# VIRTUAL TEACHER - DIAGNOSIS OF THE PROBLEM

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**Abstract**

The article constitutes an attempt to pay attention at development of modern technologies which may be applied in educational processes at every level of education and the fact that the research on possibilities and aim of their use shall be performed concurrently with them.

**Key words**: education, e-education, information technologies.

## VIRTUÁLNÍ UČITEL - DIAGNOSTIKA PROBLÉMU

**Resumé**

Tento článek zaměřuje svou pozornost na rozvoj moderních technologií, které mohou být použity ve vzdělávacích procesech na všech úrovních vzdělávání. Poukazuje také na skutečnost, že výzkum jejich možností musí být proveden v souladu s cílem jejich použití.

**Klíčová slova**: vzdělávání, e-vzdělávání, informační technologie.

### Introduction

New information technologies have influenced education more and more distinctively due to external and internal civilization transformations. Externally stimulating educational transformations are common social satisfaction with IT devices, whilst external ones are the result of the transformation process of teaching and learning at school (Walat 2010, p. 28).

Modern technological solutions appeared in schools in 1970s. The most modern and innovative solutions which were affordable only for few schools included closed circuit school television. At school, there was a television studio and a control room, every classroom was equipped with a television set for watching ordered didactic films or school broadcasts made by the studio. There was also an intercom, by means of which, the teacher could communicate with the control room in order to launch or stop broadcasting. The broadcasts and films could be displayed in all classrooms simultaneously or in selected ones. This was a modern but also expensive technical solution (the studio was equipped with at least one camera, microphones, videos, mixing table, kilometres of cables, television set and intercom in each of the classrooms etc.). Despite great costs, the systems were rarely efficient. These were modern solutions and unfortunately very often ended up in failure. The film must have been ordered several days in advance, due to the failures of the system, there was no guaranty of displays. Consequently, the school television worked sporadically and did not influence the didactic process very much.

Another solutions were language laboratories and computer assisted teaching - at the beginning with the use of much primitive software, though modern at that time.

The qualitative leap started at the end of 1990s. Multimedia computers came into existence along with multimedia programmes. At the beginning, there were multimedia computer games, however, after some time, attempts were made to introduce multimedia didactics into the didactic process.

Thanks to such changes, research questions also changed. In 1970s, it was important how a computer can support the learning process in students. Unfortunately, the obtained research results could not allow to understand the influence of information technologies on learning by students. A computer and didactic software were perceived (and is still perceived) as the elements of modernising a school, enriching and making the didactic process attractive. Learning is not only an

attempt to perform something nice for an eye, colourful, multimedia, interactive and as a result, attractive and modern. This is also thinking expressed by an analysis, comparison, generalisation, synthesis and drawing conclusions.

While searching for answers connected with the fact whether information technology influences or may influence teaching and learning processes, the methods of teacher's work were omitted. As well as at which moments of the didactic process, the technology is introduced, earlier experiences of students connected with work on a computer and at last, the context and co-existence with other didactic means, sometimes eliminated due to a common conviction that a computer and software may replace everything. The subject of focus also included what a researcher has to research on. The results indicated that certain kinds of technology such as e.g. integrated systems of learning contribute to an increase of a narrowly thought knowledge and skills: reading, writing, counting, drawing .... [see Pachociński 2002].

After years and numerous attempts of contributions, it is still not known in which scope information technology may influence the development of creative thinking and the teaching and learning process. It was clear, however, that modern technology itself does not have an influence on education and school achievements of students. This is due to the fact that the learning process exists in great relation with social and cultural phenomena. Modern technological solutions in education may bring, as it seems, the result only when they will be used for strictly defined aims and in the context of the changes performed within the contemporary system.

**Modern solutions - virtual teacher**

We do not completely understand what an influence of modern technologies which has been implemented for years is on the learning and teaching process and here, we have a new challenge and field of research for pedagogists and educationalists. A virtual teacher seems to be new for school, but not the newest one from the viewpoint of an idea. This technology dates back to 1950s when potential creators of such solutions were inspired by Alan Turing. He proposed a test which was to prove that intelligent skills of a machine by means of conversation in the natural language with other humans. The machine was to pretend a human, so as the interlocutor could not realise that he talks to a device not another human. There are several names in use chatbot, chatterbot or linguabot.

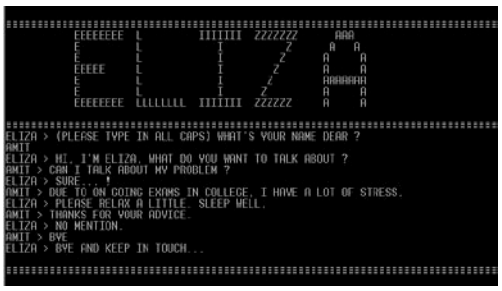


Fig. 1. One of the first chatbot ELIZA communicated with a human being by means of a text interface.
Source: http://www.planet-source-code.com/vb/scripts/ShowCode.asp?txtCodeId=5369&lngWId=3

One of the most popular chatbots is ELIZA "brought into existence" in 1966 by Joseph Weizenbaum as the programme mocking a psychoanalyst repeating utterances expressed by an interlocutor in form of questions.

Rapid development of information technologies as well as the Internet contributed to a growth of numbers of programmes used for conversation between a machine and humans.

