

THE AQUALEX PROJECT

Margaret Eleftheriou
Institute of Marine Biology of Crete
P.O. Box 2214
Heraklion, Crete

ABSTRACT: Project AQUALEX is a multimedia project funded by the EU programme LINGUA. It is very near to completion. AQUALEX is a dictionary in four European languages: Greek, English, German, and French. It is capable of being used at different levels as well as on different platforms. It comprises an aquaculture glossary of 2500 core terms, which have been defined and translated by a team of international experts. However, even in the initial print format and the simplest user level it differs significantly from the previous contenders in this domain, in that each term, technique, and process is fully explained; there are not mere translations in this dictionary.

Independent learning; self-directed learning; open and distance learning (known as ODL in Eurospeak): these are some of the buzzwords in the vocational training jargon of the mid-nineteen nineties. However, few of the decision-makers who bandy the words about appear to be aware of the close links that such types of course provision have with resource-based learning. Thus, the crucial role of the library and its resources in a well-planned distance learning course is nearly always ignored. This attitude is perhaps understandable, given the conventional view of the traditional library, that "warehouse of our communal memory," in Carl Sagan's telling phrase. However, in the last few years the pace of change in information technology has accelerated, transforming the role of the library; the need to adapt to these changes has led to radical structural changes, with the introduction of innovative techniques that revolutionise the management of information.

Though the online facilities being developed by public and academic libraries present only one feature of these changes, it is the one most relevant to the provision of well-planned distance learning courses.

From the very start, the AQUALEX partners kept in mind the possibilities inherent in the latest information retrieval and transmission techniques. The AQUALEX project first took shape in the summer of 1992, in bilateral discussions between the Institute of Marine Biology of Crete in Greece, and the Institut für Meereskunde at the University of Kiel in Germany, in an attempt to respond to certain anxieties expressed by institutions and organisations teaching/ delivering courses in aquaculture. One such anxiety concerned the lack of a commonly accepted, agreed body of aquaculture terminology in English.

The need for this type of glossary had been noted first of all by Professor Harald Rosenthal, Head of the Department of Fish Biology at the Institut für Meereskunde; consequently, in his dual role as Chairman of the Mariculture Committee of the International Council for the Exploration of the Sea (ICES) he had made himself responsible for a preliminary collection of lexical items falling into this category (ICES, 1990) (1). The resulting AQUALEX proposal (to produce a CD-ROM combining a four-language collection of aquaculture terminology with an open learning multi-training package) was accepted as an Action III Project by the LINGUA Bureau, part of the Task Force for Human Resources (Education, Training and Youth) of the European Commission, and scheduled to start on January 1, 1993.

Now, three years later, AQUALEX, an interactive glossary available for Macintosh and IBM PC compatibles on 3.5 inch diskettes, provides a full explanation of common and uncommon aquaculture terms, roughly 2500 in each of four languages - English, French, German and Greek. The software supports searches to be made for a specific term, the execution of which will bring to the screen simultaneously the term in all four languages (including Greek if Greek fonts are installed). It is also possible to search for specific terms throughout the entire text of the glossary. The search is carried out in the language of the request and the terms and definitions found can be retrieved in any of the four languages. Since November 11 1995 a demo version of the letter S has been available online, based on the stand-alone computer application referred to above.

All 10000 terms have been recorded in high-quality native speaker sound on CD-ROM. The application has a feature which allows users to listen to the term in the desired language, to record their own version and then to compare it with the original. This facility has already proved popular with those students who have tested the beta version (the testers were chosen from those who travel abroad on university exchange programmes).

The funding programme LINGUA specifies that a preliminary Language Needs Analysis be included in the project, in an attempt to gain an overall picture of the characteristics, resources and needs (including linguistic needs) of the target end product users. Previous to the submission of the proposal, the project partners had already established the existence of a variety of potential users throughout Europe, who needed to learn new terminology (and thus new concepts and techniques), or to improve the knowledge they had already acquired. For instance, in 1992, the University of Cork had carried out a training needs survey in Ireland (2) in the course of which the desirability of running courses for new operatives, as well as refresher courses, was recognised.

The partners were of the opinion that the collection of terminology had itself been a response to the expressed needs of users; many potential glossary users wished to use it to fill a gap in their *native* language knowledge.

Perception of needs develops from what are seen as educationally worthwhile aims. Though economic success or failure often depends on a well-trained work force, fish farmers are somewhat equivocal in their attitude towards training; they are perfectly aware of the benefits accruing from good courses, and indeed call out for more to be provided (as shown in the 1992 Irish survey), in order to be able to maximise technology transfer, but at the same time, for sound commercial reasons, they do not wish to share or to divulge any of their own methods and techniques. It is therefore generally accepted that fish farming is seen by small and large enterprises alike as comprising a series of essentially secret, and secretive, procedures. Their attitude conflicts both with their training needs as perceived by themselves as well as by other interested parties in the training provision equation. It is acknowledged in the fast-growing biotechnological aquaculture industry that it is of real economic and environmental importance, that basic procedures and processes be described using agreed and accepted terminology. Otherwise, mistakes caused by lexical confusion, rather than by technical or scientific ignorance, can and do occur and are very difficult to track down and remedy. For example, in the shellfish industry in Ireland, on-growing technology is often imported and consequently costly mistakes can be made.

