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THE USE OF VIDEO RECORDING AS A RESEARCH TOOL AND FEEDBACK: ADVANTAGES AND DISADVANTAGES

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Abstract: The use of video-recording as a means of research in psychology is not new but it is not often used in Singapore for a number of reasons. Manpower, lack of technical assistance and time constraints are some comely cited reasons for the reluctance to use video-taping as a form of record taking. But the extensive use of video-recording by Prof. Jim Stigler in a sub-study of the TIMSS on the comparison of classroom practices has given compelling evidence on the versatility of the use of video-recording in comparative research. Encouraged by the powerful evidence provided by the TIMSS, the writers have attempted video-recording in a comparative study of classroom practices in primary mathematics. The process of video analysis is undoubtedly time-consuming, but it is also an invaluable learning experience. This paper attempts to discuss the advantages and disadvantages of using video-recording as a form of research record keeping and for feedback in learning –teaching situations.

The use of video recording in educational research especially with very young children is not an earth-shaking new discovery. Observations of human behaviour in natural settings have always been dependent on the objectivity of the video-recorder rather than the subjective views of human observers. The President of the National Council of Teachers of Mathematics, Glenda Lappan stated the obvious when she said of the use of video recording in classroom observations, “The videotapes don’t lie.”

The Video-Survey In TIMSS

Though video recording is not a new research tool, the very many possible uses of recorded tapes have not really been explored extensively until the Third International Mathematics and Science Study. A part of the TIMSS Project led by Professor James Stigler of UCLA was to videotape and study teaching in three countries: the United States, Germany and Japan. The recordings enabled Stigler and his team to make comparative studies of the diversity of teaching styles in mathematical teaching in the three countries. The tapes also helped to explain to a certain extent the mathematical results attained by students in the three countries. Since then, Stigler’s video project has grown to investigate the dynamics of individual classrooms and to develop these tapes into teaching tapes and for teacher training.

The TIMSS study examined the school curricula, syllabi, amount of homework set and class size in great details. But it is what the videotapes reveal that provides the evidence of good teaching practices and unproductive classroom procedures. The videotapes show up the weakness of giving written guidelines and recommendations without explicit demonstrations of how the recommendations could be translated into actions in class.

It was noted that Japanese teachers stress on the importance of concept development and understanding with contributions from students. The development of a mathematical concept was meticulously recorded on the blackboards found around the classroom so that students can follow and review the deliberation, explanation and elaboration that have gone into the concept development. This is a stark contrast to the common practice of stating a concept with little elaboration. Extensive periods of time are being spent on illustrating procedures or steps in solving

a problem in the case of the Japanese mathematics classes. Though procedures are important, a lack of conceptual understanding would not enable students to perceive variations in the problems or to empower transfer.

Another outstanding difference is the importance placed by the Japanese teachers on error analysis and students learning from identifying and correcting their own errors. Opportunities are also created for students to explore different approaches in solving a problem. There is a tendency for most teachers to focus on arriving at the correct answers and not identifying the reasons underlying the incorrect answers. Coverage of the mathematical syllabus takes top priority over that of generating different ways of solving a problem for most teachers.

Using Video-Recording In Singapore Classes

Singapore has a centralised education system where a common curriculum is adopted by all government and government-aided schools. The syllabi are developed by the Ministry of Education and until recently, the textbooks for primary and secondary schools were written and produced by the Curriculum Development Institute of Singapore, Ministry of Education. Students sit for common public examinations. There is only one tertiary institution for the training of teachers for all levels in Singapore too. Hence it can be assumed that classroom practices would be fairly homogenous and uniform across all schools.

In the last three years, many new initiatives were introduced into schools to prepare the students for the knowledge-based economy and challenges in the new millennium. Teachers are expected to integrate IT into their delivery and to infuse thinking skills in their content teaching. The new initiatives are introduced into schools in phases and it is necessary to monitor the successful implementation of the smooth integration of these new initiatives into the school curriculum.

