



*IKONOS Creating new Cultural
Heritage Horizons through distance
learning nodes in the Mediterranean*

***TEACHING AND LEARNING IN DISTANCE
EDUCATION***

*A Practical Handbook for
Teaching and Learning Strategies*



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THE PRINCIPLES OF TEACHING AND LEARNING IN DISTANCE EDUCATION

The growing awareness in the use of distance learning is indicating an appreciation towards the contribution of telecommunications to education.

What is our Education program?

IKONOS was born out of the idea that the students and lecturers involved in conservation have an ever-increasing need for more resources. Not only is the equipment in itself getting more expensive but the experts in the field are dispersed in countries world wide. It takes up plenty of time management and becomes quite costly when bringing over the lecturer just for a few weeks for a small number of students. This is also coupled with the fact that it is a well known fact that many institutes and colleges focus their expertise on one aspect of conservation only. With the idea that transmitting live lectures over the satellite in the way that one can just sit in front of a television screen, many of the problems outlined would disappear. Moreover such a system, which IKONOS is using, is even better than the TV broadcasting. Such a system has the power and the means to offer interactivity to all the students. The interactions between students, lecturers and students and among lecturers offer a strong potential of a large educational value.

Video-conferencing enables real-time communication over a distance by allowing people at two or more sites to communicate with each other. This is not just by hearing each other's voices as with a conventional telephone, but also by seeing a video picture of the people at the other sites. Each site has one or more cameras, microphones, loudspeakers and monitors. It is a case of being

anywhere at the same time, as having a face-to-face conversation without actually having to be there.

One thing is to be kept in mind:

It is easy to teach with videoconferencing, but not so easy to teach well.

Videoconferencing aims to create the feeling that people at a distant site appear to be in the same room.

Considering the different pedagogical assumptions implicit in distance education, it has to be ensured that quality in education is delivered by developing a set of principles of good practice for distance education.

This type of program can eventually be used to improve collaboration with partners from other countries. All the partners share:

- A common interest in developing more advanced educational practices.
- A common interest to decrease costs of collaboration over large geographical areas.
- A common interest in connecting institutions with different types of resources.
- An increasing need to train more people in the use of this technology.
- A need for follow-up and face-to-face meetings.
- A need for technical support on both ends.

How does our Video conferencing work?

Once all the remote sites are connected,

- Video and audio signals are sent from the lecture rooms,
- Signals pass through computers called decoders which convert them into compressed data form,
- The data passes through to the satellite, and
- From the satellite the data makes its way back to the remote sites (the partner countries) to be converted back to a video and audio output on the other side using real time.

Malta's role is that of being a hub, that is, it is at the centre of all the communication signals. All communication passes through Malta before being sent out to other countries.

What is the equipment available?

- Lapel microphone
- Free standing microphone (*Microphones have to be on all the time for transmission*)
- Monitor screen to view remote partners
- Computer connections available for the use of power point and other presentations
- Other visual aids such as overhead projector, or slide projector
- 1 Projector
- Wall Screen for projecting images
- 2 video cameras enabled for wide angle vision of the lecture hall, equipped with the chase facility to follow the lecturer's motions
- 1 mobile video camera for more detailed close up shots
- 1 video mixer (switcher) used for the facilitated switching of camera shots to be transmitted
- 1 audio mixer which provides audio signal for the microphones in the lecture hall.

What principles are to be kept in mind when using videoconferencing?

- The learning experience must have a clear purpose with tightly focused outcomes and objectives.
- The learner has to be actively engaged. Learning by doing, analogy and assimilation are increasingly important pedagogical forms. Learning outcomes have to correlate with real-life experiences through application.
- Appropriate use of a variety of media should be made. This selection of media may depend on nature of content, learning goals and access to technology.
- Instruction should as much as possible balance **problem-based** as well as **knowledge-based** learning. Problem-based learning involves higher

order thinking skills such as analysis, synthesis, and evaluation while knowledge-based learning involves recall, comprehension and application.

- Learning being social and sensitive to context should support interaction. Therefore learning experiences based on multiple exchanges, group collaboration and cooperation enhance learning outcomes.

The Pedagogy

What are the positive aspects of video conferencing based distance education?

The benefits for learners of using Videoconferencing are as much social as they are strictly pedagogic.

Videoconferencing can give learners a sense of participating in a live event. It can also help to ensure that the learners do not feel isolated by the distance.

Furthermore it gives the opportunity for discussion and immediate feedback.

It gives tutors the chance to interact with and guide the learners' assimilation of information.

To summarise, real-time conferencing gives learners the opportunity to participate actively in their own learning processes. That is very important for the increased stimulation of the learners' motivation in the subject.

Most of the concepts of such video based learning lies in synchronous vs. asynchronous communication.

Synchronous communication offers an immediate response, which can be short and concise.

Asynchronous communication provides a more thought out response including paragraphs and attachments to impart a more detailed approach to a question.

