

New informative technologies in teaching process

Ketevan Kupatadze, Iliia Razmadze

Branch of Electronic Learning Resources of University Scientific Library, Tbilisi State Medical University, Georgia

ABSTRACT

The article presents author's multi-media teaching course on general biochemistry, created in the information centre at Tbilisi State Medical University. The article corresponds to generally practiced standards. Teaching materials are presented together with visual dynamic models of bio-chemical and physiological processes. The changes and additional information can be introduced any time due to the structure of the course. Therefore, the model contains the elements of Case Study. As for the content of the course the form of teaching materials is fully defined by a teacher. Depending on the model of teaching the teacher can present, for example, a set of certain cases (Case Study) and the student is expected to build his/her hypothesis, model or theory. Another model (Declaration Study) describes consecutive explanation of the theory and the examples serve as illustration of theoretical ideas. This time the computer gives us possibility to visually study the process going in the cell. The student can easily involve in the learning process and take advantage from the new block of information.

KEYWORDS: *multimedia technology, studying computer programs, general biochemistry, visual method, animation, hypertext*

Independent studying subject corresponds to fundamental direction of each contemporary science. For the high education structure, it is very important to use the basic directions of contemporary teaching methods and also each subject should be given to the students in active way.

Chinese philosophers say: tell me and I shall forget, show me and I shall remember, give me the wide sphere of action and I shall learn. Multimedia Teaching technologies, which are outlooks and effective systems of 21st century for training the specialists, are priorities for wide sphere of action. Contemporary equipments for example: personal computer, studying computer programs are used in these systems. Integrity of text, voice, and moving, creates various possibilities for studying process.

Creating studying programs, it is very important to take into consideration the following fact, that these programs should not be turned into electronic version of existed textbooks. Such courses should represent pedagogues' point of view for optimum teaching of correspondent subject [1].

Studying computer program, based on multimedia technologies in general biochemistry was created in Informative center of Tbilisi State Medical University. While creating this program, all existed decrees of ergonomical technologies were taken into consideration. Contemporary studying computer programs consist of several parts.

The main priority in the program which is made by us is giving the studying material, where the contents of material are represented in dynamic and visual way. At this time it has form of hypertext. The form of studying material is given in the course and its contents are defined by pedagogue. Owing to the teaching model, chosen by pedagogue, it can be case study with commentary, questions and tasks, there can be also declaration study, where the process will go on by axiomatic method and information will be represented in general graph. The main question for the student in this maze is to get and realize studying information. Studying course in biochemistry with its contents and structure corresponds to declaration model. Studying material is shown in succession. Biochemical and physiological processes on cell level are represented dynamically but at this time the course structure gives us possibility to insert changes any time we won't. We can also add new concrete examples

with correspondent commentary, questions, tasks, and such kind of changes were fulfilled lately: visual method was added to the course: metabolism of chylomicrons. Thus declaration model in this case, consists of elements of case-study model. Studying visual course comprises the basic and important questions of general biochemistry. We want to remark that while creating the course, from scratch we confined firmly to the questions of general biochemistry. Which are given in calendar plan and by which are delivered biochemistry to all students of Medical University? As for other organs (except blood and liver) and their pathological processes, are not represented at this time in visual program. We think that all questions which are shown in the program represent the foundation by which a student should realize biochemical aspects of disease in organism. As we have mentioned above, visual method scores an advantage. The speed of getting, realizing and understanding the studying information, depends on a visual method and on other characters. When the studying material consists of wide and difficult text, illustration gets an essential meaning and it is very important. Visual method refreshes the process of getting information; it makes better the process of realizing information and also provides to learn the material in a short time.

For example, considering biochemical aspects of digesting food, students immediately can not realize the mechanism of hydrochloric acid formation in stomach. In this case illustration completely changes the situation, and the students are able to imagine mechanism of process in a short time.

It is very important to be used more visual method in electronic course, especially if this visual method is voluminous and is represented in dynamics. The processes of hepatocytes in our studying program are made in dynamics, but it is also possible to check and repeat process any time.

The processes of metabolism are divided into grades; it is very easy for the students to move from one grade to another one (With the "mouse"). Frames of animation fragment are connected with one another but each of them is independent. Such animation should not be burdened with texts. In the model of authorized course, visual method is represented on all grades. It is very solid, dynamic and voluminous.

When oral material and illustration do not coincide with each other, the students can use illustration on all grades of studding. Such studding information is cheerful and very easy to realize. It remains in mind for a long time.

It is known in psychology that 90% of information about universe, we get with the help of sight, 9% by ear and 1% with a touch. At this time "The students automatically can remember the material even that time when they are not going to learn them"[2].

At this time computer gives us possibility to get visual, apparent, believable illustrations which of course are connected to biochemical processes. The processes in computer screen are represented in dynamics, with chosen colors and multimedia. The lecture which has dynamic visual method quickly can be realized by the student (Fig.1). The speech of pedagogue also is added to the process. So we have two factors for creating mood, which stipulate student's correspondent readiness for studding material [3,4].

Visual material of above mentioned biochemical authorized studding course, is in Macromedia Flash MX. Each process on the cell level is represented dynamically. Macromedia Flash MX is application, so called "tool" packet which gives possibility to the author of studding computer program, for self-development. Owing to this program we are able to create beauty which can be run, seen and heard.

Macromedia cooperation made integrity of Flash MX with Studio MX, which gives us the unique possibility, to use dynamic visual method during distant learning [5].

