CHILDREN MOVING ROAD SAFETY TECHNOLOGY INTO THE FUTURE: SCHOOL PET (PARTICIPATORY EDUCATIONAL TECHNOLOGIES)

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1. INTRODUCTION

High school children often experiment with risky driving because of peer pressure, misjudgment of risk or alcohol and drug abuse. In South Africa, there is a shortage of road safety educational products and programmes for high school students. These students are at a stage of acquiring learner licences where they will need to develop the correct skills, knowledge and attitude for driving.

As part of the Year of Science and Technology initiative, during 1998, CSIR Transportek adopted and involved three high schools in a road safety and development project. Six teachers and 60 pupils from Eersterust High, Tsako Thabo High and Christian Brothers College took part in the SCHOOL PET Project (PET standing for Participatory Educational Technologies).

PET is a dialogical approach to learning, where both facilitator and learner are actively engaged in the learning process, in an atmosphere of acceptance and trust. Education is seen as a process of communication and dialogue. This is a problem-posing approach that leads to action for change. The approach involves techniques such as participatory theatre, modelling and mapping and various participatory group methods.

Teachers were trained in PET during two workshops, while 20 students from each participating school attended a weekend camp with project leaders Lynn Vermaak and Sammy Magolego from CSIR Transportek's Traffic Management Programme.

The aim of the SCHOOL PET project was to develop a road safety educational product, based on these techniques for high school students, in co-operation with the students. The CSIR guided the students in the research, design and development process of their products. The schools presented their products on the 14 November 1998 and were each awarded various prizes.

2. WHAT IS PET?

PET, an acronym for Participatory Educational Technologies, is a dialogue approach to learning where facilitator and learner are actively engaged in the learning process in an atmosphere of

acceptance and trust. Education is seen as a process of communication and dialogue in a problem posing approach that leads to action for change. The approach involves techniques such as participatory theatre, modelling and mapping, and various participatory group methods. Participatory educational technologies comprise the following approach:

> *A dialogical approach to learning, where both facilitator and learner are actively engaged in the learning process, in an atmosphere of mutual acceptance and trust. Education is seen as a process of communication and dialogue. This is a problem-posing approach that leads to action for change.*

This model embraces the following techniques:

- problem-posing techniques;
- participatory community theatre techniques and
- and participatory learning approaches.

2.1 Problem-posing techniques

Freire (1994: 57 - 74) compares the traditional method of education called the 'banking method' to an approach of problem-posing education. The 'banking method' refers to an approach where education is top-down and where the teacher 'deposits' information into the student. The student is seen as not knowing anything - being ignorant, not engaging in critical thinking. The teacher talks and the student listens.

By comparison, with problem-posing education, the teacher and the student are jointly responsible for the process of growing through dialogue. It is no longer a top-down approach, but a horizontal relationship. The facilitator provides a framework for thinking, creative, active participants to consider a common problem and find a solution, by means of raising questions – 'why are there so many children killed on the roads?', 'how and who?'. Participants are active in this process, describing, analysing, suggesting, deciding and planning.

Freire (1994: 75 - 85) discusses dialogue as the encounter between men, mediated by the world, in order to name the world. But dialogue cannot exist without a profound love for the world and for people, it cannot exist where there is domination, it cannot exist where there is no humility. It requires an intense faith in people and in their power to make and re-make, to create and to re-create. It exists within a mutual trust between dialoguers - trust is established by means of dialogue. Finally, dialogue requires dialoguers to engage in critical thinking - thinking which perceives reality as a process. Freire also refers to 'praxis' - the unity between what one thinks and does. Thus, he sees dialogue as a learning process consisting of a continuous cycle of action and reflection.

'Only dialogue, which requires critical thinking, is also capable of generating critical thinking. Without dialogue there is no communication, and without communication there can be no true education. Education which is able to resolve the contradiction between teacher and student

takes place in a situation in which both address their act of cognition to the object by which they are mediated.' (Freire,1994:81).

2.2 Participatory Community Theatre Techniques

Forum Theatre is a theatrical game in which a problem is shown in an unsolved form, to which the audience, 'spect-actors', are invited to suggest and enact solutions. The problem is always the symptom of oppression *(traffic safety problems)* and generally involves visible oppression *(road traffic collisions)* and a protagonist who is oppressed *(person involved in road traffic collisions or situation)*. In its purest form, both actors and 'spect-actors' will be people who are victims of the oppression (road traffic situation) under consideration; that is why they are able to offer alternative solutions, because they themselves are personally acquainted with the oppression *(everyone is a road user some time in his/her life).*

After one showing of the scene, or of the full-length play (which is generally known as "the model" or more aptly, the "anti-model"), it is shown again slightly speeded up, and follows exactly the same course until a member of the audience shouts "Stop!", takes the place of the protagonist and tries to defeat the oppressors.

