

the segment.

These findings indicate that teachers wanted to use the segments in the ways that were compatible with their teaching style and the interest and needs of their students. They were glad to have a resource which could be adapted to their particular style and not one which imposed a format of usage.

Student results

All the classes involved in the study made significant gains from pre to post test on the various tests used (See Table I). Complete tests results are available in another paper (Lewis, 1981). The primary students had a pre test score of 1.17 compared to a post test score of 3.90. These students learned words such as mouth, teeth, hair, shoulders, feet, hands, ears, eyes and neck in French as a result of the program and its associated activities.

The grade one level pre test score was 2.55 while the post test score was 7.09. These students learned the French words for nose, mouth, teeth, hair, shoulders, feet, hands, ears and eyes and neck between the pre and post tests.

Another grade one sample scored 1.19 on the pre test and 5.0 on the post test. These students learned the French words for hands, feet, neck, teeth, hair and eyes between the pre and post tests.

At the grade two level students were given one test on body parts and another test on fruits and vegetables. The students did significantly better on both post tests. For fruits and vegetables, the students learned the French words for orange, banana, apple, potato, lemon, onion, grapes, carrot, tomato, pineapple, peach, and corn between the pre and post tests. In terms of body parts the students learned the words for eyes, mouth, nose, feet, hair, teeth and eyes between the pre and post tests.

At the grade three level the students also had two tests; one on body parts and one on fruits and vegetables. In both cases the post test score was significantly higher than the pre test score. The grade three students learned the words for ears, mouth, nose, hands, feet, hair, teeth, eyes and neck over the duration of the project. In terms of fruits and vegetables the students learned the words for orange, cherry, banana, apple, grape and carrot between the pre and post tests.

The grade five students had a test based on articles of clothing. On the pre test none of the students knew the words for shoes, shirt, pants and socks. However, by the end of the study between nine and sixteen of the students had learned the words for socks, shoes, shirt and pants. There were significant gains on all the articles of clothing. At the grade six level the articles of clothing test was also given. At this level some of the students knew more of the parts of clothing than the

grade fives did. Nevertheless, the post test results were still significant in terms of how much the students learned. The grade six students also learned the words for shoes, shirt, pants and socks as a result of the experiment.

Teacher use and enthusiasm

One of the most exciting aspects of the project was the enthusiasm exhibited by the participating teachers. In two cases, teachers managed to exert enough pressure on their schools and the school board to purchase additional videotape units. During the project itself, teachers continually demonstrated their interest and enthusiasm in the project and what it was doing for their schools. Often, the teachers had to make more than the normal effort required to teach a class using the videotape units in the classroom. During the project, there was no need to encourage teachers to do the tasks required of them. They seemed to have a great deal of interest in performing their required work. In all cases, the teachers wanted more information and more of the program segments than could possibly be provided during the year.

Curriculum integration

One of the strengths of the project was that the programs themselves did not have to completely focus on learning and teaching of French. It was just as easy to include a segment dealing with social studies, health or personal development along with segments on French. During the study, teachers included segments to reinforce areas of interest. As a result, French was integrated into other classroom activities.

In this matter, television probably became another one of the learning aids

available to the teachers and students as opposed to merely a tool for teaching and learning French. As the program continues to develop, it is possible that a number of different approaches and subjects could be merged into a single program. As a result, students and teachers could have a wide range of subject matters and content styles included in one program. Although testing would be much more difficult, it is thus possible to see a wider range of materials used.

Implications

The study demonstrated that teachers enjoyed the process of planning programs which were directly suited to their needs. However, the available segments still did not meet the precise needs of teachers. Long term success of the segment approach for television means that a wide range of segments need to be made accessible to teachers. Most provincial departments of education now make copies of television programs they have produced available to all teachers in the province usually for the price of a blank cassette. Segments of these television programs could easily be integrated into the type of program described in the study.

To extend the teacher control even further, it would be possible for groups of teachers to produce short television segments on particular aspects of their teaching. These segments could then be exchanged by teachers similar topics so that a bank of segments could be built up. The teacher resource centre of the Halifax city schools has proposed a system to teach teachers to produce one minute teaching segments which could then be housed in the library and used as the need arises. This development means that there could be a wide range of segments

available.

In addition, students could be taught to produce short instructional segments thus teaching them the skills of visual literacy while at the same time providing instructional material for the classroom.

The segment approach has proven its usefulness in children's television programs. With the success of *Sesame Street*, *The Electric Company* followed. *Passe Partout*, a French language program for francophones uses the segment technique to communicate its information to the students. It is possible then that the segment technique is widely applicable in the education system.