Further training is seen as a priority in Ireland, but this has to co-exist with a reluctance on the part of farm personnel to leave the work-place for the realisation of their training needs. This reluctance is understandable for the exacting nature of fishfarming and the remote location of many farms, make it difficult for farms to release workers for training purposes. In the United Kingdom a 1991 Training Needs Survey of the Scottish fish farming industry (3) recommended that there should be training provision for remote and scattered fish farms, to be carried out by means of short courses and distance learning courses. This reinforces the view alluded to earlier that distance learning is seen as a panacea that will provide fast solutions to all kinds of problems. But effective distance learning courses depend crucially on the existence, not only of well-planned courses, but also of independent and autonomous learners confidently using open / flexible course materials. This implies a transparency of communication between learner and distance tutor, which in turn depends on clear and unambiguous expression, a prominent part of which concerns agreed common terminology and definitions.

The linguistic aspect was a small but significant feature deriving from interviews carried out in the 1991 Survey referred to above. The AQUALEX partners, having decided that further attempts should be made to identify the linguistic needs of learners, and to integrate these with the content needs as perceived by aquaculture experts, were fully alive to the need for a tactful and sensitive approach in this area. In the event, however, the Linguistic Needs Analysis proved to be much less alarming and more interesting than had been anticipated. Once certain leading figures in the European fish farming industry were contacted, their initially dismissive attitude underwent some modifications. It has now been conceded that the fish farming industry does have some unsuspected, linguistic needs going beyond anything that mere word-for-word translation could satisfy.

The AQUALEX partners felt confident that a "dialogue" reminiscent of that described by Freire (Freire, 1970)(4) had been taking place in some of the countries concerned, as is testified by the above account. One of the components of Freire's "dialogue" consists of the "identification of important themes in the professional lives of prospective learners", which had gradually emerged from in-depth observation of people in various locations and situations.

Richard Berwick(1989) (5) also highlights this component as a necessary part of a needs analysis, extending its scope as he defines it as the "classification of salient themes which keep appearing during extensive discussions with members of a defined community". In the present instance, the community is that of fish farmers. It was in this context that the partners recognised and accepted what Berwick calls a "discrepancy analysis", i.e., the gap between what learners know and what they should know. The updated English glossary, translated into the three target languages, with accessibility enhanced by means of the multi-media interactive format, forms the experts' part of the discrepancy analysis, that is to say, their analysis of the corpus of knowledge needed by the learner. But however valid and comprehensive the experts' analysis may be, it cannot function effectively until the second part of the discrepancy factor is addressed, and concerns the users' perception of their needs. This is a difficult operation, because sometimes (as in the present instance) users have conflicting perceptions of needs.

Bearing in mind Munby's warnings as to the dangers of " a reluctance to begin with the learner rather than with the text" (Munby, 1978)(6), the partners have attempted to identify the users' areas of greatest need, i.e., to search out what it is that they don't know. (In the learning/teaching process, this is frequently one of the most difficult and misunderstood aspects, for the learner does not, indeed cannot know exactly what it is s/he does not know.) However, to ensure that effective learning does take place, it is not enough to provide the latest, most comprehensive information. It must also be presented in a manner which engages the learner. The AQUALEX glossary may well prove extremely effective in bridging this gap since the interactive nature of the information provided changes the role of the learner/user from passive recipient to an activator of the knowledge search, with the aid of powerful search engines; and knowledge gained by the active learner is far more likely to be retained in the longer term.

Throughout the first two years of the project, the translators themselves compounded the extent and nature of the undertaking, as it became apparent to each team, independently, that the linguistic and scientific conventions of each language could not be ignored. They came to the conclusion that their task was not the relatively simple one of the translation of a collection of terminology from an English matrix; they were, rather, creating a self-contained version of an agreed set of terms, concepts and ideas which, to achieve validity and acceptance in the native language, had to conform to its traditional usage patterns. This was particularly evident, not only in the case of German, which has an unviolable set of linguistic conventions, but also in Greek, which was trying to establish linguistic conventions suitable for an emerging domain. One result

was that almost all definitions became “extended definitions”, which had not been the original intention of the project.

The thorough scientific evaluation that was carried out in all four languages also altered the thrust of the project as, in response to recommendations from all referees, a third of the 2500 terms and definitions were altered, expanded or enhanced in some way.

In the Reith series of lectures broadcast by the BBC in 1970, Donald Schon stated that “the loss of the stable state means that our society and all of its institutions are in continuing processes of transformation”. From these prophetic words, echoing down more than a quarter of a century, he came to the conclusion that “we must become adept at learning” and singled out the characteristics of effective learning.

Ten years ago, Her Majesty’s Chief Inspector of Schools in Scotland, HMI W.D. Ferguson, joined the ranks of those renowned US educationists, Benjamin Bloom, Jerome Bruner and Carl Rogers, when he stated that “stress is now placed on independent learning, on learning how to learn, on taking responsibility for one’s own learning”.

It has been the aim of the AQUALEX partners to assist the aquaculture industry to adapt to the pressures of continual change, by the provision of a learning tool for independent and tutor-assisted learners, the four-language interactive glossary AQUALEX, which has been developed in print, diskette, CD-ROM and online formats. Interested readers may access the “S” demo from the IMBC home page on the World Wide Web, address <http://www.imbc.gr>.

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