

ATTITUDES OF PEDAGOGUES TO ICT DEVICES

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Abstract:

Really good teachers always make an effort utilize the school equipment available to the maximum. They realize newer and newer ideas, try out methods learnt from others, explore and take possession of new technology; all of that in order to secure efficient conveyance of knowledge in a way that their students also enjoy the classes.

In this effort the arrival of the computer opened up new dimensions. This new device provides such opportunities for today's teachers as previous generations of pedagogues could never even dream of. A properly equipped computer in itself makes possible the infinite enlargement of methodological repertoire, but the continuous development of hardware and software almost weekly provides further possibilities of application.

This study analyzes the way teachers in public education relate to the utilization of ICT (information and communication technologies) devices in class, with special emphasis on the interactive board. It will introduce to the reader certain results of our national ICT survey, carried out at the beginning of 2009 by way of an online questionnaire, in the course of which 1146 primary and secondary school teachers in approximately 400 settlements answered our questions. In our earlier studies we realized that the application of ICT devices in class is characterized by the dichotomy of theory and practice, in that the two areas frequently show significant differences. During the survey it was established that there is indeed an enormous gap between the principles maintained by the interviewees and their daily practice. Such data we then supplemented with the replies to questions on the advantages and disadvantages of using a computer in order to provide a more specific description of the factors determining the discrepancies between theory and practice. We also examined what changes teachers deem necessary to enhance the application of IT devices in class. Our results bear significance for the possible establishment and development of various training and further education programs.

1. Introduction

“They have their advantages, but we do not use them to such an extent that now I could go into details regarding these advantages.” The above was a reply received to the following question: “In your opinion, what are the advantages of using IT equipment in education?” The surprising but at the same time thought-provoking statement—which might be best termed conformist today—reflects both the imperative requirements in the field and the indecision of those wishing to comply. As the majority of our society—either because the computer is necessary for their job or because the invention has a great impact on their work and free time—believes that using IT equipment in the classroom is a self-evident requirement. However, most of the teachers are not or improperly prepared for these tasks; they are usually uncertain in their knowledge and activities. The words of the aforementioned teacher also reflect that this person has faced this requirement many times but does not feel he or she, or even the school, could meet it. Thus it is fitting to ask how typical this opinion is and how teachers relate to using ICT equipment. We searched for the possible relevant answers in the framework of a national research. In the beginning of 2009, mainly via e-mails we asked elementary and secondary school teachers to fill out an online questionnaire. Due to the lack of a proper address list we could not realize direct access, the

available database contained the e-mail addresses of the headmasters or the administration offices. This entailed the disadvantage that the attitude of the person reading the letter principally determined the future of our request in the given institute. It is a proven fact that many times our request was not delivered to the teaching staff, although some volunteers from the management were more than ready to supply us with answers. Eventually the questionnaire was executed by 1146 elementary- or secondary-school teachers in approximately 400 settlements. The breakdown by sex reflects the usual disproportion: 71% of the interviewees is female, 29% is male. They are highly qualified, as generally they possess more than two (2.16) university or college degrees, but there were teachers with six, and even eight degrees. In spite of this, however, college or university education played a role in acquiring their IT knowledge in the case of only 41% of them. We indicated six areas as sources of IT knowledge, and the teachers could tick more than one.

Source of IT knowledge	Number of references
self-education	786 (140)
college/university	467 (111)
further education for teachers	418 (45)
family members, acquaintances	316 (31)
ECDL course	273 (62)
secondary school	125 (4)

In brackets we indicated the number of interviewees that ticked the factor as the sole source of knowledge

Table 1: Sources of IT knowledge

The fact that only 125 teachers (11%) gained their knowledge in the course of their secondary education may be regarded as criticism of IT education in secondary schools. As for the older generation it is understandable, since when they were secondary school students such courses were not available. However, 19% of the interviewees are under 35 years of age and 30% of them under 40; they were surely taught some basic IT knowledge. The decisive role of self-education in acquiring IT knowledge is owing to the lack of such education received at secondary school and, to a greater extent, higher education programs, as the lack must be made up for. The prominence of self-education, however, is probably due primarily to the fact that the possibilities provided by new hardware and software generations could not be learnt, let alone utilized, in any other way. This is exactly why we deemed it important to get familiar with the ideas of pedagogues on statements that are relative to the educational use of computers as well as to individual and staff attitudes.