The segment technique will also be enhanced when videodiscs become available. Videodisc technology will allow a teacher to access any segment in a program quickly and easily. As a result, replay and immediate access will be available.

The study has demonstrated the need for wider testing of the concept of segment type television programs. Expansion will allow many more questions regarding the use of segments in educational applications to be discussed.

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AMTEC ideas booklet in the works

AMTEC is in the process of organizing a series of *Ideas* booklets. The booklets are to be practical in nature and will focus upon using media in instruction. It is envisioned that each booklet will be written from a personal point of view, with emphasis placed on the practical rather than the theoretical.

Anyone interested in sharing their ideas should send manuscripts covering the how, when, where, why and what of specific educational media. Length is to be from 1-10 pages.

Manuscripts and/or inquiries should be addressed to John Morrow

Resource Center Co-ordinator
School District #34 (Abbotsford)
2343 McCallum Road
Abbotsford BC V2S 3P5

Table I

Pre and Post Test Means for all Grades

Grade	Test	Pre Test	Post Test	T-Score	df
		Mean	Mean		
Primary	Body Parts	1.17	3.90	6.34*	29
Grade One (1)	Body Parts	2.55	7.09	7.29*	21
Grade One (2)	Body Parts	1.19	5.00	8.46*	20
Grade Two	Body Parts	2.88	5.44	5.45*	24
	Fruits & Vegetables	1.36	6.80	11.50*	24
Grade Three	Body Parts	1.19	6.75	7.50*	15
	Fruits & Vegetables	0.13	4.19	6.83*	15
Grade Five	Clothing	0.00	2.50	8.50*	17
Grade Six	Clothing	0.59	2.65	6.80*	16

*p > .05

Can Technology Revive This Classroom Simulation Update: Seldom Used Instructional Technique?

By Walt Buehning & Erv Schieman

Development of the Current Project

The Learning Technology Unit in the Faculty of Education at the University of Calgary, over an eight year period, has been actively involved in designing and

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Erv Schieman is a Senior Instructor in the Learning Technology Unit at the University of Calgary.

developing a variety of experimental instructional simulators. As well, varying designs for software formats and configurations have been tried with the materials experiencing a wide range of effectiveness. While many problems still exist, the experimenters have gained a great deal of experience and have developed expertise in an instructional technique which has yet to be exploited in education and training. Through all the many trials utilizing the experimental simulation packages, the intent of the investigators has been to demonstrate that

simulation can be a powerful vehicle for training teachers, and other professionals, in the area of inter-personal communication and problem solving strategies. When targeted for teacher training programmes, these materials, wisely designed, can provide instruction in the most problematic area in schools today, namely classroom management.

In the current project, a design team, including content specialists, production personnel, design/development specialists and evaluators has developed three prototype instructional packages intended

for use in methodology courses. This current project seeks to not only develop materials but also to test the efficacy of the overall design strategy and the updated hardware configuration.

By means of the microcomputer, which permits the accessing of any one of a number of segments of videotape, visual representations of classroom activities can be presented in any sequence to students. The participants in the simulation can react and respond to occurrences which require decisions and see probable follow-up consequences of their decisions. In the prototypes which have been developed, the following events typically occur.

1. A videotaped incident, usually a commonly occurring yet important classroom event, is presented. The videotape stops at a critical decision-making point, leaving the student in a position where some action must be forthcoming.
2. Up to five alternative action choices are presented on the CRT. These choices usually reflect typical courses of action open to the teacher.
3. The student makes his/her decision and enters it into the microcomputer through the keyboard. The appropriate follow-up sequence is located and presented. The response ideally depicts a rational outcome and may also lead to further critical incidents.

The three simulation packages developed and tested by the members of the team were Counselling Procedures, Classroom Communications and a Musical Critical Incident Simulation.

The Counselling Procedures Simulation was intended to train the student to deal with the following issues:

1. coping with the silent client
2. facilitating client self-disclosure
3. coping with the reluctant client
4. using open-ended questions
5. dealing with the identification and expression of affect.

Dr. S. Mandaglio, content specialist for the Counselling Procedures Simulation, observed that the simulator technology had two advantages over other available curricular aids. The first advantage of the system is that the student/counsellor is an active participant who is confronted with problems demanding some decision, and immediately sees the probable consequence of his choice. The second advantage is that the student becomes painfully aware that a client's behavior in the ongoing interview is strongly affected by the counsellor's actions and response. Other currently available aids lack these important advantages.

