Environmental Education Education and Self-concept: A Focus on Deaf Students (E.E. and the Deaf Self-concept)

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Introduction

To date there is a lack of research literature which indicates how environmental education is best implemented for people with a hearing loss and the contributions environmental education can make to their education and personal development. This research study focuses on environmental education for deaf students, taking into account low self-concept experienced by deaf individuals.

It should be noted that the terms 'deaf' and/or 'hearing-impaired' are used by authors for their descriptions of people with a hearing loss. These terms may be distinguished as follows:

> The generic term hearing impairment can be used to define a hearing loss at any level and the term deaf, on the other hand, is restricted to hearing loss that renders reception of speech nonfunctional (Simeonsson 1986, p. 196).

Self-concept and the deaf

Garrison & Tesch (1978, p. 457) in their discussion of self-concept and the hearing-impaired, suggest that:

> The self concept begins and continues to develop from the earliest kinds of experiences that an individual has with his or her surroundings, particularly those involving interpersonal relationships.

Self-concept begins to develop early in life and may be affected by different experiences and relationships. The self-concept may be defined as follows:

> A personal judgment of worthiness that is expressed in the attitudes the individual holds towards *himself* (Coppersmith in Cates 1991, p. 354); or

> An enduring characteristic or trait, maintaining coherence in the individual's self-system (Epstein in Cates 1991, p. 354).

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This sense of worthiness is an important component in the lives of hearing and deaf people and many authors have discovered deaf students consistently display poorer self-concepts than their hearing counterparts (Craig 1965, p. 470; Garrison & Tesch 1978, pp. 457-466; Loeb & Sarigiani 1986, p. 97; Cates 1991. pp. 354-359). Oleron (in Leitman 1986, p. 13) suggests the feelings of inferiority experienced by deaf individuals is due to the close connection normally existing between language and abstract thought. Mykleburst (in Garrison & Tesch 1978, p. 458) further argues deafness limits interactions and linguistic feedback from the social environment, thus affecting the development of self-concept. Interactions within the family environment and certain social interactions may often carry with them negative connotations about being hearing-impaired and therefore may affect self-concept in those who are deaf. Garrison & Tesch (1978, p. 458) identify the fact knowledge pertaining to one's self is dependent upon experiences with others. It is through these interactions that feedback and expectations regarding the self may be obtained.

> If individuals possess handicaps that carry with them negative social connotations, they may learn to regard themselves with the same negative connotations that society attributes to their handicap (Goffman in Garrison & Tesch 1978, p. 460).

This suggests if the hearing-impaired are treated as handicapped, they soon begin to believe they are handicapped. From an educational perspective, self-concept must be considered when educating deaf students. Luckner (1989, pp. 45-49) showed that through group interaction and outdoor adventure, the self-concept in the hearing-impaired was enhanced. The educational significance of enhancing the self-concept of hearing-impaired became apparent during a study conducted by Naiman (1978/79, pp. 147-149). Naiman noted a change in learning abilities occurred once self-esteem had been improved. Naiman used photography to help children increase interpersonal communication. This approach allowed students to express themselves and communicate with other students and family members. The students experienced success, thus enhancing the self-concept.

Educators of deaf students aware of poor self-concept in their students could work to improve this through exposing students to learning situations where they will experience success. The following section outlines environmental education strategies which complement strategies used to educate deaf students. These strategies were used as a guide to developing an educational experience for a particular group of deaf students.

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Environmental education strategies for deaf students

The following environmental education teaching strategies outlined in the Tbilisi Declaration correspond closely with several strategies for educating deaf students. This correspondence is illustrated below:

> 1. Environmental education has direct first-hand experience at its core. Direct sensory, aesthetic, and practical experiences should be integrated with learning in and outside of the classroom (Tbilisi Declaration 1978, pp. 4-5).

This objective corresponds with using a multi-sensory, experiential learning processes where it is suggested that deaf students be exposed to action, reflection and application components from the experiential learning model (Quinsland, Pomeroy & Van Ginkel 1985-87 p. 10, Quinsland & Van Ginkel 1990 p. 281).

> 2. Environmental education is student-centred allowing students to contribute to the planning of their own learning experiences (Tbilisi Declaration 1978, p. 3).

This objective corresponds with the description of the hearing-impaired individual as interested in themselves foremost (The National College of Teachers 1978, p. 13). Therefore, it is suggested that the teacher use materials that are personalised and which motivate deaf students.

> 3. Environmental education uses problem solving and critical thinking as a means of exploring alternative solutions to real issues (Tbilisi Declaration 1978, pp. 3-5).

