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# A NEEDS ASSESSMENT ENQUIRY INTO THE CREATION OF MEDIA RESOURCES BY SECONDARY SCHOOL STUDENTS

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## Abstract

The Educational Technology Division (ETD) creates media such as educational videos (eVideos) and audio programmes to support the national curriculum. ETD has been exploring possibilities of collaborating with schools to create media to build schools' capacity at creating resources that meets their own specific needs.

The first such collaborative project that ETD embarked on, where the designers of the media were students, was a DVD project referred to as *Trees.* The *Trees DVD* project used a thematic approach in developing the content in the DVD project. It used the interactivity provided by DVD technology to provide multi-disciplinary dimensions to the theme of "trees". Three schools came on board this project and contributed the content on the different dimensions on the theme. They also authored the DVD with the professional input and resources rendered by the expertise of Ngee Ann Polytechnic and NParks.

A key expectation in managing and completing the project is the pupils' ability at the various skills in video production such as conceptualisation, scriptwriting, storyboarding, video and audio recording, editing, etc as well as knowledge about copyrights clearance. The ability to manage and complete the project is also largely addressed by examining the role of the teacher and the teachers' ability to manage a video team.

This study will examine the needs, capabilities and constraints of both ETD and schools for media creation between ETD and schools. The findings of the investigation will be used to propose a training solution for schools to fill the anticipated performance gap in video-making in schools and any other non-training issues that will need to be addressed to carry out media creation projects in schools.

## Background

### Organisational Directions

With the introduction of the Masterplan for IT in Education (MPITE) in 1997, there has been a concerted effort by schools to prepare itself for the use of IT in education to enhance learning. Under MPITE, ETD developed IT-based resources such as video and audio CDs, CD-ROMs, and even web-based DVDs. With IT competitions such as the National Software Competition, ThinkQuest, Schools Video Awards, and the HP INIT Award for teachers, the more adventurous in schools have had a taste of resource creation.

In 2002, Masterplan 2 (mp2) for IT in Education was introduced. Under mp2, the resource development focus is to move from a one-size-fits-all approach to mass customisation. And as a first step in this direction, ETD has been exploring possibilities of collaborating with schools to create media – in order to build schools' capacity at creating resources that meet their own specific needs. This would also represent a bottom-up approach to resource creation and would involve schools more directly in the creation of learning resources.

**The *Trees* DVD**

The *Trees* DVD project was a pioneer experiment in this direction. The project aimed to upgrade schools' capability in designing and developing educational resources. Using DVD as a platform, selected students from participating schools were invited to collaborate as a team to develop instructional and interactive media content based on a particular theme. ETD selected the DVD platform because at the time, ETD was exploring the pedagogical potential of DVD as a learning resource. The *Trees* DVD project aimed to initiate students' involvement in learning state-of the-art technology in DVD production; expose students to the experience of producing educational resources; provide students the opportunity to solve problems and acquire collaborative skills through project work; and enable students to acquire a greater content knowledge of a particular subject.

The three schools involved in the *Trees* DVD project volunteered about 8 to 10 students and a teacher-facilitator each to the DVD project comprising of two stages of the project - production of assets (footages/video clips/worksheets) and post-production (DVD authoring). In order to package the assets the students from the 3 collaborating schools were trained to apply the technology involved in authoring, emulating and laying out the DVD. At the post-production stage, tasks were further delineated. School A was to do the authoring, School B the replication and School C, the graphics. The order in which these tasks needed to be carried out was linear, starting from graphics to authoring to replication. This meant that each school must observe their own milestones in order not to hold up the rest and for the overall timeline to be met. The project commenced in September 2003 and was expected to end in April 2003. The project met with contracted delay due to SARS and other problems, and is at a stage of completion.

The three schools selected their own branch topics under the thematic umbrella of "Trees". The branch topics were - Trees of Life (scientific aspect); Trees for Life (cultural/non-scientific aspect); Trees of Tomorrow (conservation efforts). Each video clip was to be at least 3 minutes long. The topics were determined through a shared brainstorming session and then scripted into documentaries. The students recorded the necessary footages and edited them. And after making the required amendments, the video clips were authored into a DVD. See Annex A for the structure of the DVD.

