Schools and SOFNet:findings from a case-study project on the use of interactive television in three Victorian schools1

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Background

During 1992 in the State of Victoria, the Directorate of School Education (DSE), through the (then) Telematics Support Network, provided two professional development courses for teachers across 88 post-primary and Technical and Further Education colleges using satellite broadcast `interactive' television (ITV).2 Programs consisted of broadcast television and the interaction was by (live) telephone link, or (delayed) fax. ITV was a marked change from the usual approach to the professional development of teachers in Victoria which was (and mostly is) usually completed either during school hours, professional development days (when no students are at school) or during evenings, weekends and holidays. The potential time and cost reduction of using ITV, especially for country teachers and schools, was seen as substantial. However, the effectiveness of ITV for professional development in relation to the traditional face-to-face means was unknown.

During 1993 we undertook an Australian Research Council Small Grant project which investigated the effectiveness and operation of ITV for teachers' professional development in three rural schools. This project related to previous work by Evans and Nation into teachers' professional development at a distance (Evans & Nation, 1991; 1993a). The 1993 project unveiled some of the problems and strengths of ITV for educational uses, especially in terms of professional development (Evans & Tregenza, 1993; Evans, 1995).

A change of government in 1993 brought with it substantial reductions in the numbers of schools and teachers in order to meet reduced budget targets. A sweeping new set of policies under the title Schools of the Future was implemented. These policy shifts embraced the new budget targets, together with curriculum and assessment, DSE administration,

school council, and other management reforms. In particular, new technology was on the policy agenda as the government sought to show that it was not just cutting schools budgets, but also `investing' in the Schools of the Future , hence, ITV became known as `SOFNet'. The incoming Minister of Education (Hayward) announced late in 1993 that ITV was to be expanded enormously from what had been mainly rural secondary school provision for professional development, into a statewide ITV network for all schools. Perhaps more significantly, ITV's role was also to include curriculum `delivery' for students and `corporate' information (presentations by the Minister, senior managers etc, to school principals, staff, etc), in addition to its original professional development activities. Subsequently, the curriculum delivery aspect has become the most substantial part of ITV's programming. Initially, Languages Other Than English (LOTE) in primary schools, and Victorian Certificate of Education (VCE - Year/Grade 11 and 12 assessment) support in secondary schools were developed, but then secondary LOTE and also science and technology for most year levels have been developed. In addition there are several individual broadcasts for students on particular subject, welfare and other topics.

To facilitate the establishment of ITV in 1994 the Victorian Government offered all its schools the installation of a satellite dish and decoder. Each school accepted the offer and by the second half of the year installation was completed, although some schools were not effectively operational. The Catholic system and `independent' schools were invited to join the network on an installation cost recovery basis, and virtually all did so. It is the system-wide nature of ITV in Victoria which makes it unusual in international terms. For example, in Canada there has been considerable use of ITV and other communications technology, however it appears that to date there is not an equivalent ITV network which embraces all schools in a province (Haughey & Roberts, 1996).

Current project

The current research project on which this paper is based investigated the implementation process of ITV within two rural primary schools and a town secondary college during 1995 and early 1996. The schools were located in the region surrounding the city of Geelong which is about 80 kms from Melbourne. The project included each aspect of the way ITV was integrated (or not) into the schools' practices and cultures from the very first approaches made to the schools, through the local decision-making processes and the actual use in the schools at present.

The research used qualitative research methods to develop a case study of the use of ITV in the selected schools. This involved observations of ITV lessons, DSE management broadcasts and professional development activities. Interviews were conducted with selected program developers and presenters at the host broadcast site, teachers, principals,

students and DSE ITV personnel.

The potential impact of ITV is quite large for schools. In line with the work of both Evans, and Evans and Nation (for example, Evans, 1995; Evans & Nation, 1993b), it is argued that the ways educational organisations initiate and foster change is a complex social process which is replete with conflicts and contests as the values of the parties concerned are juxtaposed. This research project set out to explore these processes of change surrounding ITV with a view to developing a subsequent larger project.