2. Attitudes

We asked teachers to evaluate statements on a four-grade Likert-scale (grade one signified full disagreement while grade four reflected maximum concord). We received the following result:

Statements	average
I like teaching	3.77
I am interested in new developments in technology	3.40
I continually update my teaching methods and equipment	3.35
I can operate a computer efficiently	3.29
I feel I am well-prepared to use a computer for educational purposes	3.14
My school is well-equipped with respect to ICT devices	2.87
School consumes all of my free time	2.84
Along with teaching I have time left for self-education	2.72
My fellow teachers use a computer in their daily practice efficiently	2.38
I am interested in the educational use of IT devices but have no appropriate knowledge of them	2.35
Few people in my school are interested in the use of computers in education	2.10
The staff meeting never involves the problem of using computers in class	2.04
I believe in the traditional “board & chalk” method	1.91

Table 2: Teachers’ attitudes to the utilization of computers

On top of the rank is the love of the profession, although nine interviewees fully reject the statement. (Six of these teach natural sciences and some of them are even school principals!) The interviewees judge their own preparedness and interest as being more positive than their fellow-teachers’: for instance, only 58 people were fully content with the efficient computer use of their colleagues. 88 interviewees state with firm conviction that their schools have few people that are interested in the educational use of computers and 163 people declared that not one word of this subject is raised in the staff meetings. We naturally do not wish to imply that in these schools the teaching staff does not use ICT devices at all as we have no information to that effect! Nonetheless, it gives food for thought that one sixth of the interviewees work in institutions where the school management does not regard the in-class use of computers a problem worthy of discussion or debate. Last in rank comes the statement on the privilege of the board & chalk method. 362 interviewees categorically reject the statement; only 32 people signaled their full disagreement (7 out of the 32 are, surprisingly, teachers of informatics).

3. Utilization of Devices

In pedagogy, the dichotomy of theory and practice is quite common, and unfortunately it is not exceptional that there is a significant discrepancy between the two

areas. That is why we examined the frequency of the use of classroom equipment and came up with two ranks. When calculating the first rank we took into account every answer, while in the case of the adjusted rank we ignored negative replies. In the latter case the calculated values naturally increased, the distance between most often and least often used equipment decreased, and several elements of the rank were significantly modified.

equipment	frequency of use	number of non-users	corrected frequency of use
course book	3.98	54	4.13 (1)
board & chalk	3.91	65	4.09 (2)
computer	3.22	172	3.62 (3)
reference books	3.01	119	3.25 (7)
projector	2.84	295	3.48 (4)
the Internet	2.79	268	3.35 (5)
CD-player	2.51	406	3.35 (6)
DVD-player	2.45	299	2.97 (10)
professional journal	2.37	266	2.79 (14)
literature	2.23	404	2.91 (11)
video player	2.18	382	2.78 (15)
tape recorder	2.04	604	3.22 (9)
OHP	2.01	503	2.82 (12)
art album	1.97	484	2.69 (16)
interactive board	1.76	745	3.24 (8)
slide projector	1.45	773	2.42 (17)
classroom response system	1.37	886	2.81 (13)

5: in almost every lesson; 4: several times a week; 3: every week; 2: rarely; 1: never

Table 3: Frequency of using school equipment in the classroom

Rankings are not different in the respect that despite the majority of interviewees do not regard themselves adherents to the traditional board & chalk educational method, they use this equipment most frequently apart from course books. That is, practice does not follow theory in this case either, which may be so for several reasons. The most obvious reason for this may be the deficient supply of technological equipment in schools. Could be an explanation, that is, but on the basis of the responses it cannot be an appropriate explanation, as teachers tend to hold the technological equipment of their schools sufficient and 281 are fully content with the devices available to them. According to this, the reason for the prominent use of books, boards, and chalk lies in the problem of educational methods. (A separate study would be needed, however, for examining this problem in detail.) Apart from this, the availability of devices naturally also play an important role, which is traceable in the use of two of the most cutting-edge school ICT devices, interactive boards and response

systems. Both are at the end of the rank with regard to frequency, but looking at an adjusted rank compiled by disregarding negative responses we may establish a significant shift towards the center of the list. Out of different types of technological equipment, interviewees most frequently utilize computers and projectors, but CD-players and DVD-players are also made use of in classes. The latter is rather popular, but it follows from the adjusted frequency ranking that application is not too intense.