From the participation patterns in the Schools Video Awards competition, it was reasoned that the proposed *Trees* DVD project is more suitable for secondary school students as they were older and more independent than primary school students. The three schools were not selected on any fixed criteria. School A was invited to participate based on ETD's knowledge that they had good video-making background, via the Schools Video Awards. School B was invited during an incidental meeting between the project manger of the *Trees* project and the teacher-facilitator of the school. School C was approached because they were known to have an Arts programme in the school.

The key collaborators in the project were broadly identified as *(i) schools*, which included teachers and students, *(ii) ETD* and *(iii) external organisations*, which included the trainer and resource provider.

At the schools, the teachers' roles were defined as facilitators and points of contact between students, ETD and other organisations. As a facilitator, the teacher was responsible for the selection of team, for guiding the students in their research, scripting as well as in developing instructional strategies. Students collaborated with their peers from their own and other schools to develop the DVD.

ETD's role was to liase with schools and collaborating external organisations in the production of the DVD by organising, co-ordinating and managing the production of the DVD. ETD's provided the scaffolding by giving input at various stages of the production process.

NParks acted as a resource centre for students' research and production in the initial stages of asset production.

ETD also negotiated the support of Ngee Ann Polytechnic to provide consultancy and technical expertise in guiding students' DVD production. It was also expected to provide the facilities and technology to enable the production of the DVD. The project manager from ETD clarified the pre-requisite skills that the students required – which were basic video-making skills as well as knowledge of Word Paint or Photoshop software needed to design the sub-menu page. The teacher facilitators confirmed these pre-requisite skills.

Training was an intensive 3-day course conducted at Ngee Ann Polytechnic on DVD authoring. The training was provided at the onset of the project to give students an overview of what is expected in DVD production. The training was conducted by a lecturer from Ngee Ann Polytechnic who continued as consultant on DVD authoring throughout the project. The trainer explained the components of DVD production, so that the students understood what the end product would look like as well as its implications for the videos that they needed to produce. Some general tips on video making were also given during the session. There was no focussed training on video making as the students had prior experience producing videos. There was no other training after the 3-day training at the beginning of the entire project.

Teachers were not trained because it was felt that the teachers' involvement was to facilitate the production and it was assumed that this was a role that the teachers were familiar with.

The *Trees* DVD Project delivered a number of benefits for schools. For example, schools had the experience of producing their own educational resources; developed competencies in students to produce educational and interactive DVDs; and exposed students to the latest technology in DVD production. ETD is therefore keen to continue proposing collaborative school based projects. As a pioneer, the experience from the *Trees* DVD project will provide important directions for future projects. Hence, a needs assessment is proposed to determine a collaborative model for future projects.

## The Study

### Scope

The problem statement in this study was: *How can ETD facilitate media creation by schools?* To address the problem statement more specifically, two research questions needed to be answered.

1. What are the skill sets required by teacher-facilitators to supervise a video team effectively?
2. What were the difficulties faced by the schools in creating the media?

The focus on the teacher is for a very pragmatic reason. The teacher is key in education, and in the new classroom, the teacher is a facilitator and not the disseminator of knowledge. And with emerging technologies, media-based projects provide real-life experiences to the teacher-professional to model the continuous learning that we expect in students, and help lead the media creation process in a constructivist environment. But can all teachers lead a video-based project team? Do teachers need special training to do that? What were the optimals here and what were the actuals?

The second research question focuses on overall difficulties faced by schools that broadly address both training as well as non-training issues.

The study was based on Rossett's model for needs assessment. Needs assessments are conducted at the beginning of any training or development process to identify gaps between what should be happening referred to as *optimals* and what is actually happening, termed *actuals* (Rossett, 1987).