Some issues from the findings

School Perspectives

Although the DSE did not make it compulsory for all government schools to accept the offer of the installation of a satellite dish and decoder (including wiring to one room), the schools studied felt they really did not have any choice but to accept. There was a fear of being less competitive in comparison with the `more technologically advanced' schools if the offer was not accepted. The changes in the organisation of schools which came with the Schools of the Future policies, pushed them into a more competitive relationship with other schools, especially in terms of enrolments (see, for example, Kenway, Bigum & Fitzclarence, 1993). At the time, many schools were facing closure or

merger as the government sought to slash costs through reducing the numbers of schools and teachers. Therefore, no school council or principal could afford to be reticent about accepting the offer of ITV in case a nearby school accepted it and thereby obtained some competitive advantage. Indeed as ITV and, in particular, new computer and communications technologies were being pushed by the government within the Schools of the Future policy, there was a broad, if rather naïve, view amongst influential staff that ITV had enormous potential and they should participate from the outset. The `carrot and stick' worked: each of the schools decided it would be in their best interests to accept the offer.

From the outset, installation and implementation of ITV in the three schools studied presented several practical problems. Each school was not readily able to accommodate the satellite equipment and associated wiring and television receiver(s). They were required to make immediate, unexpected changes. In some cases, these changes included substantial structural alterations to the school in order to provide the required staff, student and community access to the equipment. The need for such changes had a major impact, not only on the schools' budgets, but also on other resources. The `free gift' from the government included some costly practical and technical matters, which were only realised as working with ITV unfolded.

In particular, the town secondary school studied went through a complex process in its quest to house the ITV equipment to ensure maximum usage with minimum disruption to others. The school formed an `ITV Committee' to determine the most suitable location for the `ITV room'. Practical issues were raised such as the need for a trolley and sufficiently long power cord to move the television (and associated video-recorder which each school saw as necessary) for larger group viewing, easy access for staff, students and the community, comfortable surrounds conducive to interaction during ITV broadcasts, placement of ITV outlets, location of phone and fax equipment, security etc. After a number of meetings and careful consideration, it was decided to make structural changes to the school by partitioning off a section of the library to create a new room. This provided a private, almost sound proof viewing area with facilities to accommodate up to thirty people with tables, chairs, ITV equipment, fax and telephone. This came at a cost of approximately $2,500 to the school.

Installation of the satellite dish and ITV equipment at one of the rural primary schools proved to be a source of frustration for the principal, whose initial reaction was, `Where on earth will I put it?' When the DSE was arranging to install the satellite dish, the school was very pressed for space and was coping with a common staffroom/general office/storeroom/sick bay/interview room. There was no place suitable to house the ITV equipment with adequate access to the telecommunications necessary to enable interaction with the studio. As a last resort, it was decided to locate the equipment temporarily in the library. However, a consequence was that programs could only be recorded and not used interactively with the children. Subsequently, as new building work was completed at the school, the ITV equipment was re-located there, but at the school's expense.

The extra demand ITV made on school resources loomed ever larger as the schools ascertained what was involved. The DSE strongly recommended that schools have immediate access to phone and fax where ITV was being used. One of the rural primary schools only had one fax machine which was located in the principal's office and, thus, not available for communication with the studio presenters during the lessons. As seems to be common for most schools, the `free' installation of ITV involved

the purchase of a new television, trolley, video recorder, fax machine, telephone and additional telephone/fax line(s). (In general, some schools have opted for a mobile phone instead of a new fixed phone).

In the early stages of the establishment of the ITV system, faults were identified with the decoders at some schools. The defective units were supposed to be replaced over a period of approximately one month. However, fifteen months later one of the rural primary schools in this study was still waiting to receive their replacement decoder. This is

an example of the sorts of technical problems which can beset the introduction of any new form of computer or communications equipment. However, with ITV in Victoria, schools were led to expect the state-wide provision of particular programs which they could rely upon for their teaching. When technical difficulties occur across a State system, the magnitude of the task of rectifying them is significant. Small rural schools are perhaps the most difficult to address, but this does not decrease their disillusionment when this occurs.

Teachers' Perspectives

ITV commenced in Victoria with the usual rhetorical flourish loved by politicians when they are announcing new `high-tech' ventures. The Minister Hayward, promoted ITV as `bringing the world into the classrooms of even the remotest and smallest Victorian schools' (Education News, 1994, p. 1) and Premier Kennett was no less circumspect when he claimed: `This is the greatest change to education in our time' (The Age, 1994 p. 8). Turning such rhetoric into practical reality is the bane of those charged with the responsibility to do so. Educational technology is no different, it usually (always?) takes a long period of trial and error, development and fine-tuning before things work smoothly. (Of course, by this time the `new' technologies are no longer seen as such, the politicians and other high-tech boosters have lined-up another rhetorical hurdle for the practitioners to leap!)