The game is a form of contest between 'spect-actors' trying to bring the play to a different end (in which the cycle of oppression is broken) and actors ostensibly making every possible effort to bring it to its original end (in which the oppressed is beaten and the oppressors are triumphant).

The proceedings are presided over by a figure called the "joker", whose function is to ensure the smooth running of the game and to teach the audience the rules. However, like all participants in Forum Theatre, the joker can be replaced if the 'spect-actors' do not think he or she is doing a fair job, and virtually any of the "rules" of the game can be changed if the audience wants. Many different solutions are enacted in the course of a single forum - the result is a pooling of knowledge, tactics and experience, and at the same time what Boal calls a "rehearsal of reality" (Boal, 1979).

Forum Theatre can facilitate the community in understanding issues relating to traffic safety as well as 'acting out' possible solutions or interventions required to address the issue. It can also be used to raise awareness about traffic safety issues within the community.

2.3 Participatory learning approaches (PLA)

PLA can be described as, '...a family of approaches, methods and behaviours that enable people to express and analyse the realities of their lives and conditions, to plan themselves what action to take, and to monitor and evaluate the results.' (Institute for Development Studies, 1996: 1).

This approach has been used in many fields from agriculture to fishing. It has also been used in health education. It is used in over 109 countries worldwide and is spreading rapidly. However, with its rapid spread comes potential dangers such as low quality work, the incorrect attitudes and behaviour of facilitators, rushing and dominating, rigid applications, trying to implement it on a large scale and raising expectations of the people in the community.

There are many different techniques that can be used. PLA can facilitate the process of community members learning about traffic safety in their community through various techniques such as mapping, flow diagrams, Venn diagrams and many other techniques. The emphasis is not on the execution of the technique, but rather on the behaviour and attitude of the facilitator.

The most important aspect of PLA is the behaviour and attitudes of the facilitator. PLA depends on facilitators acting as convenors and catalysts, but without dominating the process. Many find this difficult. They must take time, show respect, be open and self-critical, and learn not to interrupt. They need to have confidence that local people, whether they are literate or not, women or men, rich or poor, are capable of carrying out their own analysis.'(IDS, 1996: 2).

3. PET PROJECT

The following section will look at the research problem statement, the objectives of the project, and the methodology used.

3.1 Research problem statement

There is a severe shortage of road safety educational products for high school students in South Africa. High school students are at a stage of acquiring learner licences where they will need to develop the correct skills, knowledge and attitude for driving.

Data shows that teenagers and youth in their early twenties, especially young males, have the highest collision rate of any age group. Youth are more likely to engage in riskier behaviour such as faster driving, tailgating and refraining from safety belt use. Youth often overestimate their driving skills, and tend to perceive themselves as less vulnerable to collisions than their peers. They also may attach priority to social interaction within the vehicle to the detriment of the driving task at hand. Adding to potential risks for selected youth are intra-personal traits, such as sensation-seeking behaviour disorders. (An Interim report, by COMSIS Corporation and The John Hopkins University, Maryland.)

Risky driving and other unsafe practices on the roadway systems do not occur in a vacuum. They occur in the context of social, cultural, developmental and other influences. (Theories that only emphasize one aspect of human development fail to explain the complexity of risk behaviour). Many parallels can be observed between youthful risk taking on the road and other

domains of risk taking such as; engaging in unprotected sexual intercourse, substance use, violence and problem drinking. Risky driving behaviour emerges as an aspect of a larger adolescent lifestyle and as embedded in the same set of personality, perceived environment and behaviour variables as other adolescent behaviours as mentioned above.

Contemporary theories of youthful risk taking consider both biological and psychological factors as important in predicting risk taking. They are placing more emphasis on social context effects on behaviour, and stress the importance to consider risk taking within a particular social context. According to Problem Behaviour Theory (PBT), the causes of adolescent risk behaviour are 'multiple interacting domains that now range from biology to the social environment'. Another major tenet of PBT is that problem behaviour is interrelated. In other words, risky driving is part of a larger pattern of risk taking for fun or thrills. Risky driving is also related to individual problem behaviours such as marijuana use, problem drinking, and impaired driving. Adolescents who tend to engage in one problem behaviour are likely to engage in others as well. Thus, it may be useful to deal with it as part of an overall lifestyle rather than as separate or discrete behaviours. **(**An Interim report, by COMSIS Corporation and The John Hopkins University, Maryland.)