Both are useful and both types of communication are needed for effective learning to take place amongst large groups of students.

On one hand, being able to see people at the remote end (the partner countries) helps develop relationships with them, increasing motivation in learning.

The body language available from the video picture gives speakers feedback on their responses.

However the asynchronous communication, for example using e-mail, most frequently helps consolidate the information assembled during the lectures as well as helps to avoid misconceptions.

Various misconceptions may arise owing due to a number of factors including:

- a) the presence of a large number of people in the group.
- b) the language barrier.
- c) uncontrolled absenteeism.
- d) lack of clarity in the images or text presented
- e) socio-cultural backgrounds

What are the negative aspects of distance education?

Videoconferencing does have a number of limitations, which concern the educational aspect of the system.

Where interaction is required, limited numbers of students are encouraged, especially when more than one site is online.

Students can easily hide behind chairs easily screened from the eye of the camera. Unresponsive on-line partners and students can cause frustration.

One limitation of the email system is that one can allow the messages to be redundant. In simpler terms, one simply forgets to answer back.

It is far more difficult to teach effectively with videoconferencing than it might appear. It means hard work, practice, careful preparation and an evaluation of the existing teaching methods. Spontaneous interaction is possible in theory, but may take some time to get used to.

This is because in spite of all the technological paths involved it is still limited in reproducing face-to-face interaction.

Technical failures can occur. Such examples may include losing the video connection or having a fault in the sound. When that happens the technical support team will do its best to solve the problem as soon as possible.

From the lecturer's end, one might feel better if one knew whom to talk to when such technical problems arise.

In distance education, teaching does not come out naturally because one has to keep in mind the teacher to camera interface which is the only link to the remote end.

It is not easy to teach looking directly into the camera lens and that may create problems.

There is also a slight delay in transmitting and receiving sound and the sound quality transmission degenerates rapidly when several people try to speak at once.

Since all participants at the remote end can be seen on screen only one at a time, it is not possible for speakers to turn their head to indicate the individual they are addressing. The wording has to be as clear as possible and wherever possible both the teachers and students should be addressed by name or title. This gives a sense of belonging to the group.

It is also quite normal that the teacher sometimes misses interruptions from students. They may find themselves in a position where they are unable to signal immediately their lack of understanding. Moreover where there is a group of learners at both ends of a two-site call, it is very difficult for the tutor to ensure that learners from both sites are equally involved.

Differences in cultures may also mean that humour can easily be misinterpreted, with an increased risk of social discomfort. These cultural differences affect content and also terminology to be used; for example one should respect other people's religious views without offending them in any way.

If attention is not paid to these details, interaction can become unnecessarily formal.

With such a set-up the tendency is that most teachers adopt an approach that allows a greater control over the teaching situation. They may prefer either to deliver monologues or immediately answer their own questions, and appear reluctant to enter into an intelligent discourse with the students.

In contrast to these limitations, in some situations and for certain purposes the distance may actually make communication easier.

An example of this is for one-to-one assessments, where students might feel less intimidated because the tutor is not present in the same room.

Experience suggests that participants will find it difficult to negotiate who is to speak and so will feel inhibited about speaking, making interaction very formal and stilted.

However there is a solution to many of these limitations and one of these solutions is to encourage tutorial sessions after the lectures, as much as possible, in such a way that the group number decreases and more individual attention is ensured.

Moreover lecturers will also be present at the remote end such that individual tuition is given, especially during practical sessions.

However it is important for the lecturer to keep these limitations in mind such that one tries to avoid them. Nonetheless for a more effective way of delivering such challenging lectures, an accurate self-evaluation of the teaching learning strategy involved is always an essential component.

What is a successful strategy?

Successful strategies encourage social interaction, leading to peer. This leads to students who prove to be self-motivated and who will help turn a lesson into an effective and gratifying session.

Motivating students is another route for a successful strategy. Enthusiasm is increased when the teacher makes sure that the technology used is made supportive by helping out when the students feel the need.

Assessment is also important for added motivation and stimulus.

Each session has to be as learner based as possible providing sharing of tasks, which are properly followed up. In the end the teacher's own enthusiasm and positive outlook towards the learning contexts enhances the students' stimulation and self-confidence.

This can bring about a positive and exciting student reaction that enjoys the different perspective values.

Does the lesson stop at the end of the hourly session?

The outcomes of education have to be measured by evaluating and processing the lesson done by a variety of methods including on-line interaction based on one to one or group tutoring, by means of standard surveys and analysis of transcripts.

The learner styles depend on the personality of the students which can range from being shy, sometimes preferring anonymity to an extrovert personality where the social interaction is an essential part of the learning mode. Thus the student participation will help to make the session more satisfactory for all the parties involved.

Types of Interaction

In a traditional classroom setting the type of interaction can be viewed as being *learner – content*, *learner – learner*, and *learner – teacher*.

One can notice that the learner is always a central figure in the modality of teaching. The type of interaction however viewed from an online course setting, is dangerously close to changing the relationship to a *learner – interface* and *teacher – teacher* rapport.