This objective corresponds to Bloom's six levels of cognitive hierarchies (in Quinsland & Van Ginkel 1990, p. 281) which suggests hearing-impaired students work through levels of knowledge, comprehension, application, analysis, synthesis and evaluation in order to become abstract thinkers. By applying these levels of thought to environmental education, the student becomes involved in a problem solving process.

> 4. Environmental education generates action by encouraging individuals to take responsibility for the care and shaping of their own environment (Tbilisi Declaration 1978, p. 2).

This objective also corresponds to the experiential learning model (Quinsland, Pomeroy & Van Ginkel 1985-87, p. 10; Quinsland & Van Ginkel 1990, p. 281) where action or doing is seen as providing deaf students with the basics required for grasping an abstract concept.

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> 5. Environmental education uses a variety of teaching and learning strategies and resources including field study, simulations, action research, using information technology, and residential experiences (Tbilisi Declaration 1978, pp. 3&5).

This objective corresponds to use of novel stimulus and role-play to encourage learning in the hearing-impaired as suggested by The National College of Teachers (1978, p. 13).

> 6. Environmental education has a community orientation involving individuals outside the school wherever possible (Tbilisi Declaration 1978, p. 2).

> 7. Environmental education promotes group participation to allow people to be actively involved in environmental decisions which affect them (Tbilisi Declaration 1978, p. 3).

These objectives also correspond with the experiential learning model were action, reflection and application are important components. These skills may also be applied to other issues affecting deaf individuals, for example, social justice issues.

The environmental educator is encouraged to consider those objectives and teaching strategies which complement strategies used to educate deaf students. The strategies outlined above are seen as useful for stimulating learning in the hearing-impaired and for the preparation of individuals for participation in real life issues.

The research goal

One goal of this research was to enhance self-concept in the hearing-impaired. Environmental education was used as a tool for achieving this goal. Through the use of environmental education teaching strategies, students were involved in environmental activities within the community. It was envisaged through feeling a sense of achievement, students may develop positive feelings about themselves and their new found knowledge.

Research methodology

Action research was chosen for this research study due to its underlying quality for improving the social and educational practices of participants through self-reflective processes. An active investigation process (see appendix 1) of action research was used by the teacher as researcher as a guide to planning and reflecting on lessons. Students were also involved in the active investigation process while studying a local issue. This method was seen as a valuable procedure for students to work through as it allowed

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them to become involved in group participation, negotiation and problem solving exercises.

Research analysis

On completing the data collection phase of the study, the researcher endeavoured to find comments which indicated students had experienced self-concept enhancement. Data sources were: audiotapes made during class discussions; the group participation assessment sheet; case study assignments and questionnaires administered to students. These comments needed to indicate students had experienced an increase in confidence during the course of the activities, and were used to support the claim that environmental education teaching strategies may be used to enhance the self-concept in hearing-impaired individuals. Comments which indicated low self-concept were also noted and were used to support the claim that deaf people have low self-concepts. Attempts were made to verify what the teacher as researcher had observed and noted in the diary with what the students had perceived and written. To maintain confidentiality, those students whose comments were used have been assigned an alias.

Research group

The participants in this study were students enrolled in the Certificate of Adult Tertiary Preparation Program within a Queensland TAFE college.

The research group was chosen because they were all enrolled in CTP122 Environmental Studies, the subject taught by the researcher. There were nine students, five females and four males, ranging from 18 to 24 years of age. All students had some degree of hearing impairment ranging from mild to profound. One student was also visually-impaired. Modes of communication varied according to student's degree of hearing loss. Two students relied on sign language, two on lip-reading, three were oral/aural with residual hearing, and two used total communication.

The researcher also served as a data source in this study. The researcher was involved in collecting data from the student group and through a personal diary. The researcher recorded information and reflected upon her own teaching processes throughout the course of study.

Implementation--the curriculum

Lesson rationales

Students indicated early in the semester that they were interested in studying recycling issues. During class discussions, students said they were also interested in doing survey work. With these thoughts in mind, an outline for possible lessons was developed which would not only complement environmental education objectives and strategies, but also those teaching strategies most effective for teaching the deaf. A series of

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six lessons were developed using the active investigation process as a guideline (see appendix 1). This process was essential because the program could be changed or modified according to student needs or group decisions.