Social Context Theories argue that driving occurs in a social context. A driver's perception and concerns are influenced by the presence of passengers, by other drivers, by social conventions or cultural differences, by local practices and other social context factors. Youth are very concerned about social interactions with their peers and the car is a popular setting for such interactions. Youth tend to reverse the order of first being attentive to driving and second engaging in social discourse. They willingly engage in animated conversation because of the social expectations that in-car social gatherings demand conversation. In addition, pressure from peers may downplay the driver's perceived severity of risks associated with driving, as well as exacerbate risk-taking behaviour.

Youth differ from older drivers in how they perceive hazards and in how they perceive the likelihood of a collision or injury. Young drivers, particularly young male drivers see themselves as more skilful and less vulnerable than others. It appears that younger driver's misperceptions of risk occurs at several points: they are less likely to recognize and appreciate a potential hazard; they are likely to overestimate their own ability to control situation; and they see less personal vulnerability should a collision occur.

The role of personality factors in risk-taking has been widely investigated. People who were involved in collisions were generally described as 'displaying less control of hostility and anger, less tolerance of tension, less maturity, and less conformity; more difficult with authorities figures, more hyperactivity, and more belligerence; and a tendency towards risk taking'. These relationships were found stronger for males and highly correlated with age. High school students who had been involved in motor vehicle collisions as a driver tended to score higher on the Thrill and Adventure Seeking sub scale. The relationship of sensation seeking to risky driving is also examined in the alcohol literature. Competitiveness, sense of power and control,

or more generally the pursuit of sensual pleasure for its own sake, are referred to as 'extra motives' and seemed to play an important role in the elevated collision rates for young drivers. **(**An Interim report, by COMSIS Corporation and The John Hopkins University, Maryland.)

Alcohol remains a major problem for youth. Youth are at greater risk than older drivers at all levels of BAC(Blood Alcohol Concentration). This heightened risk is often been attributed to combined inexperience with both drinking and driving. Students prone to impaired driving reported more involvement in the following: intention to drink and drive, experiences riding with an impaired driver, marijuana use, and problems with parents, friends and school because of drinking. Moreover students, who had cars available to them, were more likely to drink and drive than those who did not. Those who perceived that they could safely drive after drinking were more likely to tolerate driving with an impaired driver. Finally, those who reported a lack of confidence in avoiding an impaired driving situation were more likely to drink and drive. **(**An Interim report, by COMSIS Corporation and The John Hopkins University, Maryland.)

The above mentioned factors made it a necessity to involve high school students in the development of a road safety educational product, in the process conscientising them and changing their attitude towards road safety. PET addresses the above social and personality factors of youth, looking not only at traffic safety issues, but also interpersonal relationships of youth - building their self-confidence so that they are able to be confident enough not to participate in risky driving behaviour.

3.2. Objectives of the project

To provide all participants with a broader understanding of road-user behaviour.

S To provide the students with a practical understanding of the research and development process of a road safety product.

- To provide the teacher with additional skills and methods in the traffic safety teaching environment, in order to fit with the new educational system (Curriculum 2005).

S To enable students to be the co-developers of an advanced road safety product for high school students

- To conscientise and change the students attitude towards road safety.

3.3 Methodology

An outline of the process is presented below, and consisted of making contact with the schools, training the teachers in PET, training the students in PET, the development of the product and the final launch and competition.

3.3.1 Making contact

April 1998

Schools were contacted, and those that showed interest in the project were visited. The process

was discussed with the school principal who in turn nominated teachers who would be the school representative and the responsible person for the project.

May 1998

It was then agreed to have two workshops with the teachers in order to familiarise them with PET. The aim was also to provide teachers with additional skills and methods in the traffic safety teaching environment.

3.3.2 Teacher training

May June 1998

Two teachers workshops were held: a one day workshop was held in May, at the CSIR, to provide them with the brief of the project and the first part of PET - participatory learning and problem posing approaches. This workshop focussed on introducing them to the Freiran concept of education as discussed in Section 2.1. The rest of the workshop focussed on participatory learning approaches where the teachers built and mapped models of their schools and discussed the traffic safety problems within their school and community.

The experience the teachers had of the workshop was recorded by themselves on a group mood meter. A group mood meter is a participatory tool that is used whereby group members can indicate after each session how they felt with a happy, unhappy or 'ok' face. All categories of the workshop, indicated on the mood meter chart, had smiling faces on them, indicating a positive, good experience from group members. Verbal and written evaluations given by the teachers were:

- 'Stunning way of imparting information to a group. Doing is learning. Seeing is learning.'
- 'A great medium to convey and teach.'
- 'An exciting methodology to use in the classroom.'