The teacher, thus viewed as a central figure has to modify this rapport by using gestures and facial expressions, tone of voice and other body language to involve the students. This would contribute to making them actively part of their learning process.

Another type of interaction is called the computer mediated communication. More simply it is the use of e-mails, chat groups and other messaging systems. It is another way of developing the *teacher – learner* interaction without necessarily having the teacher interface. When communicating online, the presence of the lecturer is there without actually being physically present.

The teaching session is not over when the hour is up. It is very important that a relationship is established using another route. One should continue to build upon what one did in the classroom.

These aids are useful as a consolidation to the lecture delivery and to be able to split the group into yet smaller workshops focusing more in depth on specific tasks, or discussions.

The classroom environment

The Room

- The room is large enough to enable participants to sit some distance from the screen. This will help to keep eye contact by minimising the angle between the monitor, the participants' eyes and the camera.
- The sound is set up in such a way that the echo is minimised.
- The background has to be clean and uncluttered with too many posters or photographs and brightness should be reduced.
- Equipment should not be unnecessarily tampered with and should not be moved.

The Lighting and Sound System

- Adequate lighting is crucial to obtaining the optimal picture quality.
- The light should be evenly distributed around the room and not from any particular direction, ideally fluorescent tubes set into the ceiling or daylight bulbs can help the faithfulness of colour reproduction.
- Noise levels especially from the outside should be low, and the chattering inside the classroom should be kept to a minimum.

Seating arrangements

The exact seating arrangement required will depend on the number of students, the nature of the session and the equipment available.

- In general, for small tutorial sessions the most effective seating arrangement is a u-shape with the apex furthest from the camera. The tutor should sit in the middle thus giving the impression of sitting within a circle. The tutor should always be in a position to maintain the eye contact with the camera and with the other participants in the room.

- For large numbers participants will sit in concentric parallel rows, although people in the back row will appear much smaller than those in the front.

One of the difficulties when arranging the seating is that participants will often inadvertently move out of the picture.

In order to get the maximum number of people in the picture it is necessary to arrange chairs quite close together.

Another factor to bear in mind during practical sessions is that tables can take up a large part of the video picture. The solution of this is to have good camera pans (left to right movement) and zooms on details when required to show the students' work.

Teaching Strategies

One of the essential requirements in videoconferencing is the lecture preparation which to an extent is greater than during a normal teaching session.

When using a lecture type of approach, the presentation will need to be slicker and contain more variety, if one aims to keep the attention of the remote audience. A variety of visual aids which are stimulating to the eye is the key to holding more of the viewers' attention for a greater span of time.

A more interactive approach requires the session to be tightly structured, with questions well thought out beforehand and clear instructions given out.

Each lecturer should be on site at least half an hour in advance and if the classroom setting needs to be rearranged, preparations should be carried out as much as possible at least an hour before the start of the actual transmission.

Familiarisation with the camera set ups and breaking the ice with the participants in the classroom, especially for the first few morning sessions, is essential.

For the preparatory course it will not be possible to get to know all the participants at the remote end individually. However a first brief introduction

maybe using a spokesperson at the remote site before the start of the actual lesson can help establish a greater contact.

Managing and structuring teaching sessions

Because communicating using videoconferencing means harder work than face-to-face interaction, it is important to break up the session periodically and introduce as much diversity as possible. One hour or more of a continuous drone in a monologue form does not enhance the motivation and stimulate attention.

Frequent changes in the pace of the session are imperative and that requires plenty of preparation. Although it is not always possible to try and get the learners to do as much of the talking as possible, getting them to do some group work with the help of the colleagues from the remote site is another idea. The video link is then used to tie things together at the end of the task.

Such an activity would require the lowering of the volume at each end so that even though participants are aware of the hubbub from the other sites they will not be disturbed by it.

Short student presentations, linking the various sites, are another technique that could be used. This increases the involvement of a greater number of students from the various sites.

The other important point to remember when working with learners at each end of the call, is to make sure that they all feel involved.

Because it is much easier to interact with people in the same room rather than on a TV screen, it is easy to ignore the remote sites for long periods. It is therefore imperative to deliberately and overtly invite the remote partners into the interaction by addressing as much as possible frequent questions to these sites.

One has to be aware to look at the camera frequently. At the same time the local group, of course, should not be ignored. Small gestures and movements of the

head can be used as body language to ensure their contributions and communication from the local site.

One however has to be careful because too many movements of the hand may cause a disturbance and interference in the lecture. The movements should be slight and deliberate.

When there is a discussion under way involving the local group, the lecturer must always be aware that the remote partners have to understand what is being said, well. Sometimes a summary of the questions asked might be helpful.

It is important that when the students speak, they speak directly into the microphone without holding it too near their mouth. This causes distortion with the result that the people at the other site will not be able to understand what is being said. To this extent each lecturer has to make sure to keep reminding the students until they get used to it.