The use of videotaping lessons to capture the effort made in implementing the new initiatives had proven to be fruitful and instructional. Four Primary Five teachers from two Primary schools were videotaped on five lessons each on mathematics. The videotapes were then analysed in terms of time spent on teachers' talk, students initiated talk, seat work, co-operative group work, preparation time, thinking vs rhetorical questions used, disciplining misbehaviour and disruption. As the tapes were being analysed, the following questions were constantly asked: Is there any difference in the teaching style observed now after the introduction of thinking skills and IT? Is the teacher making conscious effort to encourage collaborative work among students? Are stimulating questions asked to promote critical and creative thinking?

It is interesting to note the differences in classroom practices adopted by the teachers despite the common curriculum, training and textbooks. Teachers' personality, education beliefs and depth of content knowledge play an important part in the actual delivery of a lesson.

Monitoring And Teaching

The essence of success in the implementation of any new initiative is to carefully monitor the ease with which a teacher is able to infuse into her lessons her acquired skills in IT and thinking and provide her with feedback on how to improve on her efforts. This would cut down on mistakes and help with improving her grasp of the new initiative. For someone who has been teaching a subject in a particular style for a long time, having to modify the teaching style to accommodate enforced changes needs a shift of mindset. Conscious effort has to be made to blend in the new initiatives in constant practices before the new approach can be internalised to become a habit. The recording of the attempts made in the integration of multimedia in a lesson presentation or the use of higher

order thinking questions to stimulate thinking can provide evidence of progress and opportunities for correction of common unintentional hiccups made in the implementation. Most students, especially primary students, are not adequately equipped knowledge-wise to correct the teachers when conceptual errors are committed. Hence video recording of the trials in implementing the new initiatives will become essential in the attempt to evaluate the effectiveness and success of the approach adopted.

Almost all trained teachers do not feel comfortable with the idea of having someone to sit in her class to monitor her teaching. Unfortunately reflection on one's own teaching can be biased and is not easy without the help of cues from audio or video recordings. Hence the use of video recording will provide invaluable feedback for professional development too. Such recordings will enable the teacher to go over her own teaching procedures, identify her errors and can even consult a friendly mentor for advice on some unfamiliar device or approach. Similarly, the recordings can also be used for training purposes, providing new trainees with evidence of good and erroneous practices in the classrooms. It is necessary to demonstrate to new teachers not only the better approaches in teaching a topic but also to point out the common errors committed in teaching the same topic.

Problems Encountered In Videotaping A Lesson

However, it is necessary to caution that video-taping a class lesson needs the co-operation of the demonstrating teacher who must be secure and confident to have her act captured on video. This is especially difficult if the demonstration is meant to be an illustration of a poor practice. Of courses modern technology could always be employed to blur out the face of the unfortunate teacher to provide anonymity. However, this tends to create a greater level of curiosity with regard to the identity of the demonstrating teacher in the Singapore context, leaving the approach less than desired. This is due firstly to the small education circle in Singapore. It is thus not surprising that most of the teaching professionals are not strangers to others in the circle. Secondly, students in Singapore are uniquely identified by their school uniforms and badges that they wear. Furthermore, some of the school buildings are so unique that it is not difficult to identify the school concerned. All these provide good distractions to those watching the video in trying to 'investigate' the identity of the demonstrating teacher. Master teachers on the other hand usually do not mind to have their faces visible in the videotape.

The second problem is the preparation time spent in setting up a video camera. Setting up a video-camera in an overcrowded Singapore classroom with 40 curious students is by no means an easy feat and to follow the teacher's every move requires a skilful cameraman to handle the camera. For Stigler's Repeat TIMSS video survey, two video cameras were used, with one focusing on the teacher and the other on the students.