Friendships were also built between the teachers of various different schools.

After the workshops, the teachers went back to their respective schools to choose 20 students from their schools to participate in the project.

3.3.3 Students Camp

The students camp took place from the 14 - 16 August 1998, at the FR Tomlinson campsite, just outside of Pretoria.

The students were transported by bus to the campsite. They arrived very despondent and unsure of what was to happen. Friday afternoon the facilitators, Lynn Vermaak, Sammy Magolego and Yudith Oppenheimer, got to know the students through various ice-breakers and participatory techniques. The project brief was also given to the students. After supper, the students were introduced to participatory learning approaches. The sixty students were split and divided into four groups. They built models of their schools in the community and during their presentations

to the bigger group, the students became very excited and started debating with other students on the causes of traffic collisions in their community. The ice had eventually been broken and the students had indicated their eagerness to learn.

The focus on Saturday, was training the students in community theatre techniques. The facilitators struggled on Saturday to break the cliques of the various school groups, but by Saturday afternoon, the students had started building relationships with students from the other schools.

Saturday evening, the students performed their various group forum theatre performances to the larger group. One forum theatre was then chosen by the students to solve. The students then had an opportunity to practice different interventions to solve the problems depicted in the forum theatre. Some students acted out very innovative ideas to 'solve' the problem situation that had been shown.

The focus on Sunday morning was on teamwork, evaluations and the way forward. Each group presented an evaluation skit of the workshop. The evaluations were all positive, some singing songs of praise, others reciting poems that they had written and some just talking from the bottom of their hearts. The students then handed in their individual evaluation forms. From the evaluations, it was clear that the group had learnt a great deal about traffic safety and that they were determined to address the issue within their own schools and communities.

The evaluations showed a change in the attitudes of students about road safety. The following were the results:
Camp experience:
$ 44 students found the camp very exciting;
$ 10 students found the camp exciting
$ 3 students found the camp 'OK'.
$ 3 students did not answer the question.
Learning experience:
$ 37 students said that they learned a great deal;
$ 18 students said that they learned something;
$ 1 student said that he/she learned a little;
$ 1 student said that he/she learned nothing;
$ 3 students did not answer the question.

The following were their comments after the workshop '*The forum theatre changed the way I thought, it made me understand better*.' (Riah). **'***Before the camp I thought about road safety as 'one of those issues'. At the camp I realised that I wanted to get involved...you can be sure that you've changed at least one person's attitude about road safety*.'(Erick) '*My mother sometimes gives me the car and now I know it's wrong*.' Lehlohonolo.

After the evaluations, the students struggled to say goodbye to one another, many running around exchanging telephone numbers with one another. The PET process had managed not only to raise their awareness of traffic safety, but has also facilitated the establishment of strong interpersonal relationships among the students.

3.3.4 Product development

From August to November the students worked at their respective schools on the development of their product. The project team assisted each school, by having regular sessions with the schools to provide any support, answer questions and to assist them with the development of their products.

3.3.5 Launch and competition

The launch of PET and the competition was held the 14 November 1998, at the CSIR Recreational Hall. A week prior to the event, the three schools handed in their product report. (Each school was provided with an outline of the structure that the report should follow). These reports were circulated to the various judges.The judges panel comprised of the following members:

- Dr H Ribbens (Traffic safety specialist, Traffic Management Programme, CSIR)
- Musa Zulu (Asiphephe Project Director, Kwa-Zulu Natal)
- Thami Manyati (Deputy Director, Department of Transport)
- Felicity Meyer (National Department of Transport, Education officer)
- Tiesie Drotske (Traffic safety education specialist, Centre for Traffic Safety Education, Potchefstroom)
- Dr Roy Page-Shipp (Manager: Technology for Development)

The judging consisted of three categories:

- evaluation of the product reports the students wrote;
- evaluation of the traffic safety exhibition the students did at the launch;
- evaluation of the presentation of their products at the launch.

Each school put up an excellent presentation, and the judges had a difficult time determining the winner. The winner of the competition was Christian Brothers College, followed by Eersterus High and then Tsako Thabo.

Each school received a prize - first place taking a laptop plus computer software packages, the second place, taking a computer and software packages, and the third place taking computer software packages and cool drinks for the whole school.

After the prize giving, the invited guests enjoyed a cocktail party, sponsored by Corporate, CSIR. The response of the invited guests was very positive, in that they were very impressed with the students' performance.

The day was rounded off by the project team giving the students and teachers a thank-you party

at the CSIR Recreational site.