The infrequent application of OHP may surprise many. Indeed, some time ago this device was widely used and for a lot of teachers it was equivalent to the first-rate technology. Reduction, however, is evident given that its role in exemplification has been taken over by more efficient technology, such as the computer and the projector.

activity	every day	several times a week	every week	several times a month	every month or less frequently	total
demonstration	52	84	88	73	70	367
group work	20	49	79	65	86	299
assignment	31	56	86	59	59	291
individual work	22	52	79	50	73	276
taking notes	27	35	60	54	59	235
testing	16	32	49	45	85	227

Table 4: What do teachers use the interactive board for?

Out of those listed above, only four devices are used very rarely by teachers. The application of art albums is difficult to realize in several subjects such as chemistry or PE, but they are not too popular in the case of other classes, either. Slide projectors are obsolete equipment today and even some time ago they were mostly used in primary education. Response systems, conversely, might be the device of the future and are not available in most institutions (yet), therefore it may not come as surprising that almost 80% of the interviewees have never worked with it. The interactive board is, however, the most fashionable educational device of our times, also supported by educational policy, and its meager application may from a certain aspect be unexpected. Nevertheless, this data is also determined by the availability of the device, which was also examined separately. Out of the 1146 interviewees 613 persons (54%) noted that their schools have interactive boards. The distribution is not even, though: there is a substantial difference between different schools possessing interactive boards, which is relative to their institution types. Provided that we delegate to the category of primary schools such institutions as also perform primary education, the proportion of primary schools with interactive boards is 43%, while in the case of secondary schools this ratio is 72%. If, however, mixed-type institutions are classified among secondary schools, proportions are modified to 49% in primary schools and 60% in secondary schools. Therefore, irrespective of the method of ranking, secondary schools are in both cases better-equipped with digital boards than primary schools. Another thought-provoking figure may be that although the availability of the device would make possible the use of the board for 613 interviewees, 223 persons still wrote that they never utilize interactive boards for their activities. As these items cover the most frequent in-class activities, we may establish with full certainty that over one third (36%) of potential users

(613 persons) do not exploit the possibilities available to them. (The reasons for this, however, require further study.)

Equipment	Factors				
	1	2	3	4	5
computer	.862	-.165	.041	.033	-.194
the Internet	.847	-.085	.051	.058	-.114
projector	.838	-.191	.079	-.011	-.169
interactive board	.673	.003	-.125	-.003	-.076
oral examination	.253	.252	-.188	.227	.065
CD-player	-.048	.810	.204	-.049	-.015
tape recorder	-.140	.773	.135	-.023	.049
literature	-.186	.692	.100	.266	.135
art album	-.123	.635	.170	.391	.060
video player	.091	.382	.703	.025	-.040
slide projector	-.066	.111	.667	.189	.099
DVD-player	.316	.403	.632	-.019	-.125
OHP	-.168	-.026	.619	.285	.163
professional journal	.074	.075	.210	.838	-.075
reference books	.033	.121	.148	.818	.041
course books	-.138	.141	.089	.074	.856
board & chalk	-.289	-.007	.031	-.077	.799