During the presentation of visual aids it should be made sure that the remote sites are seeing what is being shown clearly and that the cameras are well focused on the resources. Enough time should be allowed for the camera to focus such that the partners can connect clearly with what is being made known. For example, when a lecturer is holding an object (resource or artefact), it is best to count up to 5 before removing it from the camera's view.

Be aware that there is a few seconds delay in transmitting and processing sound and video from one end to the other. This apparently short delay can actually interfere quite drastically with the flow of interaction. It is therefore necessary to give them plenty of time to hear and answer the questions.

When a number of people try to speak simultaneously, some of what is said will not be heard. Correct scheduling and most importantly *keeping to this schedule is important.*

Interaction can be encouraged by acknowledging speakers and by making them understand that what has just been said carries some value even though it might not be the answer that was required.

One should not be afraid to ask for a follow up of further details or a repetition of the questions asked.

It is to be kept in mind that the language barrier might present difficulties. Concise short statements made clearly are a useful help.

Humour should be controlled especially when working with different people coming from different countries with different cultures.

Since video conferencing requires the combination of a number of elements from two or more sites, if any of these components are not in place at the allotted time, the session will be disrupted and possibly have to be postponed. Each lecturer should keep in mind that at least for his/her local site there are no possible disruptions in the timetable. Sticking to the allotted times ensures that each slot will be given a fair amount of time. Otherwise more groups of learners will suffer rather than just the one as would be in a traditional context.

Before starting, it is essential that one gets familiar with the surroundings.

Introductory sessions taking place at the institution are very important. In this way one has time to visit the room with an experienced user as well as experiment with the controls.

Sitting in on a teaching session is also particularly useful as is the reviewing of oneself to be able to hold a critical self-evaluation. Getting familiar with the new environmental setting will take time.

The role of sound is critical in the success of video conferencing. Poor sound quality can limit or even ruin the effectiveness of a video conferencing session far more than can a poor picture. In these cases it is important that all participants understand and follow the etiquette of taking it in turns. Whispers or what are

intended to be private comments or remarks can also be picked up and transmitted.

The role of the remote lecturer

A far-end counterpart is recommended especially during practical sessions.

In this way this facilitator can support teaching.

Their involvement can be of three kinds:

- It can be kept at a minimum level where they just give out handouts, deal with the equipment, call speakers and generally maintain order,
- or else have some specialist knowledge in such a way so as to encourage discussion, re-phrase and clarify questions and make contributions.
- The remote lecturer may also manage off-line sessions or activities.

In this case joint meetings and one to one videoconferences between the teachers is necessary as part of the preparation involved prior to the lectures. Practical sessions should involve at least one lecturer from each site and for such a collaboration to be effective each lecturer should meet at least once beforehand to discuss the various methodologies and techniques each one might adopt. In this way a standard set of procedures can be designed in conjunction with all the partners. This also serves to strengthen cross cultural links as well as stimulating a more critical approach from the lecturer's part.

Whatever the contribution, each person's role has to be planned out well in advance and not just left as a spontaneous happening on the day. One counterpart might not necessarily have specialist subject knowledge but have experience of video conferencing thus being able to make a number of helpful suggestions. Feedback from the remote areas about the past lesson from the lecturer's own point of view, as an observer, would also be beneficial.

During the lecture: Tips and suggestions

A lecturer may choose to use camera pre-sets which enable one to set the camera in a number of positions before the session starts so the camera will automatically move back to those positions at the touch of a button.

One can also choose the chase function of the camera as a pre set mode. In this way if the camera is focused directly on the lecturer it has the ability to follow him wherever he/she moves.

The cameras can be switched from one to the other using a switcher which is extremely important in encouraging interaction.

It is a good idea that cameras are set before the lecture to ensure that all the class is covered before the session begins, so that during sessions of interactivity, zooming in to the relevant part of the class is made easier.

The equipment in the videoconference rooms is far better in many respects than that found in most traditional classrooms.

The resources include:

- a document camera for displaying overhead-type graphics, information from books, photographs and small objects and spontaneous writing;
- a slide projector;
- a computer link for displaying presentation packages;
- three video cameras situated in strategic positions in the classroom;
- a pre-recording facility in the control room.

The scope for the teaching use of these facilities is wide-ranging and the technology means that one can undertake tasks which are more difficult in the normal teaching environment.

For example, certain conservation techniques can actually be drawn or written on paper using ordinary pens whilst objects as well as documents can be displayed and projected onto the screen using the document camera for all to see. In the

meantime such a picture is still being transmitted to the remote areas and recorded in the back room.

The video camera is a very versatile tool. The camera will be able to zoom in to reveal detail that would not be seen by students if present in large numbers in a traditional setting when the object is just held up for all to view.

In addition, such a control from the lecturer's part ensures that the students are actually observing the detail, which the lecturer has in mind thus minimizing misconceptions.