In her needs assessment model, Rossett states that there are five purposes for needs assessment (Rossett, 1987) - to help trainers gather information about:

- *Actuals* - which describe the current performance or knowledge for a job being performed.
- *Optimals* - which describe the desired performance or knowledge to do a job well.
- *Feelings* – which focus on opinions about the problem or task or competence related to it.
- *Causes* – which focus on the various sources that may be contributing to the problem.
- *Solutions* – which are considered based on the identified causes for performance problems.

This study focused on defining the *optimals* and *actuals* to identify the gaps in expectations between ETD and schools in the *Trees* DVD project.

Rossett (1987, 1995) outlines the needs assessment process in five steps: (1) determining purposes based on initiators; (2) identifying sources; (3) selecting tools; (4) conducting the needs assessment in stages; and (5) using findings for decision making.

Rossett (1987, 1985) suggests that there are three typical situations that initiate the needs assessment process: when there are performance problems, new systems and technologies,

and when an organization does automatic or habitual training. Out of the three, ETD's purpose would be to address the preparation for new technologies or approaches, where the needs assessment will often focus on determining the *optimals* and feelings for the given situation (Rossett, 1995). This study will focus only on *optimals*.

**Sample**

Rossett (1987, 1995) explains that in identifying data sources, 3 matters are considered; who has the data; where is the data located; and what are the constraints, if any, to obtaining the data.

This needs assessment took a case study approach. The officer in charge of the *Trees* Project and a member of management who mooted the idea were the sources for the *optimals*. The rest of the *optimals* were derived from extant data in the form of records and minutes. The video clips done by the case study school, its teacher facilitator and 4 students were examined for the *actuals*. The results required clarifications from ETD, and so the project manager was asked to clarify some details of the project. The case study was on one of the schools in the project hereafter referred to as School A. The lecturer from NP was also consulted. NParks was not consulted because their role was minimal.

**Methodology**

The needs assessment was conducted in stages. Interviews were the predominant method for data collection. All persons mentioned above were interviewed and the 4 students were in a focus group interview. It started with interviewing key management personnel; in this case the *Trees* project manager and her key supervisor for this project. The information collected in these interviews directed future steps - additional interviews, and extant data collection. The various sources of data were triangulated. See table 1.

*Table 1: Triangulation Matrix*

| **RESEARCH QUESTIONS** | **SOURCES OF DATA** | | |
|---|---|---|---|
| Role/ Skill sets of the teacher facilitators **OPTIMALS** | Extant Data<br>▪ Minutes/ Records | Interviews<br>▪ Project Manager (ETD)<br>▪ Mgt Personnel (ETD) | Focus-Group Discussion<br>▪ Student |
| Role/ Skill sets of the teacher facilitators **ACTUALS** | Extant Data<br>▪ Quality of the Edited output<br>▪ Minutes/ Records | Interviews<br>▪ Teacher<br>▪ NP Lecturer<br>▪ Project Manager (ETD) | Focus-Group Discussion<br>▪ Student |
| Difficulties faced by schools **ACTUALS** | Extant Data<br>▪ Quality of the Edited output<br>▪ Minutes/ Records | Interviews<br>▪ Teacher<br>▪ NP Lecturer<br>▪ Project Manager (ETD) | Focus-Group Discussion<br>▪ Student |

The data was used to derive the *optimals* in the study, which were a checklist for the questions directed in future interviews – to determine the *actuals*. A comparison between the *optimals* and *actuals* in the study presented certain gaps.

**Data Analysis and Discussion**

A key issue that arose was the discrepancy in the way ETD and school A regarded the role of teacher facilitator. According to ETD's definition, School A's teacher facilitator went beyond the role of a facilitator. ETD viewed the teacher facilitator's role as two-fold; at the first level, as a point of contact and negotiator between themselves and ETD/external organisation; and at a second level as a facilitator of the student video team. See Table 2.