Table 5: Factors of using equipment in the classroom

Those using the interactive board mostly utilize this new technological development for demonstrative purposes. Since the board is capable of much more, this equals to wasting resources, so to speak, and is similar to when someone uses the computer only for processing simple texts or when a sports car is used exclusively for doing the shopping. Compared to demonstration, the utilization of the interactive board in differentiated classroom management is even less significant, merely one fourth of the interviewees perform such activities. It is surprising that the rate of those using the board for writing notes (among other things) does not reach even this low ratio. Most of the vendors try to make teachers like this new equipment by emphasizing the new applicability of traditional teachers' methods on a new interface, and this is supplemented by presenting further services. Nevertheless, it has been proven that the majority of the teachers do not or only occasionally use the interactive board for such conventional teaching activity. (When visiting various classes we also observed that the outline of the lesson was written on the traditional board, and the digital one generally presented additional activities and illustrations.) In the rank of activities testing came last in every aspect. This result, however, was expected, as among the examined

elements of didactics this occurs the least often, and also, testing with the help of an interactive board is less controllable by the teacher, therefore this activity is rarely used and most probably will not be a widespread phenomenon in the near future.

We also analyzed the use of school equipment by factor analysis performed by the SPSS program. This method depicts the hidden system of relations among the variables, and new, artificial variables (factors) come into existence, which display the examined phenomenon in a simpler way than the original variables.

From the table we may see that the factor analysis method put the previous variables into five, well-distinguishable factors. The first factor holds the ICT equipment usage data, that is, one part of the teachers uses only these devices. The interactive board significantly influences their work along with the computer, the Internet, and the projector. Also, the testing system appears here, though its role is insignificant. The second factor implies an ambition for providing taste and supplying emotional warm-up, which are partly realized through using audio materials, but visual stimuli play an important role, as well. The third factor stresses visuality to a great extent, and for this traditional equipment, the video, the DVD-player, the slide projector, and the OHP is applied; these elements are positively closely connected to visuality. The characteristic of the fourth factor is the use of printed materials, primarily traditional school equipment such as reference books and professional journals. The fifth factor represents conservative teachers, whose equipment system is made up of the classic course book/board/chalk trio. Their attitude is even more highlighted by the fact that the other appliances influence their work to a very insignificant degree, and in the case of ICT equipment, even this inconsiderable relation is negative.

4. Applicability

The application of modern school devices requires not only technological background, but also user's knowledge and an appropriate area of application. We have previously disclosed the sources of computer knowledge; here we will analyze the areas of school activities where our interviewees regard computers as most useful. The questionnaire studying this area was taken over from the 2006 National Survey on Informatics in Public Education, supervised by Márta Hunya. [4] The questions were directed at the problem of what extent may computers assist school work in the areas listed, according to the interviewees. The replies were placed in a five-grade Likert-scale, where grade one signified "not applicable" and five meant "highly applicable."

Activity	2009	2006*	difference
Reports, making statistics	4.85	4.68 (1)	0.17
Keeping records of the students	4.78	4.63 (2)	0.15
Keeping records of the results and analyzing them	4.63	4.39 (3)	0.24
Students maintaining relations with one another	4.35	3.63 (13)	0.72
Students' individual research	4.32	4.26 (4)	0.06
Students presentations	4.26	4.10 (5)	0.16
Teachers' preparation	4.17	4.07 (6)	0.1
Helps in teachers' explanation	4.16	3.90 (9)	0.26
Teachers' professional development	4.16	4.05 (7)	0.11
Teachers' maintaining professional relations with other teachers	4.13	3.78 (11)	0.35
Completing project assignments	4.05	3.63 (14)	0.42
Students' individual practice	3.96	3.83 (10)	0.13
Examining, testing	3.81	4.01 (8)	-0.2
Co-operative work	3.69	3.50 (15)	0.19
Students' preparation	3.66	3.71 (12)	-0.05
Organizing students' work with PC	3.56	3.29 (16)	0.27
Teachers maintaining relations with students outside the classroom	3.48	2.76 (18)	0.72
Giving out and collecting assignments	3.30	3.08 (17)	0.22
Maintaining relations with the parents	3.12	2.48 (19)	0.64