Misconceptions are very common during teaching and learning processes, and control of the visual aids helps to avoid them as much as possible.

Displaying Visuals

⇒ When designing and displaying visuals, overhead transparencies (OHT), *should be avoided*. If one cannot do without them a backing sheet can be used to help the visual part of the lecture.

⇒ The documents for projection on the document camera need to be in landscape to fit the screens and such documents should be set to fit on the A4 border on the teacher's desk.

When using written document presentations or charts, fonts should be at approximately 24pt, depending on local room and viewing conditions. This should lead to relatively little text on screen which increases ease of readability from a distance coupled with use lowercase lettering for body text. This is usually easier to read. Different colour combinations like pastel backgrounds using black or blue markers, often give the best results.

⇒ When displaying visual materials, existing materials e.g. pages from books are good to use but they need to be tested beforehand.

Sometimes in order to make the print legible one has to zoom in so much that the full line length cannot be seen without panning the camera. This is very awkward and should be avoided.

An allowance should also be made for a 'safe-area' border around the outer edges of the page where there is neither text nor images.

⇒ Using a PowerPoint presentation package reduces many of the size issues mentioned above. When using such type of presentations, the computer is linked directly to the switcher so whilst the presentation is actually shown on the projector screen, it is also transmitted directly to the remote areas.

It is important that during such presentations the laser pointer is not used because whilst the pointer can be visible for the local set up it is not visible from the remote end/s.

Care needs to be taken with the choice of background and font colour as well as font size. The best size would be using 32pt for the main text. The advice is to make use of dark colours for backgrounds and a pale font colour e.g. white text on a blue background. Unnecessary animations or brush clip arts are not encouraged.

⇒ It has been found that using a computer proved less successful, when displaying spreadsheets and word documents because the figures are usually not readable.

Visiting web sites on line may also be problematic for the text is likely to be too small for transmission.

⇒ When making use of spontaneous writing on flip carts or blank sheets of paper it would be advisable to use middle weight markers. The writing should be legible in large clear letters, so that it will show up on the screen;

It could be useful to prepare the sheets of paper beforehand with thin gridlines. The gridlines will not be visible on screen.

The Lecturer as a resource

One of the most important visual aids is the lecturer himself/herself.

A number of rules have been found to apply quite usefully:

- it is best to try not to think of oneself as being on camera, one just needs to behave and talk naturally. Since the remote areas can only reach the lecturer through the camera, some reference to the camera has to be made occasionally.
- there may be a tendency to make sessions very formal but they will be enjoyed all the more, if one smiles and cracks the occasional joke, keeping the lecture within control.
- there is no need to shout or raise one's voice. The microphone is there to do this job.
- one's normal appearance is fine for video conferencing but it is always best to avoid small patterns, checks or fine stripes as they can dazzle the audience or make the image on screen appear blurred;
- the camera cannot move as fast as the lecturer, one has to try not to wave one's arms about or make sudden movements as remote site students will not understand what is happening; Each movement has to be slow and deliberate. The operator who's managing the cameras has to have ample time to understand what the lecturer's next move is going to be and zoom in or out, accordingly.
- on the other hand it is not good to sit there rigidly without giving some form of animation to your lecture.
- the camera image does not always open to the width of some of the gestures; so the gestures have to be kept within a certain span.
- one has to show that he/she is listening when the remote students talk. Some useful techniques include; leaning forward, nodding, and looking at them by looking at the camera, and not at the monitor on which they can be seen.

Designing the lecture plan

Special planning for delivering the course via videoconferencing is necessary, even if one has taught the course in a traditional classroom for many years.

This is because there are so many different factors that have to be taken into consideration when teaching at a distance and when the students at one end are faced with a screen.

Each lecture plan should have a set of objectives that follow up from the set of visions and goals set up for such an education-based program.

What are the visions and goals?

The vision statement for the institution lies in its belief of the view of what the future technology, through the use of videoconferencing, can help bring about for the educational purposes and needs of all the lecturers and students involved.

What are the objectives?

The objectives are measurable and they are linked to the visions and goals. Basically each set of objectives puts specific tasks and responsibilities into a time frame for eventual implementation. Such objectives raise the issues of the unmet educational needs which exist in the institute that are likely to be satisfied through the use of videoconferencing technology.

- ⇒ Objectives are short term, specific, and product or task oriented
- ⇒ Objectives should be stated in terms of what is to be done, and the date by which it is expected to be done. For example objectives can start with the phrase, '*At the end of the lesson the students should be able to...*'
- ⇒ An individual objective should be targeted for completion within a short period.
- ⇒ The objectives show what one wants to do, how one wants to make it happen, and the modality involved to get to know when what has been set to be done, has in fact been accomplished.

How can these objectives be implemented?

One needs to plan for interaction, and balanced student involvement.

It is important that the lecturer does not give out all the knowledge at once. When delivering the lecture, one should consider leaving some points for the students to discover by themselves. In that way the learner participates more actively in his/her own learning. When teaching practical sessions, it is important to motivate the students, at the same time allowing them to speak up and go through a process of self discovery resulting in the improvement of their work.

