<table>
<thead>
<tr>
<th>Category</th>
<th>Main Campus</th>
<th>Satellite Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>delivery</td>
<td>lectures</td>
<td>video tapes and printed materials</td>
</tr>
<tr>
<td>interaction with materials</td>
<td>text books, notes, library books etc</td>
<td>textbooks, notes etc book of readings</td>
</tr>
<tr>
<td>interaction with the teacher</td>
<td>tutorials and consultation</td>
<td>video conference, phone, fax, email</td>
</tr>
<tr>
<td>interaction between students</td>
<td>tutorials and via video conference to joint tutorials</td>
<td></td>
</tr>
<tr>
<td>intra-action</td>
<td>eg. develop confidence to undertake own research</td>
<td>eg. develop individual learning skills</td>
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Table 1. A Comparison of Categories Between Campuses

Interaction with materials from the library can be difficult or impossible for distant students depending on where they live. As most students are constrained by time and distance they can have no interaction with other students.

As with example one, intra-action is dependent in part on the degree to which the activities in the other categories stimulate and encourage students to achieve the desired learning outcomes. However it is likely that intra-action will lead to the development of different skills for students in each mode of delivery as in example 1.

The categories for each mode of delivery are compared in table 2.

<table>
<thead>
<tr>
<th>Category</th>
<th>Face to Face</th>
<th>Radio/Television</th>
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<tbody>
<tr>
<td>delivery</td>
<td>lectures</td>
<td>broadcasts and printed materials</td>
</tr>
<tr>
<td>interaction with materials</td>
<td>text books, notes, library books etc</td>
<td>textbooks, notes etc library services are a problem</td>
</tr>
<tr>
<td>interaction with the teacher</td>
<td>tutorials and consultation</td>
<td>phone, fax, email</td>
</tr>
<tr>
<td>interaction between students</td>
<td>tutorials and other occasions</td>
<td>none</td>
</tr>
<tr>
<td>intra-action</td>
<td>eg. develop confidence to undertake own research</td>
<td>eg. develop individual learning skills</td>
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Table 2. Comparison of Categories for Different Modes of Delivery

The strength of the model is that it draws attention to these differences and hopefully causes the teacher to consider them before they embark on the new mode of delivery. It must be noted at this point that is not suggested that there is a relationship correlating the presence of more categories with increases in effectiveness and efficiency. Some successful teaching and learning events may use all five categories and others use only one or two.

There are some things that the model cannot and is not intended to do. It cannot advise on the best mixture of activities to achieve a given learning outcome and it is not sensitive to the cultural or demographic make-up of student groups. The teacher is the expert in the content area and the teacher should have created a profile of their students. Hence it is the teacher who is best placed to match the activities with the content and the student group.

Although the examples above relate to off campus teaching the model is proposed as a tool for re-evaluating current teaching practices and for the development of future ones whether they be face to face, at a distance and/or technology delivered.