At the first level role, the gap was that the expectations were not clear to School A. The teacher from School A had the impression that the project was offered on a platter. There was little done by way of re-negotiating the guidelines, or counter-proposing how the three–school collaboration with ETD could be carried out. Much of the feedback by the teacher from School A at the needs assessment interview could be considered as feedback on hindsight but nevertheless, the project manager from ETD also expressed a similar opinion. The project manager was also unaware as to how much liberty she had to change the project guidelines or structure after the original idea was officially approved. Many lessons were learnt as the project progressed given the fact that this type of collaboration was a pioneer with ETD. The project manager also faced constraints with negotiation with the teacher from School A, such as slow or partial e-mail responses to queries and communication from school A.

At the second level, the role of the teacher as the facilitator also presented a gap – of seeming "over-performance". Is "over-performance" a problem? It would be if the over-performance raises an issue with the perceptions on standardisation across the 3 schools participating in the project. It will also raise problems if the teacher facilitator is perceived as having taken over the learning of the students. The needs assessment data collected unfortunately cannot conclude clearly if the above-mentioned issues were transgressed because the data was opinion-based. It was not possible for example to collect observation data in this case to ascertain if the teacher facilitator of school A went overboard. But during the interview with the students, they commented that they had many night shoots to do, when the teacher facilitator was present – to ensure welfare of the students as well as to ensure (according to the teacher) that the students get the shots right. They do not leave until they get it right.

*Table 2: Optimals and Actuals*

| ROLE OF TEACHER – FACILITATER | | |
|---|---|---|
| **No** | **OPTIMALS**<br>**Expectations Set By ETD** | **ACTUALS**<br>**Actual Experience During Project** |
| 1. | Point of contact between school and ETD | Students were also in most of the e-mail loop, and so teacher's role as a go-between was minimal.<br>Teacher facilitator sometimes was difficult to reach via e-mail and handphone. |
| 2. | Negotiator of school needs, expectations and capacity for the project | Did not feel that he could really negotiate. Impression was that the schools simply carry out the *Trees* |

| ROLE OF TEACHER – FACILITATER | | |
|---|---|---|
| **No** | **OPTIMALS**<br>**Expectations Set By ETD** | **ACTUALS**<br>**Actual Experience During Project** |
| | | Project |
| 3. | Was required to keep students on schedule in the project | Was able to complete video clips very early because School A re-packaged existing video clips that they had already done.<br>Students could not deliver the authoring part, which led to a re-deployment of duties between schools. Also held up the project.<br>Timeline also affected because other schools also had difficulty completing tasks on time.<br>Schedules of the 3 schools involved were hard to coordinate, and SARS complicated the matter further. |
| 4. | Ensure that the students' welfare was taken care of | Ensured that the students' welfare was taken care of. The students would do recording at night and the teacher was present at all recordings. |
| 5. | Seeks out resources and facilities required | Helped seek resources and facilities required |
| 6. | Requires just-in-time peripheral knowledge of video-making skills because tips and consultancy on video-making will be provided by ETD | Had deep knowledge about and passion for video making. Although ETD provided QC, oversaw all aspects of video-making very closely and was the immediate point of reference – helped in creating good technical quality video clips. |
| 7. | Teacher provides input during scripting to get students thinking | Teacher provided content input at every stage in planning – scripting and storyboarding as well as during production. It is not clear if this affected the scope of decision-making that the students needed to make. Data on this area is limited but teacher indicated that he controlled recording to ensure that mistakes were minimised, and that he would direct the shots. |
| 8. | Teacher need not actively participate during recordings. | Teacher participated actively during recordings. Data on this area is limited but teacher indicated that he controlled recording to ensure that mistakes were minimised, and that he would direct the shots. |
| 9. | Teacher does not require technical knowledge of DVD authoring because NP could stand in as consultant | Felt that it is better for teacher to understand the basic requirements for DVD authoring to guide students better.<br>Feels that trainer's "lecture" style |

| ROLE OF TEACHER – FACILITATER | | |
|---|---|---|
| **No** | **OPTIMALS<br>Expectations Set By ETD** | **ACTUALS<br>Actual Experience During Project** |
| | | did not suit the learning style of secondary school students |
| 10. | Training and consultancy on DVD authoring provided by NP | Teacher taught students Photoshop because he had confirmed their pre-requisite knowledge incorrectly. They learnt Photoshop during their lower secondary education as part of a general computer skills programme. The students discovered that they could not create the sub-menu using Photoshop when they applied themselves. |
| 11. | Teacher not expected to attend training on DVD | Teacher attended the DVD training on first day. |