The Classroom Communications Simulation, the second of the projects, demonstrated and reinforced classroom procedures that helped the participant with

student control. The objectives for these simulations are to show:

1. leadership stances, e.g. positioning, standing, sitting, moving
2. presenting strategies, e.g. voice, non-verbal support, questioning
3. controlling strategies such as eye contact
4. maintenance of routine learning conditions such as procedures for distributing materials, grouping, etc.
5. verbal interaction, e.g. recognizing, reinforcing, accepting ideas and feelings.
6. varied teaching strategies.

The content specialist for the Classroom Communications Stimulation, Dr. G. Miller, observed that a major benefit of this type of simulation is in diagnosing and altering response behavior development. Another benefit appears to be the potential of simulation to assist future teachers to internalize a more dynamic and realistic concept of the teacher's leadership role in the classroom.

The Music Education Simulation, the third part of the project with content specialist, Dr. W. Buehning, could have been titled the Critical Incident Simulation since that became the focus of the materials. As used in this study, the incident is a common problem that teachers deem critical to the success of the teacher candidate. This aspect of teacher education was pursued because of the following assumptions:

1. Incidents in teaching are critical to a teacher's success are not usually encountered in regular practicum experiences.
2. It is impossible to provide certain experiences in a classroom without disrupting the progress of the class.
3. Video simulation provides an opportunity for a future teacher to vicariously interact in a conflict situation without negative consequences to a relationship.
4. Future teachers can be given a dramatic warning of likely incidents and an opportunity to reflect on their reactions through the use of video simulations.
5. Reactions to potential problems can and should be practiced in a safe environment such as video simulation.
6. Classroom management and control in music courses are different than in other subject areas because the activities and responsibilities are different.
7. Performance and academically oriented music classes make different demands on both student and teacher, (Schieman, 1982).

It is possible to justify subjecting the students to common classroom problems by stating that "forewarned is forearmed" and to assume that having considered the causes of the incident and the possible

consequences, the student would be less likely to make unreasoned responses in a real teaching role. The aims of the critical incident simulation are:

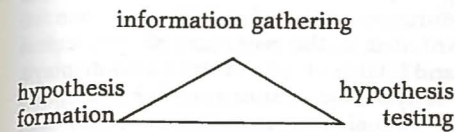
1. Students will experience incidents that have been deemed critical from a survey of teachers.
2. Students will reflect on their vicarious experiences and develop a range of alternative responses.
3. Students will practice alternate responses to the critical incidents, at least within the range included in each simulation.
4. Students will discuss factors which make some responses to an incident preferable to others.
5. The student's future teaching will be enhanced by the poise and respect gained because of his increased ability to make acceptable responses to serious and urgent problems.
6. More acceptable response will in the future lower the anxiety of the teacher's classroom and free time and energy for facilitating learning, (Schieman, 1982).

At present the students in the Music Education Simulation are instructed to study the book *T.E.T. Teacher Effectiveness Training* by Dr. Thomas Gordon. A problem is dealt with differently if considered a teacher's problem than if it is strictly a student problem. The latter is approached in a non-directive way, attempting to show empathy and to allow the student to develop to his own solution. After discussing traditional ineffective confrontations and the improvement of the environment, Dr. Gordon presents a six step directive problem-solving process for resolving conflicts when they become so disruptive that they are what he calls teacher owned. In the University of Calgary classes, some mini-lectures and discussions over the book occur during the regular classes but the University students are expected to demonstrate their understanding of the principles in the classroom simulator and teaching practicum programme held on the campus one evening a week.

Thus far the T.E.T. approach seems to be an improvement over the previous, less directive problem-solving procedure. If the interaction with the video materials is at all effective, and it seems to be, then the materials must be psychologically sound and carefully tested before being used for the large scale preparation for student teaching.

The designers in all three components of the simulation could not ignore the question of how the student's responses could be improved through the experience. The first participants were given a simple problem-solving model to guide their thought processes. The model is a triangle with the points representing information gathering, hypothesis forma-

tion and hypothesis testing. When attempting to solve a problem, a person moves from one point to either of the others. There is no definite sequence or restriction in the number of moves. Further discussion of the conceptual framework can be found in Buehning's dissertation, (Buehning, 1971).



Rationale

The ability to work with people cooperatively is not unique to the field of education, but it is one of the most important skills a teacher must acquire. For university professors whose responsibility it is to prepare educational practitioners, it remains an important challenge. Too often this aspect of a student's education has been left to chance or to the cooperating teacher to teach during the formal practicum experience. In listening to young teachers discuss what they learned during their first two years as a regular teacher, it is apparent that the skill of working with other students, parents and administrators is often ineffectively taught at the university. Knowing about human interaction does not necessarily provide the teacher with the ability to perform in a satisfactory manner. This may be one of the reasons so many young teachers abandon their chosen career. A team of instructors at the University of Calgary under the leadership of Dr. Erv Schieman decided that something unique could and should be done about this obvious deficiency.

