

# Information skills in the education

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Nowadays we live in the Information Age. It means that information is expanding at an unprecedented rate, and enormously rapid strides are being made in modern technology. Information sources are an important component of the didactic system, mainly concerning the content of education. They have a direct relation to information and communication technologies and to the non-material means of the education. Information and communication technologies are strong means for improving educational quality and didactic effectiveness too. Good information infrastructure and teachers ability for using information and communication technologies create basic conditions for the successful implementation of modern technologies. It is the challenge for educational system and it is needfulness integrate it. Students must become information skills and teachers must be able to create fit conditions for it. The new teacher's role it is a support participation on the personal learner's study efforts. Teacher in this conception must be only a facilitator of student learning rather than as presenter of ready-made information. The paper defines the theoretical way out and topics for practical implementation this conception on the teacher training and here are concrete research results of the internal and international research activities of the Institute of Education and Communication of the Czech University of Agriculture in Prague too.

Key words: Information and communication technologies, information skills, teacher training, teaching and learning, questionnaire search.

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## INTRODUCTION

In an information society knowledge becomes of vital importance and information gets prime value. Information is just a set of stones, raw materials for the system of knowledge of a human being, information doesn't exactly form the knowledge itself, its formation depends on the competence of an individual to accept the information, process it and use it as an active piece of knowledge which is able to develop itself further on. Information becomes knowledge being successfully processed in studying.

Therefore education is mostly orientated to managing methods saying how to study, how to use modern information and communication technology, how to manage work with information using these methods, but also to the competence of critical thinking and evaluation, communication, team work, independent action and problem solution. Teaching should involve practical activities, develop inter-subject relations more, education should cover integrated units. It is mainly project-education based on activities and independent work of pupils which offers them a chance to penetrate into the problem much more profoundly. So it is really necessary to start to prepare teachers for the new conception of curriculum and the introduction of new methods.

Reliability for one's own education

It is research concerning the taking-over of the reliability for education of their own by those who study that comes

from the need to work up the principles of the whole-life studying into the education conception functionally. The aim is to make the person understand the importance of learning for the own personal development, to make the person participate in the own education, to motivate the studying person internally and activate energetically. The concept is - in a system way - based on the consolidation of the process of learning in the classical education scheme: teacher – subject-matter (information) – pupil (student).

The subsystem of learning in the system of education gets the crucial importance. A teacher changes roles from “a mentor” to “a facilitator” who supports students working with information, accepting pieces of knowledge, adopting them, integrating them into the knowledge system, applying and interpreting them. The student gets information skills; lead by the teacher develops the principles of rational work with information. The teacher follows the transfer of information into knowledge and facilitates the process (therefore “facilitator”). So the one who studies is not just a passive object of the teacher's activity, but he becomes an active component. A new relation comes forward: student - information - pieces of knowledge - skills - competences.

There are relatively significant changes in direct education, mainly in teaching methods and forms which become more open towards pupils, they are of activity-character and carry more significant elements of problem-education. The given principles in their intent are analogical to integrated forms of education in subjects of economics. Further work in fictive firms, student firms and training offices is based on the independence of students, on their independent processing of information and making solutions. Motivating teaching methods and integration of education prepare the people - who have already been studying their way - for the period when they are forced to accept and process information on their

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own much better. The basic stones of the concept “Self-Responsible Learning” are motivation, team work, independence, autonomy, creativeness, communication, cooperation.

The function of a teacher in a teaching unit of this conception resembles the activity of a tutor in a fictive firm very much. The teacher does not lead the education process in a direct way, he just guides it, moderates it, encourages it in the role of a consultant and a supporter in troubles at work with information. The studying person reaches the objectives of education given by the teacher, takes his own time, uses his own logical techniques (the teacher can correct those to make them more effective), his work being based on his own independent efforts. The studying person gets the feeling of much more significant autonomy, inner freedom as he works with the objectives and subject-matters which he has already identified himself to and which he wants to master. For mastering them he uses not only standard techniques, but also his own creativity and independent thinking much more. He is not isolated, he communicates with the others and the teacher in his group. The result of his education is the result of the combination of his own learning efforts as well as the result of the work of his group and his tutor – facilitator.

The right application of given principles in educational practice and good conditions should increase the competences of independent work with information, the ability of independent decision and action, of problem solution, of flexibility in new situations. That is to say key competences are primarily based on activities and following skills and not only on memorizing and fixed knowledge.