** calculated from the figures of the National Survey on Informatics in Public Education*

Table 6: Applicability of computers in different areas of school work

Our interviewees deem computers to be useful for various administrative tasks; 93% marked the two highest response values. Apart from this, however, the views on computer-supported student, teacher, and in-class activities are highly heterogeneous. People thought that computers are more applicable to the preparation of teachers than of students but the device may assist the individual researches of students better, let alone students' in-class presentations. (The frequency of these activities, of course, is doubtful.) The most diverse replies were received as to the communication of various different groups. While, according to 83% of the interviewees, computers are applicable or highly applicable for student to student communication, the proportion is only 76.4% in teacher to teacher relationships,

52.4% in teacher to student communication, and only 39.4% in teacher to parent relationships. This is exactly the area that has undergone the greatest changes since the 2006 survey. While this is probably also due to the widespread use of the Internet and electronic mail, the major impetus in the progress was provided by the dynamic development of various networking and community pages. Today the majority of secondary and also primary school classes are represented on iwiw.hu (“international who is who”), and it is not a rare case that students convince their parents and teachers to join the network. The other substantial difference between the frequency rankings of the 2006 and 2009 surveys is related to ideas on computer-supported testing. In 2006, due to differing requirements and various conceptions, interviewees deemed this potential area of utilization more important than in 2009. The discrepancy in numbers is not substantial but as in 2009 people regard computers more applicable for other activities than they did 3 years earlier, the difference is remarkable between the two rankings.

5. Threats

The ideas on the applicability of computers for various activities, in addition to knowledge and experience, also depend on the real or imagined threats associated with these devices. Therefore, we also examined to what extent do negative concepts related to students’ computer and Internet use appear in the thinking of our interviewees. For the sake of comparativeness, this area was also examined with a questionnaire taken over from the National Public Education IT Survey. Replies here were also placed in a five-grade scale, grade one being total rejection of the given item, five signifying highly severe threats.

Threats	Average
Uncontrolled information is used	4.21
The role of oral communication diminishes	3.95
Students’ linguistic command deteriorates	3.85
They “acquire” finished materials instead of working and studying	3.78
They do not learn how to write in nice hand	3.77
They are exposed to malevolent strangers	3.67
They live in a virtual world instead of reality	3.65
They establish fewer social relations	3.33
They are alienated from one another	2.93
Computers narrow their scope of interest	2.77

Table 7: Threats of students’ use of computers and the Internet (five-grade Likert scale)

According to pedagogues, the most significant hazard is the use of uncontrolled information, but they also regard the impact on communication remarkably negative. They fear primarily the deterioration of oral communication and of the means of linguistic expression, but the latter has a natural impact on the declining neatness of writing. Teachers deem negative socializing effects less severe and are least afraid of the contracting of students' scope of interest.

We get a more graded picture when conflating the three topmost hazards, by signifying more severe dangers and grading them along the lines of three possible replies—“may occur rather frequently,” “severe threat,” and “very true.” We ranked the answers according to this adjustment.

Threats	2009	2006	difference
Uncontrolled information is used	95.7	87.9 (1)	7.8
They “acquire” finished materials instead of working and studying	90.7	84.6 (3)	6.1
Students’ linguistic command deteriorates	88.3	81.4 (4)	6.9
The role of oral communication diminishes	87.4	86.3 (2)	1.1
They live in a virtual world instead of reality	87	73.5 (5)	13.5
They are exposed to malevolent strangers	85.6	65.7 (9)	19.9
They do not learn how to write in nice hand	82.2	73.3 (6)	8.9
They establish fewer social relations	74.7	69.7 (7)	5
They are alienated from one another	64	66.2 (8)	-2.2
Computers narrow their scope of interest	58.6	59.8 (10)	-1.2

** National Survey on Informatics in Public Education*

Table 8: Threats of students’ use of computers and the Internet in % (threats regarded as most frequent)

The use of uncontrolled information still comes first on the list, not in the least due to the fact that only six people think that the use of computers involves no such threats. This first rank is also corroborated by second-ranking replies to the question on the application of preliminary prepared materials, which, compared to the rank based on averages, traded places with the statement predicting the reduction of the role of oral communication. It is interesting to observe that the statement connected to the other, written, form of communication, also moved down the rank. It requires further study to see whether this is only a judgment of the statement or implicates the devaluation of neatness of handwriting or even of handwriting itself.