As we have noted previously, ITV was introduced to schools at a time of great change. Staff and other budgetary cut-backs were at their height. The Schools of the Future policies were being heavily promoted and were bringing with them, school closures and reorganisation, reductions in support staff, and administrative changes within schools and the DSE bureaucracy. Teacher morale was low, but despite this, the teachers involved in the selected schools remained positive about the implementation of ITV. For example, when asked what he initially thought of ITV coming to the school, one primary teacher commented, `Great. Fantastic…we are moving in to the future here. This is the way to go'.  Another commented, `my expectations would be that they might tackle areas that we were not familiar with...things that you might have difficulty staffing'. Clearly, the teachers were prepared to give ITV a chance and saw that it might be one of the positive aspects of the Schools of the Future policies.

When asked if, at the outset, ITV was something they considered using in their teaching, again most teachers were positive. Many saw ITV as a useful supplement to what they were already doing in the classroom. Although teachers saw potential in ITV, many were sceptical of the effectiveness of the interactive element. For example, a primary teacher commented, `I worried more about the interactivity, how you would actually be interactive.' Others, especially at the secondary level, felt the interactive facility would be difficult to implement

due to timetable constraints. Consequently, most teachers commented that they expected to use ITV principally by video-taping programs for use later. Clearly, these teachers were not intending (or able) to

exploit what was supposed to be the fundamental aspect of ITV: its interactivity. Their approach was akin to a major reason for the demise of educational television broadcast to schools for many years by the Australian Broadcasting Commission (ABC). The ABC ceased schools broadcasting as increasingly schools were using the then new video-taping machines to record programs and replay them whenever they liked.3

Unfortunately the teachers' positive outlooks were generally not realised in practice and many expectations were dashed. A secondary school teacher commented, `I think I had expectations that we might be getting something marvellous. I've been quite disillusioned by that. The handful of programs that I have looked at that have been classroom-centred have disappointed'. This disappointment and disillusion identified by teachers stemmed partly from the poor production quality of ITV broadcasts. Production values were said by many teachers to be very important for the effectiveness of ITV for classroom use. They commonly spoke of `amateurish' programs, `boring' presenters, the lack of interaction, the `imposed curriculum' and the frequent technical problems, including poor sound quality, or failure to receive scheduled programs at all. Further, teachers claimed the variety and relevance of programs were also severely lacking with the programming being dominated by LOTE.

Although ours is only a small `pilot' project, the widespread nature of the disillusionment of the teachers was such that this is indicative of a more widespread condition, indeed, our informal contacts with other schools confirms such. This is not to suggest that there are no teachers who see real merit in persevering with ITV, however, the prospect is high that teachers who have tried ITV once and found it wanting, are unlikely to use ITV again unless there is some strong and persuasive evidence that it has improved. Part of the problem is the boosterism which politicians and others purvey when initiatives such as ITV are launched. The positive side of such publicity is the attention drawn to the initiative and the imprimatur given to its adoption. The negative side is that initiatives such as ITV are complex ventures which require a lot more than a satellite dish on a school roof. There is an educational technology to be created, not just wiring installed. This requires considerable effort and understanding on the part of teachers, program presenters and others involved. The publicity rarely if ever acknowledges this, and often the policy makers do not understand the resources required. Therefore, the teachers in our study generally believed initially that they were to receive programs which they could make their students available to use. In fact, they soon realised that they had to use the programs themselves to teach their

children and this was something which required some adaptation and preparation.

Teachers as Learners' Perspectives

In addition to curriculum delivery for students, ITV is also used for teacher professional development. As outlined by this secondary teacher, use of ITV for professional development has the potential to overcome a number of practical problems

I thought it [the concept of ITV] was tremendous actually. It meant that we didn't have to travel to Melbourne for professional development in-service. It meant also that it was useful for the presenters because they could cover the whole state in one session rather than going out to all sorts of different regions giving their same program over and over again.

The costs in terms of distance, travel and accommodation have traditionally been significant factors in the effective implementation of professional development programs for teachers. The teachers clearly recognised the potential scope of ITV in addressing such issues.