ETD did not hold school A's teacher facilitation as the model to follow, because ETD did not expect teachers to have deep technical knowledge about video making or any other related technology like DVD because of the constantly changing nature of technology. ETD's expectation for teacher facilitator was to learn *with* the students to know enough about the process, to facilitate what the student needs to get the project done, be it in directing thinking, paving the way for external support, etc. ETD's management regards the "coaching" style demonstrated by school A's teacher-facilitator as not providing students enough room to "fail to learn" or enough room for decision-making with accountability.

School A's work demonstrated that teacher input was invaluable to good student output but on the other hand, ETD's larger objective in collaborating with schools was not to produce high quality technical videos but to provide students with a learning platform through a video project. Hence, ETD's focus was on the student learning to the point where the skill-sets required by the teacher facilitator were taken for granted. It was assumed that the teacher facilitator would know how to facilitate a team of students doing a project for the purposes of letting the students learn independently.

In fact, from the extant data, and the discussion with ETD personnel, it was apparent that the *Trees* collaboration model was reminiscent of the way most of ETD's IT competitions, and in particular the Schools Video Awards was carried out. Most teachers left the students to work on these projects independently because these projects were regarded as enrichment activities, and the teacher played a supporting role by managing logistics and their welfare. Teacher training in theses projects have been absent because teachers were expected to know how to facilitate. Teachers have picked up skills by sitting in on student training sessions. However, ETD agrees that there is potential in re-examining the role of the teacher in such projects. In the R&D section within ETD, in relation to a pilot-study conducted to find out how engaged learning is interpreted and translated into practice by teachers using IT, the following descriptors define the role of the teacher-facilitator:

- Teacher creates opportunities for students to work collaboratively to solve problems, do authentic tasks and share knowledge and responsibility.
- Teacher monitors students.

- Teacher stimulates their discussion and poses questions or suggests resources as requested or when appropriate.
- Teacher is the primary source of information and resources.
- Teacher creates highly structured learning opportunities.

These descriptors provide some directions in re-defining the role of the teacher as facilitator, but may still be murky without a list of skill-sets to outline its parameters.

The question was if there is a need to review ETD's *optimals* for teacher facilitation? Can student based video teams be successful without strong teacher facilitation? What is meant by teacher facilitation, since ETD feels that it has not really created a checklist of its skill-sets except in attempting a broad definition of the roles that teachers can play in such a project? The answer could lie in the review of experiences derived from other similar projects done elsewhere.

Video making was School A's niche area in the school. The students had good teamwork and video making knowledge and skills, which was built over the 4 to 5 years, that the students were there. This is not a typical school scenario, but was unique to this case study. The implication for future projects from this case study may be in the choice of the teacher facilitator. Teacher interest in the project is a motivator for the teacher to participate more actively in the project.

Other findings included the issue of timeline and the lack of understanding of the student learner characteristics in the Trees project. See Table 3

*Table 3: Difficulties with Project*

| | OTHER DIFFULTIES | REASONS |
|---|---|---|
| 1. | Time line for DVD production was not adhered to – difficulty scheduling all schools for a common slot to do the DVD authoring which was a stage in production that required all 3 schools to come together | ▪ SARS outbreak resulted in school closure, which in turn led to loss of holidays to make-up for time lost. This resulted in clash of activities<br>▪ Differing pace of schools at producing the video clips. School A could finish clips early but held back production of other assets – brief and worksheets<br>▪ The 3 schools have different free slots which made scheduling difficult, and the post production stage required a linear task completion.<br>▪ School A felt that ETD needed to do more coordination to help schools schedule their time but project manager felt that this was not possible |
| 2. | Did not know Photoshop, which was needed for creating the menu page | ▪ Students were asked if they knew during the DVD training, but for some reason, they did not respond to this question.<br>▪ Students were left alone at the DVD authoring station most of the time and did not get sufficient help from NP on this.<br>▪ NP did not follow up on training on Photoshop |