These programs were included in studding process and for this purpose we compiled questionnaire which were

given to the students, professors and lecturers (with correspondent questions). The results were worked up statistically. It was very important for the students to realize the most difficult process on the cell level quickly and easily. The material should be represented apparently logically and in dynamic succession.

On the question, what do you think about the above mentioned program, students answered: "of course this course was very important for me. It will be more accessible if the pedagogue has possibility to use visual method during a lecture, because it helps us to study a subject".

"I think that when we get and study theoretical and practical material, we have possibility to master the subject and get profound knowledge. It is very important to have more practical lectures, then we have, because visual information is stronger then the information by ear".

"To my mind, this course was useful not only for me, but also for my friends who were interested in bio- chemistry".

Pedagogues and Professors think that, it is very important in the program to evoke students' readiness and mood towards the studding material.

Visual method scores an advantage, which is completely realized. The material is easy of access and it is very easy for the students to study. The structure is ergonomically harmonious and it does not tire your mind. All represented biochemical processes are made dynamically. This is one of the most important conditions for computer programs, which scores an advantage.

The course allows us to add further information and all new models of scientific achievements in future.

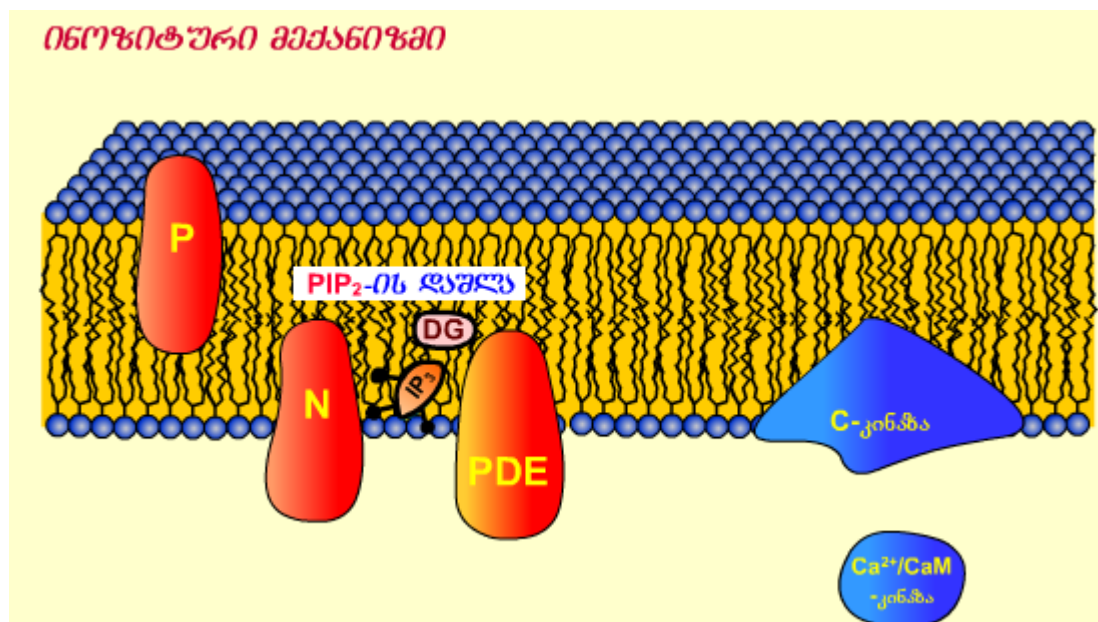


Fig.1 Extract from the program "Hormonal Regulation".

REFERENCES:

1. Mindzforms: Children, computers and power fill ideas. Papert S. N. X.:Bazic BOOKS.1999.VIII.p.230.
2. Био-органическая химия. Овчинников Ю.А.М. Просвещение.1987.
3. Biochimie generale. Jacquez-Henry Weil. Dunod, Paris, 2001.
4. Macromedia Flash MX Action Script Bible. Robert Reinhardt, Wiley Publishing, Inc. 2002.

Новые информационные технологии в учебном процессе

Кетеван Куратадзе, Илья Размадзе

Отделение электронных учебных ресурсов Библиотеки Тбилисского государственного медицинского университета, Грузия

РЕЗЮМЕ

В статье представлен мульти-медиа авторский учебный курс по общей биохимии, который был создан в информационном центре Тбилисского гос. Медицинского Университета и по своей структуре соответствует декларированной модели. Здесь учебный материал передан последовательно, вместе с наглядными динамическими моделями, которые представляют биохимические и физиологические процессы. Причем структура курса позволяет в любое время внести в нее изменения и дополнительную информацию. Так что, модель включает в себя элементы модель - Case Study. Содержание курса и форма учебного материала полностью определяется преподавателем. В зависимости от избранной им модели обучения он может представить, например набор конкретных примеров (Case Study), на основании которых студент должен сам построить некоторую гипотезу, модель или теорию. Другая модель (Declaration Study) предполагает последовательное изложение теории, а примеры служат лишь иллюстрациями теоретических положений. При помощи компьютера можно получить убедительную иллюстрацию всех тех процессов, которые протекают на уровне клетки. Студент располагает к восприятию новой информации и уже на следующую лекцию он приходит с готовностью расположиться воспринять новый блок информации.

Ключевые слова: *мультимедиа технологии, учебные компьютерные программы, общая биохимия, метод наглядности, анимация, гипертекст*