Despite this recognition, the teachers have again been faced with disappointment in terms of production quality. They reported `amateurish' presenters and `boring talking heads', lack of valuable interaction, technical problems and scheduled programs not being broadcast when announced. Teachers who had participated in professional development programs, in particular those participating in VCE Common Assessment Task programs via ITV, reported that `it didn't really amount to much more than somebody reading documents that I had already read. I think the general feeling, certainly the one I got, was that it was a waste of time'.

Although recognising the benefits of ITV in overcoming the problems associated with distance, some teachers reported they would not use ITV for their own professional development due to being `burned' or `turned-off' by their first experiences. Many teachers reported that after using ITV professional development programs they felt their time could be better spent. A secondary teacher commented, `I think the way in which they were using it…was a complete and utter waste of time'. Some teachers rely on colleagues, either within or outside of their school, to inform them of programs worth watching, although mostly this involves using a video-tape of a previous program, rather than joining-in to watch a new series. Continuing from the point made in the conclusion to the previous section, ITV now needs a strategy to re-capture those whose confidence it has lost. One such teacher commented, `I think they've got a harder job ahead of them than introducing it now because...they've lost people's interest'.

One teacher, who both undertakes and conducts professional development sessions, reported that she had not considered the use of ITV for her own professional development due to a dislike for the impersonal nature of the medium. She commented, `…there is nothing that beats interaction and actually talking to the person who is doing the things. Second-hand via ITV can be a little useful, maybe to kick-start interest to start with, but when you are really going to get down to `nitty-gritties' I don't think anything beats a person.' She went on to explain the importance of the facilitator being able to `read' the audience to determine which direction to take…an element that is lost with ITV as the presenter is unable to see the audience. Of course, this is a fundamental flaw in ITV. It was lauded as `interactive' television, and yet the medium and its implementation make this unattainable in anything more than a token way.4

As is often the case `high technology' innovations, governments and institutions rarely allow for appropriate budgets to cover for the implementation, technical and staff development costs. Although the DSE promoted ITV as providing exemplars of quality teaching practice, the very nature of the program development and production process did not facilitate this. Such barriers included budget and time restraints, under staffing, lack of training and experience of presenters, lack of support personnel and lack of rehearsal time with production staff prior to broadcast. With programs being developed in great haste under such circumstances, it was difficult for ITV presenters to model exemplary teaching techniques. There is also the case that the teachers and learners in the schools need to be helped to understand how to make the best use of ITV for learning. Although there has been a lot of work done on this since the inception of ITV, the amount done was too small and too late to benefit the schools in our research.

Students' Perspectives

Initially many teachers expressed concern that ITV would not capture their students attention or interest as it did not compare to the quality of programming children are accustomed to at home. Broadcast television is generally of high quality and is a source of fast-paced entertainment and information. ITV is generally less than this and in fact, on the back cover of a booklet entitled, `The Uses of Interactive Television' which was distributed to schools at the time, the DSE warned:

The Interactive Satellite Learning Network could be a health hazard if viewers fail to realise that it is not commercial TV.

The ISLN operates on a fraction of the budget required to produce commercial TV and a reflection of this must be expected in production standards.

(Directorate of School Education , 1993, back cover).

An ITV Project Officer noted, `[ITV] also provides us with a good example of using technology as a means to an end as opposed to allowing the technology to become an end in itself'. This concurs with Catchpole (1993) who argued of his work in British Columbia, that very appropriate educational broadcasting can be developed without having to emulate the production values of the major TV stations. It is a matter of creating a new genre from ITV which will involve quality production and technical values of its own kind.

Interestingly, students who had viewed a variety of ITV programs reported that the comparison with television at home was not of concern to them. They were not expecting production standards similar to that of broadcast children's or other programs. Perhaps this was due to teacher explanations, prior to them viewing ITV for the first time, that it would not be of the same standard as the television programs they watch at home. It seems that the teachers in this study were more concerned with the production quality than were the children. However, such concern is not particular to the schools of study, for example, an external evaluation of an ITV program revealed teachers from other schools had commented, `[the children] were probably not as distracted by amateurish presentations as were the teachers' (Marshall, Matthews & Oakley, 1996, p. 17). Perhaps the teacher concern stems from their largely unfulfilled expectations that ITV would provide exemplars, through quality television and good teaching practice. However, with the home video camera developing its own genre, maybe children are less fixed in what they see as `good' television than the teachers.

