

Sea Atelier: An Environmental Education Program

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ABSTRACT

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Seashore inhabitants do not know the environment they live nowadays, ignoring surrounding natural and cultural phenomenon, mainly their limitations knowledge. Technical and scientific formal education using materials ignoring integration between human and his environment does not solve sensibility process to behavior changing relating to sustainability of the ecosystems where he lives in. This time formal education is against human free expression decreasing creative potential and does not search an integration with the environment. Environmental education happens due to educative rules and actions in order to acquire knowledge, attitudes and values which recognize the conservative ideology exposure (BóLOS, 1992). As well artistic expression needs seems to be as biological, universal and durable, as feeding necessities (CAVALCANTI, 1981). The "Sea atelier - program to environment education", has with objective, to provide knowledge and sea coast valuation, through different integrated activities supporting fundamental, medium schools as well as local special education or other distinct groups. The development of the programe have succession of 4 stages: Contacting the Environment, Audiovisual Information, Contact Aquarium and Interpretation Atelier. The Sea atelier allows that all ages and social classes are contemplated and there are cases that elderly people showed artistic gifts that they did not know because of lack of opportunity. The Sea atelier fundaments (living, feelings and creation) revels grate didactic-pedagogy to environment education.

ADDITIONAL INDEX WORDS: *Environmental education, contact aquarium, audiovisual information.*

INTRODUCTION

Water is a fundamental element for life, and the sea is its best representation. It always fascinated and supported human beings in all word, turning it margins into favorite living places almost like its habitat.

This fact is documented by indigenous population vestiges, which were testimony of the millenary occupation of coastal regions through a historic process involving several generations searching for a better adequacy to the environment, generating valuable information about this environment.

By being attractive to humans, this magnetism to coastal areas also promoted, in Southern and Southeastern Brazil during the colonization period, the substitution of the natives by exogenous population. This substitution occurred culturally, and did not take into account the relation of humans with the environment.

As a result, Southern and Southeastern population that occupies Brazilian coastal areas, are unaware of the environment they live in, ignoring natural phenomena on which they are involved and the consequences to its quality of life.

This program seeks to ameliorate the relationship of the individual with the environment through the perception of different integrated activities, comprehending its capacity of transforming natural environment and the necessity to conserve it and recover it.

METHODS

As it is localized on a privileged region, representing several coastal ecosystems nearby, this program raised on a spontaneous manner. This was a result of the gradual increase of visitations to the Mariculture Experimental Center from do Vale do Itajaí University in municipality of Penha, Santa Catarina State (Brazil) by regional schools.

These schools were interested to search for knowledge on the work done by this institution. As one of the objectives of this Center is to diminish the effects of predatory fishing over the marine environment, this program was found to be a manner of promoting knowledge and value about elements of the natural environment, applying Environmental Education techniques on

young community citizens.

The "Sea Atelier" does its activities in "Armação do Itapocoroy's Bay". Since 1996 this program attends firstly students of the Basic Education, Median Education and Special Education, and in actuality attend all social groups of all ages.

The program is based in the works of AB' SABER (1991) and BOLÓS (1992) in the interpretation techniques, through four sequential stages considered the basis of the work (Figure 1).

Stage 01 : Contact with the Environment

As soon as they enter the reception, students are conducted to a walk with the objective of having a critical view of the environment, where the conductor presents it, calling attention to its qualities, seeking to value each landscape. This way, natural aspects are perceived through the coast line (water and sky colors), islands, rocky coast (algae and animals therein), beach and the vegetation all through the Atlantic Rainforest in the mounts and aspects of private human occupations (boats, mariculture areas, houses, restaurants and bars), public infrastructures (streets, walkways), deforested areas, sewage and other.

Stage 02: Audio-visual Information

Returning from the walk, it is realized a lecture and video/slide presentations are shown about the marine environment and its living beings. Also technical oceanographic information are given, with the objective of providing some information of scientific character, adapted to public targeted, about natural characteristics of the environment and the transformations imposed by human activity in the region. It is saliented that the quality of its inhabitants, from human, fish or mussel, it is a direct reflex of the environment on which they live.

To interested schools, this stage has a professionalizing character, as it is detached the mariculture activity as a self-sustainable activity.

Stage 03: Contact Aquarium

This is one of the most interesting and important phases of the process of awareness, where students have the opportunity of touching and seeing the organisms that inhabits the costal zone.

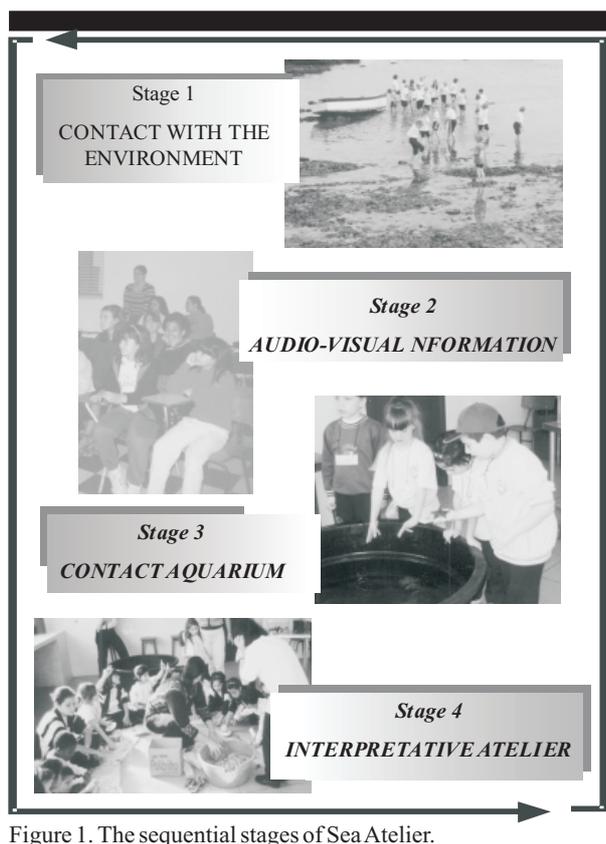


Figure 1. The sequential stages of Sea Atelier.