Lesson one

Lesson one involved students in the first three phases of the active investigation process, that is, the identification, negotiation and motivation phase; the exploration phase; and the framing question phase. Students were given background information about the issue and were asked to analyse a newspaper article in order to identify possible key players in the issue. These activities were designed to allow students to examine the political and underlying values behind the issue. The critical examination of an issue is identified as an essential objective of environmental education in the Tbilisi Declaration (1978, pp. 1-9). This activity also aimed to develop the knowledge base or level one of Bloom's cognitive hierarchies noted as being an important step on which to develop further knowledge in deaf students (Quinsland and Van Ginkel 1990, p. 281).

After examining the background information for the chosen issue, students developed a list of questions they wanted to see answered during the course of the study. Students then suggested possible ways they could begin to find answers to the questions. This established the beginning of student-centred learning recognised as one of the essential principles of environmental education (Tbilisi Declaration 1978, p. 3). The focus on student-centred learning complements the need for deaf to learn with material and methods which are personalised and relevant to them. Students decided that some of the questions posed during the lesson may be answered through the use of a questionnaire, a technique they had never used before. Student suggestions became the basis on which subsequent lessons were developed, thus maintaining student-centred learning.

Lesson two

Lesson two involved students in the framing question phase, the gathering information phase and the reflection and evaluation phase of the active investigation process. In the framing question phase, students discussed and negotiated the questions which were to appear on a questionnaire, while the teacher acted as facilitator. A draft questionnaire was developed and piloted within the TAFE environment. This resulted in the re-writing of some questions. In the gathering of data phase, students decided on the number of people to survey and the place the survey would be administered. The Queen Street Mall, Brisbane, was chosen as the location to conduct the community survey and this activity became lesson three.

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Lesson three

The gathering information phase continued in lesson three and students moved into the wider community to obtain information for their local issue case study. Through these opportunities, students were able to feel an element of success, thus enhancing their self-concept. It must be noted that a major concern during this phase was the possibility of the exercise turning into a negative experience. For students to be rejected by those who were asked to complete a survey form, negative feelings about one's self may be created. For this reason, students were encouraged to discuss how people might react to being asked to complete a questionnaire. A series of questions were directed at students to explore how they thought people would react to being surveyed. This step was necessary so that students would not expect all positive responses as they had received during the pilot study. These discussions served to protect the students from any feelings of negativity which may hinder the development of the self-concept.

This information gathering process also made use of an alternative learning environment as students moved out of the classroom and into the community in order to gain hands-on experience in a real life situation. The utilisation of diverse educational environments is a guiding principle of environmental education (Tbilisi Declaration 1978, p. 3). This principle also complements the education strategies for deaf students, using a multi-sensory, experiential learning processes (Quinsland, Pomeroy & Van Ginkel 1985-87, p. 10; Quinsland & Van Ginkel 1990, p. 281).

Lesson four

Lesson four involved students in the analysis phase of the active investigation process. Students discussed and negotiated possible ways data could be compiled and analysed. Problem solving skills would be called into play during this phase with students becoming involved in data analyses. Problem solving was identified as an important factor in environmental education as students acquire skills necessary to discover causes of environmental problems within their own community, as well as at national and global levels (Tbilisi Declaration 1978, pp. 1-9). The data analysis phase also complements level four of Bloom's cognitive hierarchies, that is, the analysis and breaking down of knowledge into component parts and identifying relationships which may exist.

Group co-operation, an important principle of environmental education, was used during this phase of the course. Students needed to compile the data from one hundred surveys, this meant each student needed to complete their particular task efficiently for the benefit of all.

At the completion of lesson four, students had gathered statistical data which would enable them to answer questions from one aspect of their study. The next phase of the process was to decide as a group how to

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answer questions relating to other aspects of the study.

Lesson five

Lesson five involved students in the reflection and evaluation phase of the active investigation process. Student reflected on the survey they had just completed and then drew on the experience in order to suggest possible courses of action to be taken in an attempt to answer other questions posed. These questions related to the processing of materials during recycling and students felt an excursion was needed to answer these questions. In the true nature of environmental education, the learning experience was student-centred as students decided on the venue for the excursion and organised the time and date for this trip. Two students with mild to moderate hearing loss used the telephone to organise the excursion, while the other seven students wrote a list of questions they would ask at the excursion site.

Those students involved in the telephoning and organisation of the field trip gained the feeling of success having accomplished what they had set out to do. The venue chosen was a glass recycling plant and the excursion formed lesson six.