It is harder to pick up on student reaction immediately. Therefore one should, from time to time feel the need to build in checks, pauses for questions and activities. Although some questions are spontaneous it is also important to control questioning time, because the lecturer cannot forget that not only the local area students are online.

Summary: Planning the Lesson

One has to take into account:

- ✓ topics to be covered
- ✓ who will be at the learning end
- ✓ the outlines of the course with the goals and prerequisites for what needs to be covered in the session.
- ✓ the alternation between introducing new content and review.
- ✓ the information about the students' background regarding age, ability, cultural background, learning preferences and motivation for learning.
- ✓ Variety is an important part of a video conferencing lecture. The aim should be to 'lecture' rhetorically for no more than 10 minutes at a time, otherwise present discussion topics, case studies, brainstorming (good as ice breakers), a quiz (good for consolidating lecture material)

A spreadsheet-style template has been found quite helpful when planning a lecture. Each column of the spreadsheet represents a planning element that must be considered.

It should be considered to be a document, which is subject to review at any time, and therefore should be written either on a computer or in pencil.

After the session is over, the scheme can be fine tuned to the lesson.

| Designing Tasks | Visuals | Method/Activity | Support Materials | Estimated Time | To do |
|-----------------|---------|-----------------|-------------------|----------------|-------|
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| | | | | | |
| | | | | | |
| | | | | | |

Column One: Designing Tasks

This includes a detailed outline of what is needed to teach in order to determine the exact number of general topics that should be delivered. This refers to the session content only, not about delivery.

It has to be ensured that the order of the topics is logical. Double spaces should always be allowed in case one wants to add anything else later.

General tasks that may need to be included for the allocation of time, are activities such as introductions, ice breaking events, distribution of handouts and short breaks.

This column forms the basis for the rest of the spreadsheet.

Column Two: Visuals:

This tackles the visual images needed to support the lecture content. Teaching by video conferencing, means that one needs to think visually. One has to show the information rather than tell the information. The use of a visual should be used to reinforce the learning.

Column Three: Method/Activity

This column identifies the method or activity that will be used to convey each content point. Changing the manner of instruction is used to hold and keep the concentration of the students.

Students have to be involved through discussions, brainstorming, quizzes, etc. It is clear that one should not be limited to lecturing.

Column Four: Support Materials

Support materials include the extra resources needed, whether printed materials or written text, to reinforce learning.

Is there a need for a handout?

Is a textbook required?

Should references be included in the handout?

The timed release of worksheets is crucial to the flow of the lesson. When the lesson starts to be dragging too much, then that is the time to distribute the worksheets.

In the support document one can put complex diagrams, charts and text. If many visual objects are crammed onto the screen, the result will be illegible.

Column Five: Estimated Time Required

This refers to the time one expects to spend on each topic. Due to the highly visual nature of the delivery one may find that the content is covered more quickly with video conferencing than in a traditional setting.

The time planning may be the most difficult to get used to and depending on this, the task column may need to be updated on a regular basis.

Column Six: To Do

This is where a list of tasks can be listed prior to the start of the actual teaching.

For example,

- who will prepare the visuals?
- who will write the handouts?

One can also include the date that these tasks should be completed by.

A copy of this spreadsheet could also be passed on to the counterpart in the remote area so that the lecturer on the other side will be able to help with the flow of the lesson and not much time is wasted explaining tasks during the actual lecture.

This spreadsheet will increase the ease of communication between lecturers.

On the other hand good planning will also help to ensure that a range and variety of learning activities take place.

Delivering the Lecture

- One can consider the possibilities of seminars, tutorials, group working sessions via computer mediated communication, and access to multiple media (videos, websites, shared software, etc.).
- Participants have to be involved by asking them questions, encouraging discussion, or setting group work tasks. These can be local, or across several sites (on-line).
- A variety of activities provide a regular change of pace.
- Interactive tasks become meaningful in terms of the lesson and are educationally useful.
- Special camera facilities, presets, chase and zoom should be used to focus on current speakers.
- The technology could be used to provide a wide range of props and illustrative material.
- The number of participants has to be taken into account when planning the session, especially for the types of presentation and other activities to be used.
- A detailed lesson plan with a timetable is an essential tool for successful videoconference teaching.
- One should avoid being just a 'talking head' on screen. Visual aids and changing the camera shot should be used for such purposes.

- The lecturer has to give continuous feedback through body language, facial expression and other movements.
- Built in pauses help to provide feedback.
- It's easy for a lecturer to slip into addressing only the students in the same room, and pay less attention to remote students. *This has to be avoided at all times.*
- Interaction with remote students should be built into the lesson / tutorial plan.
- One has to be aware of what remote sites are seeing at any given time. In a multi-cast system the lecturer may not be visible all the time although his/her presence has still got to be felt by the students.
- One has to look at the camera, not at the monitor, if one wishes to appear to be looking at participants at the remote site.
- The lecturer has to give clear feedback that he/she is paying attention.
 - a. Visually: nodding, smiling, and looking into the camera.
 - b. Verbally: by uttering short phrases and clear answers.
- Brash gestures or moving around continuously may be acceptable in a traditional classroom setting but it may cause problems for remote viewers during videoconferences.
- One has to forget that one is being filmed and try to keep things as natural as possible.