Use Of Video Tape In Practicum Cognitive Coaching

It may be considered time-consuming and even cumbersome in using video recording for feedback and progress monitoring in trainees' school attachment. But the tapes provide rich learning experiences for the trainees. Inexperienced trainees are usually terrified of being observed and are also less able to identify one's own errors. An important aspect of practice is to help the trainees develop self-awareness and self-evaluation. Some defensive trainees may not be able to recall parts of the lessons which were deemed unsatisfactory to the supervisor. The availability of the video tapes with the captured evidence can put to rest unnecessary arguments and will also provide the trainee with opportunities to analyse and learn from her own mistakes. It will also be very encouraging to the trainees if the supervisors were to trace the improvements made by the trainees

over ten weeks of practicum. Such practice of cognitive coaching means that supervisors will need to spend considerably more time in their post-supervision discussions. When the intake of trainees is large, the supervisor may have to ration the use of videotaping of lessons to a selected few students who require special coaching.

Learning Effective Classroom Management From Videod Cases

New teachers are highly stressed by their inability to handle defiant and rebellious students. Inadequate pre-service teacher education is often blamed for the ill-preparedness of new teachers to manage difficult students. Most if not all trainees and surprisingly some principals expect teacher education to provide the trainees with a magic formula to resolve all the classroom misbehaviours, from children suffering from Attention Deficit Hyperactive Disorder to children with difficult parents. It is astonishing that trainees believe that every school and every class will yield the same kinds of problems. It is also time consuming to demonstrate the application of different recommended management models in all case studies discussed during class tutorials. Life demonstrations of how the different models could be effectively used would be more meaningful to the trainees. The application of an effective approach to an actual case captures on video would be more convincing than verbal descriptions. Though there are demonstration tapes available, they are usually scenes taken from American and British classrooms and may seem unrealistic to our local teachers.

If discipline masters and pastoral care and career guidance teachers would agree to be videotaped while they counsel or discipline their students, these scenarios will have more meaning for the trainees and new teachers. But to capture an actual happening of misbehaviour is difficult, not to mention the need for confidentiality of the students involved. Hence it would have to be a constructed case of role-play. Will such cases be authentic and convincing to the users? In a genuine case of confrontation, both teacher and student are likely to be more emotional and reactive. A detached attitude and cool handling of defiant behaviour may seem unreal to the viewers. But skilfully scripted enacting of common misbehaviours and the effective handling of such cases by the same teachers would provide some guidelines to the inexperienced novice. Discussions after the review of such tapes are essential to relate models described in lectures to their applications observed in the tapes.

Japan's Master Classes

Japanese education has undergone many changes in the last two decades, attracting little attention from the rest of the world (Bar, C.W. *The Christian Science Monitor*, 10 Aug 1999). Rote learning and memorisation were once considered the proper approach to learning, but now teachers are told explicitly that they must emphasise creativity and problem-solving. As in most countries, maintaining classroom discipline has become a matter of concern to teachers as students become more defiant. The Japanese's partial answer is to organise master classes and have them videotaped. Master teachers are invited to give demonstration lessons at a time indicated by them. At informal review sessions organised by schools or teachers' unions, teachers would view videotaped reports on experimental lessons and discussed what they have viewed. Discussions often focused on the need to cultivate a "let's try" attitude among the students, the importance for teachers to be innovative and flexible, and the motivating effect of creating a fun social climate in class.

The Japanese has maximised the use of videotaped lessons for the practical "in-service" professional development of its teaching force. The education scene in Japan has slowly evolved

from the traditional practice of rote learning to one that produces outstanding achievement in international competitions and a revolutionary approach to professional teacher development.

Conclusion

We could see no end to the creative uses of videotapes on class lessons but it is important to perceive the exercise as a positive tool to improve the classroom practices of the teacher, to enhance the learning of both teacher and students and to provide feedback on the experimentation of new approaches to teaching and learning.

These videotapes should not be used as weapons against hapless trainees who are in need of guidance and coaching. Videotapes are powerful tools and have tremendous potential for training and professional development. Training in the skilful use of video recording is however necessary in order to capture meaningful events. In the case of the Singapore context, video recording skills must also be coupled with good maneuvering skills due to the little space for movement as a result of large class size. In addition, classroom infrastructure should also be user friendly for video recording. The availability of power points, for example, is often the concern of the cameraman.

If principals and teachers can be convinced of the great potential of video-recording in professional development, the schools would welcome the ventures made by researchers and NIE lecturers to video class lessons. They may even set up their own mini video-studios in school!

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