Different Variations of Learning Materials on Environmental Law

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Summary

The computer is being introduced very slowly in the field of distance education. At the moment the computer is not yet accepted as a complete substitute for written material. Technical possibilities and availability also play a part in this. With education directed towards the wishes of individual users, the use of the computer will become indispensable. In order to combine the advantages of the computer with the advantages of written material, an "Environmental Law" project will be started at the Open University in January '94. The users will not only have written learning material at their disposal, but also an electronic support system. An investigation will be made as to whether it is possible to meet the users' need for individual assistance with this system and whether such a system can be introduced into the regular production process of the Open University. Building on previous research, the Environmental Law Project clearly has many points in common with other large-scale innovative educational projects at the Open University.

1. Introduction

Information on paper is always presented in a definite order. Because of this, a path of learning has already been laid out for all users. In other words, the author(s) of the written material were forced to make certain choices as to the organisation of their material. In the main, these choices have to do with content. In making these choices of content an attempt is made to help the users of the material. It is, however, by definition impossible to take the user's individual needs for information into consideration with a purely written presentation of material. In making these intrinsic choices, however, the author hopes to reach the common denominator of users.
Some advantages in the use of written material are improved readability, habituation and absence of restriction to a particular place. However, for all three factors it can be said that they will probably lose significance over a medium-termed period of time. The advantage of the computer is its interactivity and resultant individual adaptation of the material which provides tailor-made instruction.

In view of the foregoing it can certainly be maintained that at the moment a combination of written material and computer facilities offers most advantages to the user.

In this paper we will discuss a proposal for a project in which the users can make use of an electronic supervision and tutorial system, in addition to written learning material.

2. Distance Education

One of the research objectives of the Environmental Law Project is to determine the surplus value of a combination of written learning material and electronic tutorial material. This surplus value will first of all be in comparison with the present system for course production at the Dutch Open University. The objective of the Open University is to make higher education accessible to everyone who is interested. The system of the Open University is based on distance education. The courses are primarily in writing and especially developed with a view to self-tuition. Computer aided learning is used on a limited scale. As a rule the Open University makes use of the textbook - workbook method. The textbook contains all learning materials, the workbook contains all tutorial materials. With this method, the scope and degree of tutorial assistance must by necessity remain limited. If the Environmental Law Project proves its value within the context of the Open University, its application outside an educational setting is certainly not excluded.

3. Environmental Law at the Dutch Open University

The environment and environmental law are popular topics. As such this subject enjoys the attention of a great variety of interested parties. Meeting the wishes of the different target groups to the extent possible is a special challenge for the authors of the course. The new course on Environmental Law at the Open University which will be put on the
market at the end of 1994 anticipates this diversity. This new course, just as its predecessors, will be used by students from the Faculty of Law and the Faculty of Natural Sciences. The course will consist of a textbook and a workbook. The textbook, a handbook on Dutch environmental law, will contain an abundance of material. In this way it will be possible to allow the users to choose among different variants of the course on environmental law. In addition to the basic variant, they can also choose between either a government-orientated or a business-orientated variant. The similar choice is provided for students from the Faculty of Law and from the Faculty of Natural Sciences. Thus, the new course will provide six different variants.

The tutorial material, in the form of learning paths, case studies and assignments, will be written with this division in mind. This new course design is in practical terms the maximum which is feasible within the present course production system of the Open University. In reality, a better service for the largest possible group of interested parties would require a much larger group of variants. In other words, the degree of freedom offered in the new course on environmental law by means of six variants is actually insufficient considering the diversity of potential users.

Considering the large group of potential users, it would be more reasonable to make facilities available by which these users could – with a high degree of independence – put together a set of learning materials which would be best suited to their own interests. The Environmental Law Project will be directed toward the realisation of such an approach.

4. The Substrate of the Environmental Law Project

Various reasons can be given for the use of the course on Environmental Law for this project. As mentioned in the previous section, there is a large diversity among those potentially interested in the course.

Reference will now be made to previous research in which the Environmental Law course of the Dutch Open University was used and by which this course was made suitable for electronic processing. These former projects form the basis of the new Environmental Law Project. In the Dialogue Project the (first edition) of the course on Environmental Law was adapted for use with an electronic hypertext system. In an experiment research was done into the extent to which students could

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follow a course solely with the aid of a computer\textsuperscript{2,3}. The study results were equal to the results of regular students. The students felt that studying with a computer was not only fun, but that it also improved their concentration. In connection with the Dialogue Project new ideas were also developed to improve the structure of the course on Environmental Law to make it more suitable for electronic processing\textsuperscript{4}. In the Hypertext Law Project, based on the ideas developed in the Dialogue Project, a general architecture was set up for electronic design, storage and issuance of courses\textsuperscript{5}. The course on Environmental Law was also used with this project. At the same time, by means of a series of interviews, research was done into the various professional profiles which can be distinguished in the field of environmental law\textsuperscript{6}. At the Open University consideration is presently being given to the idea of departing from a rigid course design. Instead, instructional materials from various fields would be compiled from which students, within certain parameters, could freely select their own course material. In the Environmental Law Project, these ideas will be tested in practice for the field of environmental law.