- Time has to be allowed for local groups to talk with the remote areas, as well as for a coffee and chat.
- A teacher or facilitator has to be on standby all the time at the remote sites throughout the lectures.
- It would be a good idea to ensure that all the participants are familiar with any technology they may have to use in the session. Students should be made aware to respect their time for speaking sessions, and to follow the cameras when doing so.
- One has to appreciate that looking at a screen, however large, can be tiring. A change of activity or focus every ten minutes or so should help.
- Large text and illustrations are needed to appear clearly on monitors and projectors. Text must be at least 32pt. Arial, and too much information on one screen should be avoided.
- One can also show 35mm slides and actual objects.
- Some video presentations, websites or animations may move too quickly for clear transmission and thus be avoided.
- White font colour against a dark blue background has been found to give the best results for transmission purposes.
- When using presentations and other material which is to be uploaded onto a website for additional use by the students, templates should be used containing all the necessary copyright information on each slide as well as the company logo and any extra notes.

- Fabric patterns and busy illustrations can blur or distort the picture being transmitted.
- Moving around when one is on camera but not speaking can be distracting. This should be avoided.
- Microphones do pick up background sounds. It is important to switch off the microphone when not speaking. In larger groups, speakers are encouraged to wait for their turn during the discussion and remote lecturers have to manage such sessions accordingly.
- Switching off the sound from the local site while another site is transmitting, avoids unnecessary feedback and distraction. It is important to remember to turn the sound back on when one needs to speak again.

The Lecturer and the students

Students are more used to watching a lecturer and it can be difficult to concentrate on a screen for long periods. By involving the students in activities and introducing variety into the session you can help them maintain their levels of interest and concentration.

Students will need support and advice in order to get the most out of a video conferencing session. They may be apprehensive and not sure what to expect from a session.

Tips for student interaction:

- Notes to accompany lectures have to be sent, to the remote areas ahead of time to be certain the students have them.
- Most frequently it is important to upload additional material onto a website which would be easily accessible material to the students should they require to review the lecture presentation at a later date.
- To do this, the presentations on the web should be kept at a minimum file size to be able to be downloaded at an adequate rate. Files larger than 3MB should be avoided.
- Communication channels outside of lecture time should be set up. Examples include the use of e-mail and online workgroups.
- It is very important that the lecturer should reply and respond to problems quickly.
- The exchange of student e-mail addresses should be promoted to encourage communication.
- Regular feedback sessions for students should be encouraged. This not only reduces the feeling of isolation on their part but it also helps to provide suggestions for an improved lecture format.
- Students will be more tolerant about mistakes involving technology which might be made at first, as long as one admits to being a beginner.
- Students should as much as possible be encouraged to change seats especially during the discussion time so that one can get to see them all as the sessions develop. It will not be possible to get to know them all very well from the video, because of their large numbers. However one can help facilitate such situation.
- A balanced interaction with both sites should be aimed for and the feeling that one remote side should be left feeling like an observer has to be eliminated.

- Questions should be directed to a particular student or remote site, by name.
- It would be a good idea to inform students of the structure of the lecture so they know when and how they are expected to interact.
- One suggestion is also that of planning an interactive segment, early on in the lecture, even if it is only a few minutes long. This provides movement and leads to anticipation for the rest of the lecture.
- Additional activities should always be prepared in such a way that one is never caught short of the lecture. These are also good to have in case of technical trouble.
- Various types of questioning techniques can be used; both planned and spontaneous, both high and low level.
- The lecturer should try and direct the answer towards the person who has asked a question, by looking directly into the camera, and not into the screen they can be seen on.
- Answers should be short, concise and to the point, using spontaneous writing if it helps.
- Sometimes a useful technique, is that of answering a question back with another question to induce the students to answer their own queries themselves. This should not be done forcefully but it should come naturally. In this way it makes the students feel that they are actually understanding and assimilating the lesson content, leading to an increase in the motivation in the subject.
- One could also turn to the other site and refer the problem to the remote group of students. The lecturer's role is there to guide the students, so involving students does not indicate a weakness in the lecturer's strategy. It implies increased ease of control which he/she is able to exert on the classroom.
- It is also quite nice when a lecturer finds something positive in every answer. This makes the experience of communicating via the link as being constructive, rather than off-putting.

Logistics of the Videoconference Experience

Teaching with video conferencing needs much more co-ordination than a course taught in the normal way. It is important that the lecturers communicate with the co-coordinator who will provide the links to the remote sites.