Under environmental professional orientation, frequently found organisms such as algae, sea stars, sea urchins, mussels, sea anemones, barnacles, crabs, fishes and other, are displaced inside a aquarium (3 x 1 x 0.3 meters of water column).

These organisms are manipulated, being presented by its common and traditional names. According to the targeted public, information about species feeding, locomotion and reproduction on natural environment and anatomic peculiarities are given.

Following, the conductor of the program, with caution to show that the organisms do not harm, transmitting security and understanding, stimulates the public to grab organisms and feel with fingers touch its texture and reaction.

Stage 04: Interpretative Atelier

This phase has the objective of permitting the expression of sensations lived on the previous phases through the influence of visual, intellectual and touch stimulation. This would create objects that reinforce the bond of students with organisms and the marine environment. Thus, different ateliers, with different materials are mounted with clay, gouache or conchs according to student's age. However due to the diversity of the public, this stage tends to absorb and implement several other forms of expression.

RESULTS AND DISCUSSIONS

The Sea Atelier received throughout these 8 years of operation, approximately 900 school students and a diversity of other clients such as aged people, housekeepers and socially excluded persons. Several municipalities and schools were received, having an influence a ray of 200km.

Because of its geographic characteristics, the Sea Atelier is localized on a privileged environment, with the presence a diversity of ecosystems nearby its proximities. Teaching techniques, although they are little sophisticated and are not included on formal education, showed acceptance by teachers, observed by the frequent return of schools to the program, bringing other students.

The succession of stages showed to be adequate, as it

displaces immediately the students in contact with the environment, permitting that the excitement with the expectative with the visit to the Center can be gradually dissipated. It also gives to the participants the chance of exposing their experience and to conductors to explore the attention to the objectives of the program.

The technical information transmitted through audio-visual equipments allows schools with little resources to show its students a new way of learning and consequently be interested by other subjects. Besides being basic that the conductor has sufficient knowledge to attend different age classes, he must perceive the public participation, stimulating with questions and observations during the lectures.

The contact aquarium is certainly the stage of further interest, requiring wide ambient, with shallow and wide aquariums so that everybody can see organisms without causing accidents. This is important as the contact aquarium can be further used to observe organisms behavior, being even more efficient on reaching the objectives

The opportunity of direct contact with algae and marine animals raises the curiosity to morphological characteristics of organisms, mainly resulting on a loss of fear and the creation of a sensation of integration with organisms and consequently with the environment through the physical touch among the two beings (human and animal).

Algae (*Ulva sp.*, *Sargassum sp.* and *Codium sp.*) can be used as forms of stimulating the contact with other organisms or to the observation of small size species which normally associates to them in great number, being one of the principal forms of feeding to herbivores and carnivores living in the aquarium. The barnacles (*Balanus sp.*) which although being immobile possesses a filtering feeding strategy extremely active and the sea anemones (*Bunodossoma sp.*) have a slowly movements with yours tentacles

Specifically to specimens that are handled, it is suggested organisms of up to 5cm, because they may not cause fear and by the fact that they adequate further to aquarium conditions, facilitating its maintenance. Recording always inside this group there are some picturesque organisms but which are not recommended to manipulation

Due to its environmentalist finality, it must have a special attention with the organisms used on this stage, from collection on natural environment to aquarium. Preference should be given to individuals coming from marine cultures and those associated to them, preventing to collect rare or natural environment specimens.

Among these organisms we can find mussels (*Perna perna*), oysters (*Crassostea gigas*) and pectens (*Nodipecten nodosus*), all cultivated in the area, and barnacles, crinoids, ofiuroids, several crabs, polichaetes and fishes as the cryptic blennides, whose occurrence is abundant on culture structures and can be used also to anatomy classes.

Other interesting sources of organisms to contact aquariums are those coming from commercial trawl fishing, effectuated by artisanal fishermen, like shells and sea-stars (*Loimia sp.*).

Although collected on natural rocky shore, it is suggested the species of sea urchin *Echinometra lucunter* because it is resistant to handling and to aquarium survival.

Technical knowledge about feeding preferences of each animal group used in the aquariums is fundamental to prevent predation or death by inadequate artificial feeding procedures.

Also the time or permanence of these organisms in the aquarium is characteristic of each species. Some of them adapt to aquariums but it is recommended that even these must be maintained at the most fifteen days so that their reproductive cycle is not interrupted.

As the objective is to raise a conservationist feeling, the interpretive Atelier is the stage where it can be observed the result of all the previous phases of the program, as much as in the object created as on the behavior change.

Through the dynamic characteristic, the Sea Atelier must be starting to attend the tourism sector because as well as every human activity that uses directly natural resources, it depends on the environment, and to recognize environmental limitations

contributes to preventing it from being a unsustainable in the municipality.

CONCLUSIONS

The formal education, with technical and scientific character and employing materials that ignore this integration of the human being with the environment and mainly with the particular and important aspects of the Brazilian coastal environment.

Where these populations inhabits, will not solve the process of sensitization to changes of behavior related to sustainability of the ecosystem they live in.

The respect relation promoted by the fear of potential physical consequences caused by the contact with unknown

organisms must be substituted by affection feelings and never by disdain before the discovery of an inoffensive being. Thus, actions that involve contact aquariums must have as principles ethic questions, considering every being of equal degree of importance.

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