5. The Environmental Law Project

5.1. Introduction

The Environmental Law Project will concentrate on the development of an electronic support system, consisting of a supervisory module and a tutorial module. This system will be realised by the end of 1994.

The electronic support system is intended to provide students with individually tailored supervision and tuition in their study of the textbook


on Environmental Law. In this way an attempt is made to enable the users to select and study the instructional materials from the handbook which closely relate to their personal interests.

A value assessment of such a system will be based on a comparison with students using the standard written textbook - workbook version of the course on Environmental Law.

The project involves three central research questions:
1. To what extent does such a support system cover the need of users for individual support and which features are required of such a system to guarantee optimal support and supervision?
2. Does the use of such a support system offer advantages above the conventional method used by the Dutch Open University?
3. Under what conditions can such an electronic system be placed at the disposal of students and incorporated in the production process of the Dutch Open University?

On the basis of the research results, it will be examined to what extent it is possible to implement this approach for other courses of the Open University. The limits of this project are clearly situated within the framework which the Open University offers as an educational institution. However, an intelligent reference and tutorial system can also be useful outside the regular educational circuit.

5.2. Functions of the Support System

5.2.1. General

The support system will consist of both a supervisory and a tutorial module. Generally speaking, the supervisory module provides detailed information about the course, and support in making selections. The tutorial module coaches the user during study of the course.

In the following sections, the facilities provided by both modules will be described briefly.

5.2.2. Supervisory Module

There is a clear distinction in working with the supervisory module. On one hand, with the aid of this module, the user himself can make selections from an abundance of material by consulting detailed information on the content of the material. On the other hand, the user can ask the supervisory module to make a first choice from the available learning material on the basis of a preliminary interview.
By way of illustration here is a sketch of a possible user scenario.

When a user starts working with the supervisory module, information as to training, profession and interests relative to environmental law will be asked in the interview. This information can be considered as the user's profile. By matching this profile to the electronically available professional profiles, the supervisory module can recommend a relevant and coordinated set of learning materials that is in the best possible manner in keeping with the user's profile. These professional profiles are the result of a trainee project at the Dutch Open University7. In a series of interviews with persons professionally involved with environmental law, such as public prosecutors, municipal officials and police officers, inquiries were made as to their need for knowledge in the field of environmental law.

The recommendation of the supervisory module can serve as a basis for further selections by the user. During the study process the recommendation can also be adapted, for instance, if the user wants more information on a certain subject. It is also quite possible that the interests of the user will change during the study period.

It is very important that working with the supervisory module is viewed as a continuous iterative process. Neither the personal selections nor the study recommendations should be seen as a once-only process.

In addition to being a selection assistant, the supervisory module also has another function, namely, that of study manager. For every part or combination of parts the user can retrieve information on the study load. This is calculated on the basis of the average learning time for each portion of the study materials selected.

By providing the user with a graphic time planner it is possible for a study schedule to be drawn up for a certain period of time. For instance the supervisory module can draw the users attention to excesses caused by serendipity.

5.2.3. Tutorial Module

The tutorial assistance the user receives consists of individually tailored case studies and assignments, interactive instruction and differentiated test facilities. To support the user in the study of the selected set of learning materials, selections will be made from a large supply of available case studies and assignments. In this way an attempt is made to offer the user sufficient exercise facilities, regardless of the selected material.

7 See note 4.
Both the assignments and the student responses will be made interactive. This implies that in the phrasing of the question as well as in the answer references will be made to the learning material. Besides this the user can also make use of hints and partial solutions.

Finally the user will be able to take tests which are differentiated according to the chosen subset of learning materials. These tests will always consist of multiple choice questions. Here again the user will be guided by means of feedback and hints. On the basis of the score users can determine whether they have sufficiently mastered the material studied. This success of this form of learning assistance also depends on a sufficiently large supply of suitable questions.

6. Conclusion

The Environmental Law Project will begin on 1st January 1994. Due to the previous research described in section 4 it is considered quite possible to have a prototype of the support system within one year. This prototype will be tested by a limited but representative group of users during 1995. The exact plan for this test will be worked out during 1994.

A preliminary conclusion with regard to the idea of a support system can already be drawn on the basis of the preliminary research. In comparison with written courses at the Open University, the production of courses in which such a support system is integrated will above all demand greater effort especially on the part of those in charge of course content. In this regard the following comments need to be kept in mind, however. First, by integrating such a support system other often costly support could be minimized. Second, the realisation of the concept, launched in this paper, implies that the rigid course pattern as it is currently used at the Open University will be abandoned. By offering an abundance of learning material, combined with an electronic support system, the users will be able to study a subset of learning materials that fit their personal interests in the best possible manner. It remains to be seen if the students can deal effectively with this freedom. Through the Environmental Law Project, we hope to gain an answer to this and other questions.

7. End Notes

This paper should only be referred to as: Tonnaer, F.P.C.L., and Henzen, A.J., Different variations of learning materials on environmental law.