4. Conclusion and Recommendations

In conclusion, the objectives of the project had been reached, namely:
All participants achieved a broader understanding of road-user behaviour.
The students gained a practical understanding of the research and development process of a road safety product.
The teachers were provided with additional skills and methods in the traffic safety teaching environment.
The students are the co-developers of a road safety product that can be used in high schools.
The attitude change of the students, as indicated from the camp results and from the project team's observations as well as the teachers' observations, also clearly indicates that PET can make a difference in promoting traffic safety amongst high school students.

However, the implementation of PET might become a logistical problem when implementing it on a larger scale, because it requires trained facilitators and takes a great deal of time to be implemented.

Bearing this in mind, the following recommendations are made:

$ A PET resource kit for teachers and trainers should be developed that will consist of a training package and videotape illustrating the various techniques. This can be used to train teachers and/or co-ordinators who can then take PET to schools. This resource kit can then either be used at schools to promote traffic safety, or be run as a competition, locally, provincially, or nationally.

$ PET should not be limited to schools only, but is flexible enough to use in other fields of traffic safety.

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Figure 1: Students that participated in the School PET project.

Figure 2: Students getting to know one another

Figure 3: Students with their map of Mamelodi

Figure 4: Students discussing the traffic safety problems in Eersterus, using the mapping technique.

Figure 5: Students evaluating one of the sessions by means of a participatory evaluation technique.

Figure 6: Students debating what can be done in the Eersterus community to stop drinking and driving.

Figure 7: A theatre exercise in action.

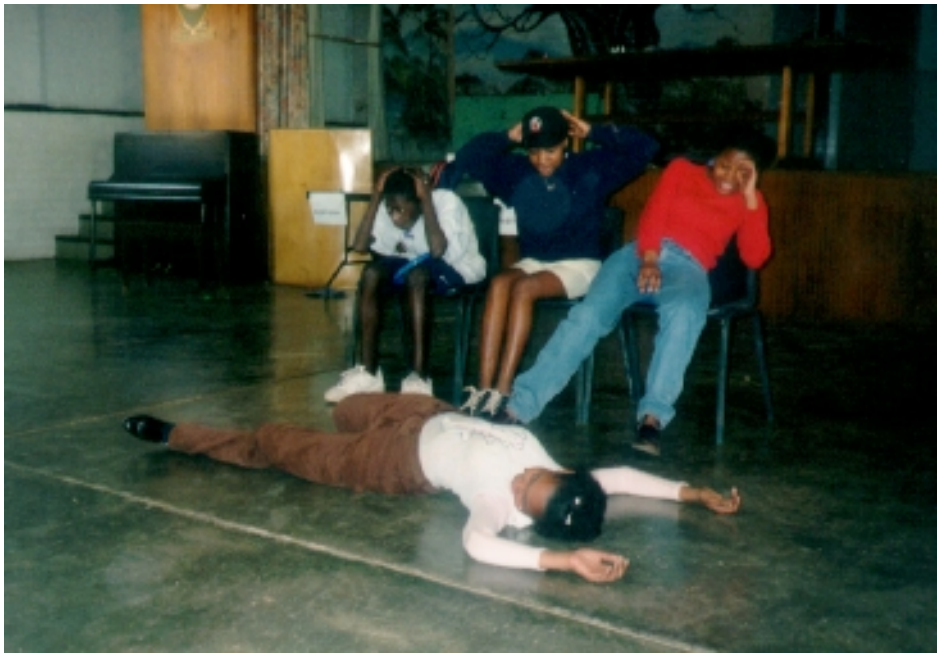

Figure 8: Students acting out a taxi collision by means of image theatre.

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MA (Soc Sc) specialising in community development, October 1998, at UNISA (Achieved distinctions in Community development)
Presently doing a doctorate in community safety, at University of Pretoria.
Train-the-Trainer Diploma, Damelin, 1998.

ADDITIONAL INTERNATIONAL TRAINING:
Training in Boal community theatre techniques, by Agusto Boal, in *Baltimore, Maryland, USA*
Rural and Urban Participatory Appraisal *(Kamal Singh, UK)*
International course on Injury control and safety promotion, presented by *W.H.O, S.I.D.A and I.I.T.D, in Delhi, India.*

KEY COMPETENCY AREAS:
Facilitating community development processes
Using participatory techniques with communities, in terms of needs assessment, planning, implementing and evaluating with the community.
Trained in community theatre techniques to facilitate community education and awareness.
Training of trainers and government officials.
Presenting workshops on community safety.
Developing appropriate community technologies for traffic safety.
Community consultations.