Lesson six

Lesson six moved back into the gathering information phase of the active investigation process. This excursion again allowed students to move out into the wider community to learn rather than be restricted by the confines of the classroom. Students were shown videos relating to the glass recycling process before being guided through the recycling plant. During the tour, students could see the actual process, they were visually stimulated, a requirement for educating the hearing-impaired (Leitman 1968, p. 12). Students asked the questions they had posed in previous classes, as well as new questions that stemmed from the glass recycling plant tour. Students achieved a sense of accomplishment having answered those questions they had posed previously.

Research results and discussions

This discussion will show that poor self-concept was evident within this particular group of deaf students, and that there was an improvement as students participated within a local issue case study.

There were moments during the program where student comments indicated that there was indeed a self-concept problem within this group of deaf students. One example occurred during early discussions, students were brainstorming in order to develop a list of questions they wanted to see answered during the course of the study. At this point, a profoundly deaf student was offering her suggestions to the group and suddenly realised that all attention was focused on her. The students lost her line of

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thought and stated:

> I'm shy. I don't know. Everybody is looking at me! I don't have the confidence... (Jenny, audiotape 17.9.92).

Jenny did not finish what she had set out to say. The student had lost all confidence to continue the suggestion. Jenny's reaction related to sense of worthiness and poor self-concept discussed by Craig (1965, p. 470); Garrison & Tesch (1978, pp. 457-466); Loeb & Sarigiani (1986, p. 97) and Cates (1991, pp. 354-359). Her lack of confidence may be related to past negative interactions with others. These interactions may have affected feedback and expectations regarding the self, a point raised by Garrison & Tesch (1978, p. 458).

Another comment relating to low self-concept was written during the post-student questionnaire after students had completed their survey exercise in the Queen Street Mall. Janet stated that:

> A lot [of people] were rude. A few, like half, really nice. Lots and lots of rejects that I can't help feeling were because of me (Janet, student post-survey 3.9.92).

Other students experienced similar feelings during the survey exercise as a result of people not responding to their surveys. The researcher noted that:

> The time I spent with students focused on consoling and encouraging them to keep trying since many had three to four rejections before they were able to find someone to complete their survey (Teacher, Action Research Diary 3.9.92).

During the course of the study, students also indicated an enhancement of the self-concept had occurred. One student in particular showed a definite increase in confidence. Prior to the survey that students conducted in the mall, Angela stated that:

> I feel so heart beat and thinking will I get to stop people and ask the answer the questions. If I done few times I think I am gonna be alright and meet new face (Angela, student pre-survey 3.9.92).

At this point it is worth noting the use of language by deaf people. Hearing impairment often results in difficulty with language (Warren and Hasenstab 1986, p. 289). Angela indicated that she was nervous by saying 'heart beat', and that she felt that after completing a few surveys she would be alright. After completing the survey exercise and a case study assignment, she stated:

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> I feel so good to present my survey to people in city mall but first thing I feel so a bit nervous because I have to meet new person but a new person see me and I was a bit shy, when I uses a few time to survey and I feel so great and I like it as I care for the environment as I feel very comfortable to do my survey as more then this. I think everyone who like the survey because they seemed so confident with group work (Angela, Case study assignment 15.10.92).

This comment indicated that although Angela was shy and nervous to start with, after experiencing some success, her confidence developed. Martina experienced similar feelings during the survey exercise and after the event stated:

> I think it was very discouraging when people turn you down. I thought, 'I don't want to do this!' but then I thought, 'I want to do this!' I was determined to get it done (Martina, audiotape 3.9.92).

The element of success was one desired effect of this activity so that the self-concept would be enhanced. The fact these students were able to express themselves freely in the assignment and during class discussions and had experienced success during the activity, related to the similar experiences and feelings of Naiman's (1978, pp. 147-149) students who had enhanced their self-concept. Angela's perception of others in the class was one of increased confidence which suggested this activity was effective in enhancing confidence and self-concept of this particular group of deaf students. The aspect of success was also described as a valuable source of motivation by National College of Teachers (1978, p. 13).

Further indication of increased confidence was observed and noted in the teacher's action research diary. During the planning of, and visit to the glass recycling plant, events which suggested that students were experiencing success in their endeavours were noted:

> They [the students] were very receptive and at question time, managed to ask many questions other than the ones we wrote before the semester break. They did not seem at all shy, in fact they were very comfortable and managed a joke or two (Teacher, Action Research Diary 8.10.92).

It seemed all students were confident enough to ask questions and enjoyed this type of learning situation, that is, being outside of the classroom and in a new environment. The utilisation of community based education is one of the teaching strategies of environmental education (Tbilisi Declaration 1978, pp. 1-9).