The coming of SARS complicated the timeline for the project. But it was also complicated by the project management structure for the *Trees* DVD project. The project was loosely supervised – in a model similar to the way ETD's IT competitions were generally managed – where full autonomy is given to schools to take the initiative to complete work on time. This structure was also a constraint given the difficulty of arranging common time between separate schools and NP. It was felt that leaving schools to work at their own pace would be more feasible under the circumstances. The 3 schools in this case coordinated their schedules directly with NP, but it was difficult to make progress without a key timekeeper.

School A faced the least problems with the video making aspect of the project. The students involved in the project were the school's regular AVA club members who had done a number of video projects for the school. They were able to re-package an earlier piece of work that was incidentally relevant and which was appropriate for re-purposing for the *Trees* DVD project. But School A had difficulty keeping to the authoring timeline because of a breakdown in communication. The teacher facilitator was not familiar with the authoring component of the project, and was unable to gauge the extent of Photoshop software knowledge that his students had or required for creating the submenus. Hence, School A students faced difficulty at DVD authoring. The trainer had asked generally in an informal way during the DVD training if the attending students knew Photoshop. There was a chorus of nods and "yes". The trainer was surprised when School A had difficulty during the authoring stage. Time was wasted trying to learn software at the authoring stage of the project. The training on Photoshop was eventually provided not by the external trainer but by the teacher facilitator. The external trainer also was bound by the expectations of his own organisation to scope his involvement in the DVD project.

School A also had to travel 1_ hours to NP to do the authoring after school- a fact that made the experience tedious and cumbersome. The differing schedules of the 3 schools during the post-SARS situation made it more difficult for the representatives of the 3 schools to come together to complete the authoring. These problems delayed the completion of the Trees project drastically.

## Implications

Based on the facts, is training an appropriate solution to the problem? Training can take a number of forms – from just-in-time training to formal training to detailed scaffolding. The level of training would differ from person to person. A study on *Knowledge Building in the Absence of Teacher Facilitation* conducted by Siu-Kai Ng and Nancy Law (2002) of the University of Hong Kong suggested the following:

> *While the teacher's role is generally recognized to be important in knowledge-building, it is an undeniable fact that most teachers do not have a deep understanding of what knowledge building is, or even the experience of engaging in knowledge building…the findings reveal that students will still occasionally be able to engage in knowledge building discourses even without teachers' facilitation. Students' ability to engage in meaningful exploration of ideas depends very importantly on whether they can locate enquiry questions that are within their zone of proximal development...*

Teachers may therefore require some form of training in knowledge facilitation skills itself. But generally in future projects, the number of teachers involved is small – typically about

3 teachers per project. As such, formalized training may not be cost-effective. But given the fact that the teachers are specially selected for such projects, what may be required is a clarification of expectations, and informal workshops and sharing sessions. There is a need to further analyse if their anticipated performance is really due to a lack of training or if it can be fixed by other measures (Mager and Pipe, 1997).

Similarly, for the students in media related projects, the level of training will need to be determined via learner characteristics analysis matched against a list of pre-requisite skills required. ETD should diagnose this in consultation with the teacher facilitator. Software training should also be scheduled at the appropriate times. This case study revealed that the DVD training was scheduled at the onset of the project rather than before the DVD authoring part of the production process. This makes the training too remote and far from the application period.

The rest of the gaps and difficulties with the project involve non-training areas and project management considerations.

For example, the project manager should be given job aids that assist him/her in key decision-making regarding the parameters of his/her autonomy. The project should be more structured and coordinated and expectations should be systematically expressed via some form of written communication for easy recall/referencing.

The teacher should be involved in the conceptualization of the project with ETD. This would call for the teacher to play a more active role in determining the design of the pedagogical content that he or she uses in the classroom and thus, will provide opportunities for clarification of the expectations between ETD and schools.