Though a simulation facility existed on campus, it was outdated. Several recent changes in this facility have made it technologically current, therefore it was one of the most promising alternatives considered for the project. Unfortunately the results of the early research utilizing the classroom simulator was not too encouraging. A study of the materials used in that early research provided some clues. "The original theoretical basis for the technique was based on the operant conditioning model", (Twelker, 1967). The materials were developed in the belief that behavior was controlled by the environment and reflected this psychological orientation. Although later accepting the model of "the teacher as an information processing system which receives information, evaluates, makes decisions, encodes messages for the student, and transmits the message using appropriate communication channels" (Twelker, 1967), the materials were not changed to reflect this revised view of the role of the

teacher. In addition the filmed sequences were so long that the student working on the simulator was limited in the number and frequency of responses, detracting from both realism and learning opportunities.

The effect of the classroom simulator operator was important as well. This interaction between the student and the operator resembled a tutorial and the judgements of the operator had an influence on the research results, perhaps explaining why "no significant difference" findings were so common. In spite of the weakness, one study found that the simulation experience was "at least as valuable as the first two weeks of student teaching", (Cruikshank and Broadbent, 1968). "Principles which can be used in solving classroom problems can be developed through classroom simulator experience prior to the teacher-trainee's student teaching experience" (Vlcek, 1965), and that these principles do transfer to the student teaching experience. Vlcek also found that "teacher-trainee confidence in ability to teach is increased through classroom simulator experience", (Vlcek, 1965).

Instructional Objectives

Improved instructional effectiveness in the area of classroom management is the over-all objective of the use of simulation in instructing student teachers. Additional project objectives include:

- the field testing of the prototype simulation materials to determine the effectiveness in increasing the student's awareness to crisis management in the classroom.
- to assess the potential of this instructional strategy in the area of interpersonal communication skills, especially those dealing with teacher-student relationships.
- field test the simulator with a different computer/video player interface which has greater search accuracy but has additional computer programming requirements.

Equipment

The newly developed simulator being field tested at the present time includes an Apple II Plus 48K microcomputer with two disc drives and colour monitor, a Sony SLO-320 Betamax video recorder/player play combination. A variation of this basic configuration includes a high resolution black and white video monitor for displaying computer text and a large screen video projector for more life-like visuals. The system has the capability of fully-branching programmes limited only by the available space on the videotape and floppy disc.

The Apple II Plus microcomputer was selected because of its wide-spread

availability and its outstanding track record in similar applications. Also, the high level programming language, Apple-soft Basic, which closely resembles written English, was a factor for its selection. The computer programming had to be developed with three major concerns in mind. First, it was intended that the learner be an active participant in the simulation experience. Second, the delivery system had to supply the capability for the learner to randomly access the various sequences of the learning materials with a precise degree of reliability. Finally, the requirement for evaluation of both content and the delivery system had to be addressed. The impact of the content and the delivery system could only be measured with the delivery system possessing the capability to recognize and retain learner responses and elapsed time in making decisions, which could then be retrieved at the discretion of the evaluators.

Methodology

A series of trials were initiated in the spring and fall of 1981 to check the reliability of the then unproven interface and also to check the simulation logic along with the appropriateness of video segments in context with the computer text. As well, the various measurement instruments and user's guides were validated during these trials. Post-simulation questionnaires were designed to collect the subjective reactions of participants to the programme materials. Of interest to the investigators were such aspects as reaction to the delivery system, appropriateness of critical incidents used, interest and motivation of the participants and the scope of the behaviors included in the software.

Following the initial trials a formative evaluation process was begun to assess whether subjects developed a repertoire of strategies in dealing with the problem situations and a certain flexibility in applying these strategies to simulated incidents. Again, it was of interest to the investigators whether the subjects had a positive attitude towards these simulations upon completion of the programme.

Results

The analysis yielded information indicating that the simulations were well-accepted, realistic and easy to use. There appeared to be some evidence that familiarity with technological instruction systems improved attitudes to the simulation system generally. It is felt that those participants less "literate" will not necessarily react negatively to simulations of this type but this factor will certainly be scrutinized as the use of the materials continues. Any perceived threat

Continued from page 26

CLASSROOM SIMULATION
Continued from page 9

to the individual participants posed by the technology would probably force the investigators to include sensitization training prior to complete involvement in the simulation experience. After analysis there was no evidence that the simulations increased the actual number of alternative solutions to a problem that a subject considers. There was, however, some indication that subjects were more analytical and selective in their instructional decision-making after participating in the stimulation.