Research solutions of given probléme

The Institute of Education and Communication of Czech University of Agriculture in Prague does research work in information and communication technologies as well. In years 2000-2005 following related projects were being done:

Project Leonardo da Vinci “Agricultural Professional Education Subject-Matter and Method Adaptation to Changing Professional Demands by Innovations in Education”,

Project VEGA “Pedagogical-psychological Aspects of Making Use of Information and Communication Technologies in University Education”,

Project “Making Use of Information Technologies by Teachers of Professional Subjects”,

Research intention “The role of university in the structure of agricultural education and in spreading information for agricultural practice.

They explored the level of information infrastructure, a relation of the teachers to information and communication technologies, accessibility of these instruments and the level of their use in the process of education. The research was methodically based mainly on questionnaire investigation and experiments running at training schools of The Institute of Education and Consultancy of Czech University of Agriculture in Prague in a monitored period. The first phase was running in 2000, the second phase in the years 2004-2005.

The research in the period of the years 2004-2005 registered a significant improvement of the information infrastructure and the internet access at schools. There is an interesting and important sign of a positive step towards a chance to use computers and internet in computer classrooms after lessons. This trend seems to be a good signal for potential application of teaching methods based on independent student work

using information sources. The research was further finding what kinds of computer programmes are preferred by the teachers of professional subjects, whether and to what extent computers and presentation techniques are used during lessons by them, to what extent the teachers master computers, how much computer training they themselves need and what they expect from the future in this connection.

It was interesting to find out what programmes are preferred by teachers as users of information and communication technologies and to what extent teachers use them during lessons. It was found that in 2000 38,8% respondents used text editors at work, 47,8% respondents used internet, 34,3% respondents among them used electronic mail. Information and communication technologies were used by teachers of professional subjects mostly to prepare teaching units (58,2% respondents), in direct teaching by fewer of them (41,8% respondents). Research investigation at training schools in 2004-2005 just testified the above mentioned findings that the integration of information and communication technologies into the direct process of teaching was not at a very high level. The result of the findings is almost surprisingly identical. It was proved that computers, net and presentation techniques were used by 42% respondents.

Another fact emerged from the research investigation in 2004-2005: the teachers of professional subjects prefer office software, text and table processors in their pedagogical practice. Presentation programmes are used surprisingly little. Only 22% polled respondents make use of a chance of electronic presentation at least from time to time. The most frequent reason of the fact is a lack of classrooms equipped with presentation and computing techniques or their inaccessibility. We have been able to follow this problem during the controlled practice for quite a long time. Students of professional subject teaching undertaking a controlled pedagogical practice at training schools have to do without a chance of electronic presentation, though they are prepared to use these modern teaching aids both technically and methodically, and so they keep to remind us of this fact in their evaluation questionnaires which are filled in at the end of the controlled pedagogical practice.

Provided information and communication technologies are used in direct teaching, it is usually the application of educational software that is used at least from time to time by 29% respondents. Internet service is used minimally (11% respondents). In case the service is used at all, then it is websites used by 85% respondents and electronic mail used by 80% respondents at the most. Of course the given facts are related only to those teachers who use information and communication technologies in their lessons at least occasionally. All the other offers of the internet are used very rarely.

Most of the addressed teachers have not adapted their pedagogical approach and style of teaching to the possibilities brought by information and communication technologies yet. Among others it is proved by the part of the questionnaire investigation from 2004-2005 aimed at the theoretical-methodological side of the application of information and communication technologies in direct teaching. The respondents stated that information and communication technology and electronic information sources influenced their approach to teaching much more in the kind and contents of the transferred message – if at all they succeeded to influence their at-

titude to teaching - so it means the aspect of the subject-matter of teaching (62% respondents of those using computer in direct teaching). The methodological aspect comprising the style of the teacher's work is admitted by 20% respondents using computers in the classroom and only 18% respondents are aware of the importance of the organisation of teaching aspect that covers the way of the application of information and communication technologies. The last mentioned aspect is really connected with the students' activity and agitation, with the integration of the subject-matter and it supports students' information literacy. It is just here where we can see the space for supportive didactic activities of The Institute of Education and Communication of Czech University of Agriculture in Prague. So it is not just the adaptation of the didactic preparation of teachers undertaking additional studies of professional subjects' pedagogy, but it also means new impulses for the whole sphere of further education of teachers.