Incentives as part of the outcomes for the involved parties – both students and teachers were not laid out in the *Trees* DVD but are good practices to consider for future collaborations. These should be done in consultation with the schools, i.e. teacher facilitators.

Timeline issues are an important concern in collaborative projects because different organizations will have different priorities. Involving key collaborators at the conceptualization stage can weed out potential difficulties with timeline and scope the project accordingly. A possibility is to have different organizations doing different aspects of the project, e.g. School A does all videos, School B does all the DVD authoring, and School C all the worksheets. This will reduce the complexity of scheduling. Another possibility is to downplay the video making aspect and focus attention on just DVD authoring.

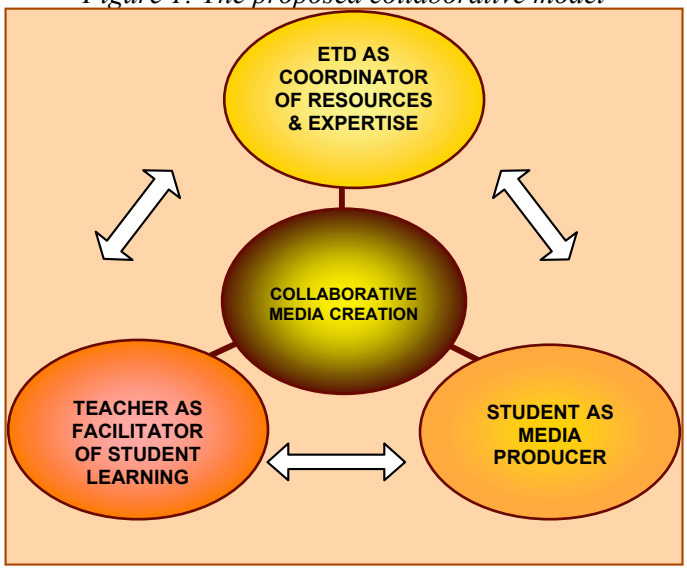
Clearly, easy access to resources for a project like this is important. Perhaps, there is a need to look into loaning equipment to schools to help them with more direct access to the resources required to complete the project.

There is also a need to establish alternative communication channels and other systems to e-mailing and telephone/ handphone contacting such as video-conferencing and discussion boards. Another possibility could be to hold key face-to-face meetings with the students and teacher-facilitator within their schools to minimize travel-time and maximize clarification opportunities.

The Trees DVD project's collaboration concept involved 3 parties - schools, ETD and external organization. However, it is apparent that within the school, teachers and students

play rather distinct roles in the collaboration. Hence, the collaborative model that will be proposed as a result of this study will still comprise 3 parties – students as producers or instructional designers, teachers as facilitators, and ETD as the overall facilitator and consultant. ETD as overall coordinator of the project will help schools with the access to any external organisation's resources and expertise. See fig 1.

*Figure 1: The proposed collaborative model*




The model defines the broad roles that will be taken by the different parties. The table overleaf proposes the details. See Table 4.