Summary

It must be kept in mind that the nature of the simulations dealt with in our project were such that the effects of the simulation would be experienced at some future time. As well, in all of the simulated incidents, the occurrence of conditions that would call for individuals to use what they have learned via the simulation is unpredictable. It would be highly impractical for investigators to go through weeks of observation to have a classroom incident occur which parallels the simulation and then assess whether the teacher's responses were effective. Therefore, the evaluation of the simulation materials could not practically be carried out by direct observation. The evaluation method selected involved collecting judgements by a cross-section of users. They were asked to rate various statements on a 5-point Likert-type scale. While there were deficiencies in the data which was collected and while conclusions as a result are difficult to arrive at, the exercise was a tremendous value to the project team and the participants. What this project has successfully demonstrated is that the project design can be used to develop and to deliver instruction in the area of teacher training. What is required now is additional research and further refinement of the methodology so that teacher training programmes can begin to benefit from its potential.

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COMPUTER NEWS
Continued from page 3

\$100,000 to \$1,000,000. Schools can receive roughly one program per 5 Apples, Ataris or IBM PC's. SVS will make recommendations, but schools can pick from the entire SVS catalogue.

Canadian schools should send school name, address, district, number and type of computers in use, contact person, phone number and comments to: TC Data, 2142 Trans Canada Hwy., Quebec, H9P 2N4. Telephone: (514) 683-7161.

Computer Museum

The Computer Museum is located at One Iron Way, Marlboro, Maryland, 01752. It has 3 major galleries: Super Computers from Stretch (the IBM 7030) to ILLIAC IV, the world's largest computer recently deinstalled from NASA; the Four Generations of Computing showing the evolution from the era of vacuum tubes to the microprocessor; and the Pioneer Computer Timeline with parts of the ENIAC, EDSAC and the

Whirlwind. Also on display are early calculating devices, the first transistorized computer, MIT's TX-O and the evolution of card computing starting with the Jacquard loom.

Museum services include a lecture series, gallery talks, group tours, a museum store, a quarterly publication, library and viewing room and an intern program. The museum is open Monday through Friday, 1:00 p.m. to 6:00 p.m. Admission is free. For further information, call (617) 467-4036.

CTW Introduces Children's Computer Magazine

The Children's Television Workshop is publishing a new magazine this fall designed to introduce children to computers and the new electronic technology. The magazine, called ENTER, will be the first created by CTW independent of an educational television series. It will also be the first CTW magazine to accept advertising of products and services by computer and electronic game hardware and software companies and by educa-

tional publishers — in order to provide consumers (the 10-16 year old target audience in this case) with new product information.

Editorial content will include career opportunities and issues relating to the growth of computer technology in the 80's. Features will include news articles on new developments in computer technology, career awareness profiles focusing on a wide range of professions, profiles of young people doing interesting things with computers and video games, "how-to" articles, consumer awareness features, games, quizzes and puzzles, and some simple programming challenges.

Annual subscription price for ENTER's 10 issues will be \$12.95 U.S. Single issues will be sold for \$1.50. A classroom bulk rate for teachers will also be offered.

AMTEC ANNUAL ELECTIONS

Nominations are requested for the elections to be held in 1983 to fill three positions on the AMTEC Board.

The positions are:

1. Vice-President (President-Elect)

This is a three year term, beginning in June, 1984 at the Annual Conference. There will be one year as Vice-President, one year as President and one year as Immediate Past President.

2. Member-at-Large

This is a three year term beginning at the Annual Conference in June, 1984. All nominations must be received by the Chairman of the Nominating Committee by January 30, 1984.

Procedure

1. If you wish to nominate someone:

Nominations may be made by any five AMTEC Members providing the nominee is a member of AMTEC and has signified his/her willingness in writing. A brief biographical sketch of the nominee must be sent to the Chairman of the Nominating Committee along with the nomination.

2. If you wish to be nominated:

Indicate this to five AMTEC members who will arrange to nominate you by sending a letter of their intention and your biographical sketch to the Chairman of the Nominating Committee. You must be a member of AMTEC.

All nominations must be received by the Chairman of the Nominating Committee by January 30, 1984.

Send nominations to: **Tom Rich**

Chairman, Nominating Committee
Past President, AMTEC
Director, Educational Services
P.E.I. Dept. of Education
Box 2000
Charlottetown, P.E.I. C1A 7N8