## CONCLUSION

The information infrastructure of the controlled secondary vocational schools involved in our research was becoming better in the period of 2000-2005. We could follow the improvement of the equipment of computer classrooms, of the access to the internet, of the number of computers at schools and numerous modernizations. A bad quality access to the internet could be seen only at a very small number of the controlled schools in 2005. Of course it does not mean that there were no problems. Some of them have been continuing since then and sorting them out will definitely need more time. We can mention the weakly developed information technological background for the teachers of professional subjects and the accessibility of information and communication technologies which is not ideal because of the overloaded computer classrooms. It is still a problem though new computer classrooms have been established and some older ones have been modernized. Most schools have more than one computer classroom at disposals, the access to computers and the internet is available for all pupils and teachers also after the lessons. While in 2000 almost 12% respondents among the teachers of professional subjects mentioned their problems with the access to computers and the internet, in the period of 2004-2005 almost all the addressed teachers stated that information and communication technologies are accessible for them. The only problem seems to be in the form of the access. The teachers of professional subjects also miss quality computers with the access to the internet placed in their offices. This refers to about one fourth of the teachers of professional subjects and the number did not change during the controlled period. Over and above it was proved that if teachers could work only with disused computers of bad quality or if they would be forced to use internet-access-computers in remote common rooms, nobody could expect any motivation to current use of modern information sources and thus teachers' development of information skills. On the top of that the chance to motivate students to develop their own information skills will definitely fail. The same situation occurs if the capacity of computer classrooms is not sufficient, if the rooms are used to full capacity by other subjects which get priority.

Further the research proved that the teachers of professional subjects prefer office software, mainly text and table processors. It is surprising that the presentation programmes are used very little. In direct teaching educational software is used a bit more. Internet service is used in direct teaching at the very minimum (11% respondents). If at all the service is used, web sites and electronic mail are mainly involved. The respondents made use of information and communication technology to prepare themselves for the lessons considerably more than in direct teaching. Most of the addressed teachers have not adapted their pedagogical approach and style of managing lessons to the possibilities offered by information and communication technologies yet. Among others it is proved by the part of the questionnaire investigation from 2004-2005 which focussed theoretical-methodological side of the application of information and communication technology in direct teaching. If at all information and communication technology and modern electronic sources of information influenced the approach of the teachers to teaching then it was mainly in contents and kind of transferred messages, it means in the subject-matter of education. The methodological aspect touching the style of the teacher's way of teaching was accepted much less.

The research investigation has proved that the professional subjects teachers 'skills of using information and communication technologies - which are the basis for their use in direct teaching - have not become very frequent yet. This fact is reflected in the reality showing that functional application of information and communication technologies in professional subjects teaching is still relatively rare. A great number of the teachers involved in the research are aware of an urgency to solve the situation, they know they will need both computers and the internet as modern sources of information and instruments of managing lessons and they are ready to get further education in this sphere.

## REFERENCES

1. Asztalos, O., Koudela, J., Rotport, M. Vybrané problémy z didaktiky ekonomických předmětů. Praha, VŠE, 1992, 136 s., ISBN 80-7079-362-7.
2. Dyrtrtová, R., Sandanusova, A., Reflexia chýb začínajúcich učiteľov vo výuke. In: Sborník ze semináře k 75. výročí organizované přípravy učitelů pro zemědělské a lesnické školy, Praha, ČZU, 2005, s. 54 – 61, ISBN 80-213-1383-8.
3. Krelova, K.: Different Ways of Learning. In: Proceedings of the 12th International Scientific Conference CO-MAT-TECH 2004, Trnava, Slovak university of technology Bratislava, Slovakia, 14 – 15 October 2004, ISBN 80-227-2117-4.
4. Krpalek, P.: Learning, teaching and information skills. In: Proceedings of the 12th International Scientific Conference CO-MAT-TECH 2004, Trnava, Slovak university of technology Bratislava, Slovakia, 14 – 15 October 2004, ISBN 80-227-2117-4.
5. Križ, E.: Využití moderních metod a médií žáky středních škol při samostatném získávání a osvojování odborných informací. In: Sborník z mezinárodní vědecké konference „Poslání učitele v učící se společnosti“, Praha, ČZU, 2000, s. 125 – 130, ISBN 80-213-0675-0.

6. Rotport, M.: Analýza učiva na zemědělských a lesnických oborech. In: Rozvoj finanční a účetní teorie a její aplikace v praxi z interdisciplinárního hlediska. Výzkumný záměr, Praha, FFÚ VŠE, 2002, s. 502 – 506, ISBN 80-245-0433-2.
7. Slavík, M. et al.: Využívání informačních technologií učiteli odborných předmětů. Závěrečná zpráva projektu FRVŠ č. 84/B, kód oboru 5803, Praha, Katedra pedagogiky ČZU, 2001, 39 s.
8. Vidal, M. et al.: Self-responsible learning, Comenius 2.1. Project “Enabling the learner to be responsible for his own learning“. Pedagogical guide, ENTER, Centre d’Experimentation Pédagogique of Florac, France, 2005, 189 s.