Instead of focussing on the comparison between broadcast television and ITV, the students were more concerned with other technical and practical issues associated with using the medium. The students complained about the sound quality, reporting that some programs were difficult to hear despite having the school television volume at maximum levels during the broadcast. This problem is probably due to both ITV and school factors. Sometimes the sound quality of ITV is not good, with distortion being the problem, rather than volume itself. Also, the schools are using normal, relatively inexpensive domestic televisions (48-56 cm screens) in a classroom with from 30-90 children. The viewing and listening circumstances are not those with which the television receivers were designed to cope. However, the large, high-definition, multi-speaker, televisions are about four times the cost of the usual television receivers, and would represent an enormous drain on a small rural primary school's budget.

A related issue raised by students at one of the rural primary schools concerned the difficulty they had in seeing the program, especially the written text shown or pointed to during the broadcast. Initially, this

school had three classes watch the program (in order to watch it `interactively'!) and the distance from the screen for at least half of the children made reading written text or diagrams impossible. The teachers soon recognised these problems and video-taped the programs for use later. A longer-term intention is to request the installation of additional connections so that each class can view simultaneously in different rooms.

Our study indicated that students of all ages were open to the idea of using ITV for their studies and were generally less-concerned about technical and production problems than were their teachers. However, for ITV to become an effective interactive learning medium, at least in the schools we studied, the students will need to be better equipped for learning in this way. This means both in the sense of having suitable facilities and equipment, also in terms teaching strategies and pedagogies.

Concluding comments

ITV is in a position where it could become anything from an expensive `high tech' `white elephant' through to a substantial medium for reshaping the ways schooling is managed and practised. Whatever it becomes, it will only be so to the extent that it engages the lives of teachers and children, and through them changes the practices, management and culture of schools. This small study found that, although ITV had made some inroads into each of the schools, the overall impact was minimal. Several significant technical and educational matters need to be addressed if ITV is to become an effective educational technology for schools.

Technologies are fundamental to education, especially since the rise of science and industry, and the consequent formation of mass education (Evans & Nation 1993b). Most (some would argue all) educational practices are mediated, especially in forms of open and distance education, usually through print, but often audiocassette, and sometimes radio, video or TV. In order for ITV to become an effective educational technology it is important that its protagonists understand that technologies are not tools, but rather the knowledge, skills and values which develop and use such tools for personal or social (that is, educational) purposes. Any educational technology, therefore, is more of a social and cultural, rather than a physical, artefact. It is clear that, even at the physical level, the installation of ITV was minimalist at best. Schools were left with an infrastructure more or less at the front door (or rather on the roof!) and with little understanding of what might be required inside the schools nor, any money to provide such requirements. However, the real absence remains at the social and cultural levels, the fundamental work of developing and sharing understandings of how to create and use ITV for effective teaching and learning at the local, school level is yet to be achieved.

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The Age, Classroom television may go international, September 1, 1994 p. 8.

1 This paper is a revised and extended version of a paper presented at the 1996 Canadian Association of Distance Education conference (Evans & Tregenza, 1996)

2 As is often the case in education, the names of departments and other organisational entities change regularly. The body responsible for schools is now the Department of Education, however we shall use DSE in this paper as this was the title for most of the period in question. Likewise, ITV is the acronym which will be used throughout this paper for the interactive television system. In Victoria this was also the first acronym used for the system itself. However, there have been subsequent other titles and acronyms, and currently the ITV network is called Schools of the Future Network (SOFNet). ITV will be used here because it is better understood internationally.

3 It is important to emphasise that the teachers were referring to the difficulties of using the forms of interaction (by phone and fax) which ITV provides with the presenters. However, there are forms of interactive learning which are embedded in the program design which encourage the students to interact with the television program itself, or to complete activities with their peers or classroom teacher during or after the program. As Barty (1996) argues, this is probably the most important level of interactivity anyway and is consistent with forms of interaction and dialogue which have been a focus of distance education theorists and practitioners for many years (see, for examples, Lockwood, 1992; Nation, 1991).

4 Although, as is pointed out in Endnote 3 above, it can be interactive learning. Indeed, one of the name changes to ITV was to the

`Interactive Satellite Learning Network'. The real problem is that it was marketed as interactive television and has been undersood as such.