At present, their face may assume various forms. Still, there are used text interfaces as in case of ELIZA. They may also include:
- Any object,
- Graphical form of a human,
- Photograph of a human,
- Form of a video.

Among the applications of chatbots, the most common include:
- Scientific ones,
- Entertaining (attractive computer games etc.),
- Virtual assistants (in order to make a website and decreasing traffic in hotline attractive,),
- Guides after internet services (creating interactive services e.g. technical assistance),
- Information systems for employees or partners of enterprises,
- Intelligent browsers of the contents used by a user (creating services assisting in certain fields).

Scientific applications are connected with further development of technology, the development of processing the natural language, recognising the face, databases as modules of the software itself as well as integration with other technologies used on the Internet and possibilities of using data bases existing within the network. Important components of research are also issues connected with social receipt of such solutions, reaction of persons to the voice interface and the dialogue system of chatbots used in natural conditions. These latest issues may seem to have great significance in case of using them in education as virtual teachers.

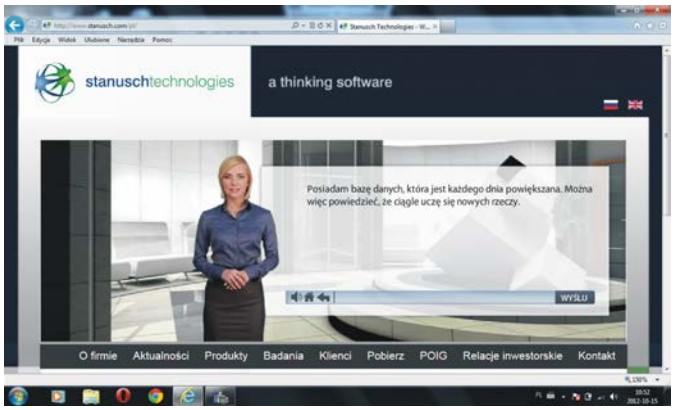

Fig. 2. A virtual assistant (so called chatbot), to which you may ask 24 h a day, who is not tired and it resembles cconversation with a human being.
Source: www.stanusch.com/pl/ , 15.3.2014 r.

Apart from the mentioned applications, educational applications may seem to be very interesting.

The analyses of the transformations observed within the last 20 years, indicate that they regard i.a. learning in the peer group supported by a teacher and other adult persons with whom a student may establish easy contact thanks to computer networks (experts, outstanding scientists, researchers, travellers....) - really interesting solution regards a “virtual teacher” who having own broad knowledge or an access to network resources may support students in searching for information and providing answers to questions. The chatterbot implemented by Stanusch Technologies has the greatest base of general knowledge in Poland (more than 700 thousand definitions of notions) using information existing on the Internet (see Lib, Walat).

At present, the mostly applied solutions are those connected with virtual assistants making company websites more attractive. Out of 200 visited websites equipped with chatbots, ca. 80% are virtual assistants presenting the products offered by producers being the owners of internet services, others are entertaining applications, only two of them had an educational character. One of them was a virtual Industrial Safety and Health trainer, the second one presented the information regarding knowledge of engineering. This is also connected with low popularisation of this technology and its high prices.

Information technologies often change life and work of a human in the civilisation and cultural sphere, as a result of these changes, social expectations also reveal that these changes may be applied in education. Thus, there is great pressure applied for the newest achievements as well as in the scope of IT in education (see Apple, Jungck 1990). In the opinion of many, the application of modern technologies (not only justified) proves that schools follow the reality.

## Conclusion

The possibilities of using virtual teachers are influenced by mental issues, social conditions as well as teachers' competences in the scope of using IT in didactic processes as well as communicative competences of users. It must be also kept in mind that this is the future towards which we aim, however, now it is hard to imagine that a virtual teacher may supersede a real teacher. As a result, now, certain actions are necessary to define the role and function of such a technological solution so as the reality will not surprise pedagogists and educationalists, as in case of still functioning means in education with which it is really difficult to cope.

## Bibliography

1. APPLE, M.W., Jungck S. *You don't have to be a teacher to teach this unit:Teaching technology and gender in the classroom, American Education research Journal*, t. 27, nr 2. DOI 10.3102/00028312027002227
2. LIB, W., WALAT, W. *Piąty wymiar w edukacji pożarniczej*. W druku w *Bezpieczeństwo i technika pożarnicza*. ISSN 1895 - 8443
3. PACHOCIŃSKI, R. *Technologia a oświata*. IBE, Warszawa 2002. ISBN: 83-87925-50-0
4. SIEMIENIECKI, B. Pedagogika medialna. Warszawa 2007. ISBN: 978-83-01-15156-0
5. WALAT, W.: *Poszukiwanie nowego modelu edukacji w oparciu o idee kognitywizmu i konstruktywizmu*, *Edukacja Technika Informatyka* nr 1/2010 część 2. ISSN 2080-9069

## Netography

1. http://www.planet-source-code.com/vb/scripts/ShowCode.asp?txtCodeId=5369&lngWId=3 29.04.2014
2. http://www.chatbot.pl/about/ 15.04.2014
3. http://www.stanusch.com/pl/tpsa-tepson 17.04.2014
4. http://skrybot.pl/wiadomosci/rozpoznawanie-mowy-skrybot-w-projekcie-robota-spolecznego-tepson/ 20.04.2014
5. www.stanusch.com/pl/ , 15.3.2014.

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