These are some tips to facilitate this kind of communication:

- the system should be booked in advance for a one to one session between the lecturers
- the lecturers should as much as possible use the email system to liaise as much as possible with their counterparts and be able to develop their lecture plan accordingly. Such e-mails should be registered and cc'd to the coordinator.
- If the lecturers need some additional furniture or other equipment for use during the lecture, then they would need to book these in advance to be able to organize the set up of the lecture hall.
- When there is felt to be the need for small group tutorial sessions, the videoconferencing hall should also be pre-booked. Transmissions will be frequent so the hall will not necessarily be free to be used at one's convenience.
- All lecturers should keep the telephone numbers of all the persons concerned, in case of an emergency. One can also make use of the fax machine to send important lecture material. It is important that the persons concerned with the transmission, have the correct contact number of the lecturer involved.

Below is a complete checklist of tasks for the lecturer to undertake before start of the course delivery via videoconferencing:

- ✓ Book video conferencing room for sessions
- ✓ Find out about students
- ✓ Design course using preplanned scheme of work
- ✓ Book video conferencing room for an additional session to get familiar with the environment
- ✓ Identify remote facilitator and give information about course, students, protocol, telephone numbers, duties
- ✓ Prepare handouts
- ✓ Prepare visual aids
- ✓ Send copies of handouts and visuals to remote site
- ✓ Give students relevant material
- ✓ Give information about course to coordinator
- ✓ Identify communication times outside the lecture time and inform students
- ✓ Schedule a backup plan in case of technical problems

The Lecturer's Role

The various roles of each lecturer participating in the program are very important. Therefore these must be clearly defined.

For the success of each session the lecturer must

- ✓ Plan and rehearse presentations.
- ✓ Allow involvement of remote site and local site; one cannot forget to involve both audiences.
- ✓ Give special considerations to the timings of the presentation i.e.
 - a. Time speaking vs. time summarising.
 - b. Time explaining vs. time for audience to think it over.
- ✓ Encourage informal interaction between sites. A warm up period will allow you to get the most out of your audience once the videoconference session starts.

Orally:

The lecturer should:

- ✓ speak clearly and try to maintain a constant volume without being monotonous.
- ✓ pause often for reflection.
- ✓ allow for time delay when in a discussion.
- ✓ clearly indicate when he/she has finished talking and are expecting a reply.
- ✓ explain clearly each new area of the presentation.
- ✓ constantly summarise each section. One should never assume too much or too little of the students' knowledge.
- ✓ pause often for questions.

Visually:

He/she must keep in mind that:

- ✓ most subtle expressions will either be lost or exaggerated.
- ✓ excessive movement should be avoided.
- ✓ pointing devices such as the laser pointer should be avoided (it will not be seen).
- ✓ when initiating conversation, one has to use hand signals to highlight who is speaking.
- ✓ pictures or images should be kept on screen for long periods of time.
- ✓ poor quality (second generation or worse) video should be avoided.
- ✓ low contrast clothing (subtle colours) give a better picture on screen.
- ✓ different media should be used to keep the attention focused (slides, images etc.).
- ✓ occasional visual gags (cartoons etc.) provide some lightheartedness throughout the lecture.

Verbally:

Each lecturer must make sure:

- ✓ to have one controller or chairperson who oversees interactions.
- ✓ that an attempt must be made to involve everyone from all the sites.
- ✓ that personal names are used where possible.
- ✓ to begin talking by visually and orally identifying your name and site.
- ✓ to allow ample time for turn taking.

Conclusion:

Videoconferencing for education is a fresh and an innovative scheme which makes use of a wide range of technology presented in state of the art equipment and aids. However it is up to the lecturer/trainer himself/herself to make best possible use of this technology and to adopt this as part of the teaching learning style to maximize such a program. The basis of this program is education, and the needs of such education to be transmitted to remote sites for cross cultural links and interactions. Each lecturer/trainer who participates in this program has to carry such responsibility of transmitting and sharing the knowledge in such a way as to give the best to each and every student irrespective of the distance which separates the countries. Therefore one has to take teaching in its psychological, sociological and philosophical mode of representation very seriously and do the utmost to be an asset to the teamwork involved for the success of such learning mechanism.

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Further Reading:

SIMA (Support Initiative for Multimedia Applications) have produced a number of reports relating to videoconferencing:

<http://www.man.ac.uk/MVC/SIMA/simapj.html>

JTAP reports:

<http://www.jtap.ac.uk/reports/index.html>

Classrooms for Distance Teaching & Learning: A Blueprint, Michael Hegarty, Anne Phelan and Lisa Kilbride, (ed.) Audio Visual Centre, University College Dublin, publisher: Leuven University Press

<http://www.linov.kuleuven.ac.be/BIC>

Learning about Videoconferencing Han Fraeters in collaboration with Sally Reynolds & Mathy Vanbuel, Publisher:Leuven University Press:

["http://www.savie.com"](http://www.savie.com)