*Table 4: Recommendations*

| Key Participants | ***Students*** | ***Teachers*** | ***ETD Officers*** |
|---|---|---|---|
| ***Roles*** | Instructional Designers- Students will design a complete video-based learning resource that is structured to meet the educational needs of its target audience.<br><br>Producers – Students will craft the video aspects of the learning resource by applying sound principles of video-making<br><br>Researchers – Students will ensure that they have attempted the topic from all angles and have checked the facts of the content. | Negotiator – for concerns raised regarding project design and time line at the onset of the project, as well as issues that needs to be addressed during the project, e.g. resources, advice, facilities, etc either within the school or with ETD and any other organisations concerned.<br><br>Content advisor<br><br>Pedagogy input<br><br>Oversee the overall welfare of students<br><br>Resource negotiator | Advisor - Provide structured co-ordination for the collaboration from conceptualisation of project to end<br><br>Support<br>o Examine learner characteristics to determine level of training matches student learning style and project requirements e.g. types of software they need to know<br>o Examine KSA of teacher facilitators assigned<br>o Involve teacher in planning the overall project structure and time line<br>o Communicate the role of the teacher facilitator more clearly<br>o Provide scaffolding or training for teachers, if necessary<br><br>Ensure that school's project align to MP2 |
| **Skills** | Video production skills<br>o Scripting drama/documentary/magazine<br>o How to recce location for recording<br>o Operating recording equipment<br>o Editing rules<br>o Editing software<br>o Any other software for authoring<br><br>Time Management<br><br>Research skills<br><br>Copyright laws and clearance matters | Knowledge Facilitation skills<br><br>Project management<br><br>Leadership skills<br><br>Conflict management<br><br>Negotiating skills<br><br>Supervisory skills<br><br>Communication skills<br><br>Problem-solving skills | Video production skills<br><br>Project Management<br><br>Negotiating skills<br><br>Facilitating resources |
| **Final Deliverable** | DVD/ CD-ROM/VCD (the media format decided)<br><br>Sharing of Learning | Verification Of Students' Work<br><br>Sharing of Expertise Gained | Production Input<br><br>Certification Of Both Teacher's And Student's Efforts |
| **Outcomes** | Learning/ knowledge creation<br><br>Certificate of Commendation | Professional Development | Organise A Sharing Session For Schools<br><br>Replicate the CD-ROM and deliver to target audience |

## Conclusion

This case study on School A has surfaced many issues for reflection and further investigation on how ETD can collaborate with schools to create media.

Most of the skills required in collaborative projects are related to principles of project management and teamwork, and the difficulties highlighted in the *Trees* DVD case study are not necessarily resolved by training. It appears that the many of the difficulties highlighted were systemic problems such as the differences in the set up of schools and their busy schedules against the schedules and setup of organisations like the ministry and Ngee Ann Polytechnic. Other issues that were raised were access to resources, logistics of travel, deployment of tasks and communication breakdown.

A key finding from the case study is with regards to the imprecise role of the teacher facilitator in such a knowledge creation project. The study suggests how hazy the line between facilitating learning and taking over decisions can be. While the role of the teacher facilitator is often discussed, the skill-sets were harder to define. A list of skills was proposed but the method of knowledge facilitation in such projects requires more attention and research.

To align the project more closely with mp2, its focus should be on engaged learning in a constructivist environment rather than on technology transfer. For this, the role of the teacher is crucial. For a resource creation project to be truly a bottom-up one, teachers must be given sufficient opportunity to exercise flexibility in negotiating the parameters and terms of the project. This opens up possibilities for separate projects per school and also calls for the involvement of the teacher-facilitator as ETD's partner in the design of the project.

All in all, the *Trees* DVD project was a milestone in ETD's resource creation history. It was a quickly implemented project, which had many lessons to offer. Its role in this needs assessment study was to ascertain the *optimals* required for future collaborations that ETD wishes to embark on – along the directions of mp2.

## References


Allison Rosset (1994). Techniques in Training and Performance Development Series: Training Needs Assessment. Educational Technology Publications, Inc, Englewood Cliffs, New Jersey.

Robert F. Mager and Peter Pipe (1997), Analyszing Performance Problems, 3rd Edition, The Center for Effective Performance, Inc.

Siu-Kai Ng and Nancy Law (2002). Knowledge Building In The Absence of Teacher Facilitation. University of Hong Kong. http://lcp.cite.hku.hk/PTP/SK%20Ng%20&%20N%20Law%20Knowledge%20Building%20in%20the%20Absence%20of%20Teacher%20Facilitation.doc

Nancy Law and Elaine Wong (2003). Developmental Trajectory in Knowledge Buiding: An Investigation. University of Hong Kong. http://lcp.cite.hku.hk/doc/N%20Law%20&%20E%20Wong%20Developmental%20Trajectory%20in%20Knowledge%20Building%20(formatted%20paper%20for%20print).RTF

Arthur Miller (nnnn). Action Research: A Guide For The Action Researcher. 2nd Edition. Chapter 3, Data Collection Techniques.

**ANNEX A**
**THE TREES DVD STRUCTURE**