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In conclusion, it would seem that the self-concept of deaf students can be enhanced through the seven objectives of environmental education described earlier in this paper. These findings have been based on the teacher as researcher's observations of apparent increases in self-confidence and enjoyment displayed by the students during the course of the research study.

The implication of these findings are important for teachers working with deaf students. Educators who are aware of the effects of poor self-concept on deaf students, can design experiences which will promote success and enhance self-concept of the deaf. The environmental education strategies that were the foundation of this study, are strongly recommended when designing these new experiences.

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APPENDIX 1

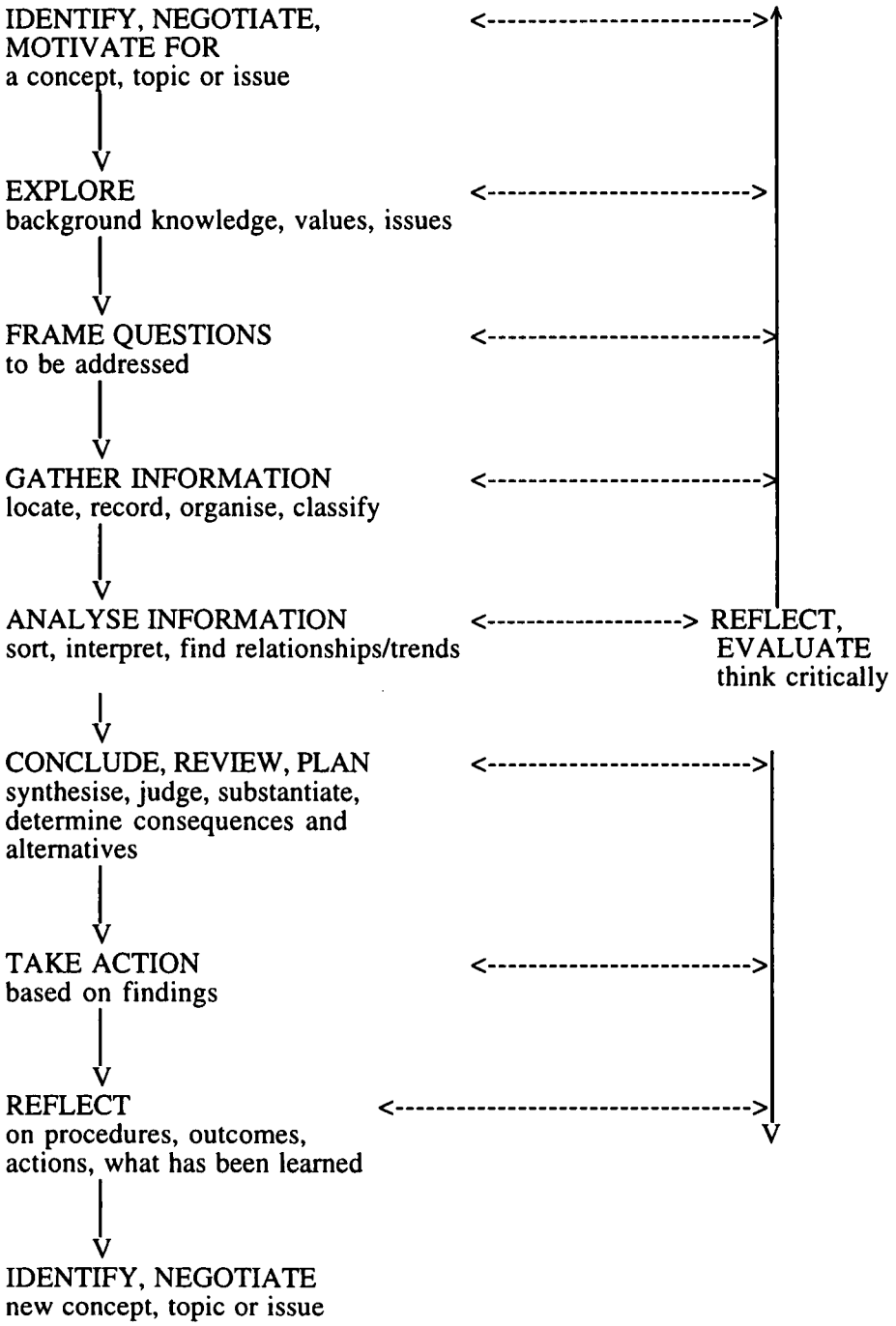

FIGURE 1 (from the draft P-12 curriculum for environmental education)
AN ACTIVE INVESTIGATION PROCESS FOR ENVIRONMENTAL EDUCATION

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