As compared with the 2006 data, the most remarkable change is that in 2009 almost all potential threats were deemed more significant by our interviewees. Only two factors, “alienation” and the “contracting” scope of interest, received a more positive evaluation, but

this change is rather meager. In contrast to this, responses reflect that the threat of students living in a virtual world where they are exposed to strangers has increased. The real danger has probably not increased to such a degree, but replies are influenced by experience (e.g. spam) and news supplied by mass media. More and more news pieces are related to Internet-based frauds, harassment, and sexual influencing. It is chiefly young people that are exposed to this, as their being inexperienced is usually coupled with a naiveté that is easy to exploit through the lack of control and with the help of anonymity.

6. The Conditions of Change

6.1. "Hardware"

Above we have examined the attitudes pedagogues have to the application of ICT devices in class, including, most specifically, computers and interactive boards. It was found that the principles adhered to by the interviewees and their daily practice differ. Data referring to this were supplemented by the responses given to the advantages and drawbacks of the application of computers, thus acquiring a more precise view of the factors leading to the difference between theory and practice. We may, however, focus the picture even more by learning what teachers replied to the following question: "What would you need in order to use informatics devices in class (more frequently)?" 887 persons have answered the question, including 628—that is, over two thirds—who regard the improvement of conditions necessary. The most basic condition is to have more and more up-to-date devices. Depending, nonetheless, on the state of equippedness of the institutions and their experience, the interviewees have differing views on what improvement of the equipment means. Those much disadvantaged in this area would be satisfied with only little: ". . . *we do not have interactive boards or computers at all in our classrooms (except in the IT room). We have a single laptop and projector which we carry to class on our shoulders and in our hands, on the basis of a schedule created together with our colleagues. We can only carry out developments from tender funds (the municipal body maintaining the school is poor): we were happy with being able to acquire a photocopier, some computers, a laptop computer, and a projector in this way*" (age 52, female, primary school). Furthermore, there also those that do not even think about the development of devices and would like to use those that are available: "*we should first be able to get into the IT room or be granted some classes in the interactive board room*" (age 39, female, vocational secondary school). Others are more straightforward than this and would like to realize the full-scale supply of devices: "*IT devices installed and operable in all rooms*" (age 51, female, grammar school), but "*not in place of repairing collapsing walls and leaking roofs!!!*" adds another fellow pedagogue. What several interviewees find wanting is financial support for the purchases, but there are also those thinking that the devices "*should not be purchased by the schools but the schools should be entitled to it along with the school building, similarly to heating, lighting, water, etc*" (age 61, male, mixed-type institution). Even where the supply of devices is of a high level there is much to improve, indicated by the demand for the availability of cutting-edge technology or the demand that not only the teachers but also students have their own computers in the classroom. Several teachers find necessary IT assistance for the safe and proper operation of devices, the degree of which is also pending—similarly to equipment purchases—the state of equippedness of the given institution. Technical assistance would be used in more poorly equipped schools to ensure that it is "*not the teachers that spend their breaks with collecting, setting up, then carrying back the devices at the end of the class*" (age 55, female, primary school). That is, it would be the technician that would carry ". . . *the laptop and projector from room to room like an armor bearer . . . until we are fully digitalized*" (age 45, female, primary school). Those that see wanting an auxiliary staff

indeed wish to have an IT administrator: they would like to have a person that maintains the programs executed on the computers and makes possible the necessary auxiliary programs and settings. Some people, on the other hand, wish to see such assistance as would “rummage for materials” on their behalf, that is, properly compile and prepare different presentations and animations on the basis of predetermined scripts.

6.2. “Software”

Naturally, it is not enough to have the technology available for the efficient use of ICT devices in the classroom, there is also a need for proper content and methodological preparedness. Several people miss digital material to present, data banks available, but there are also others that would like to have thousands of freely available materials for the interactive board. They communicate their wishes, too: “. . . auxiliary materials that are not preordered but are module-based and can be reordered along other lines of thought (on the basis of the material and adjusted to the individual classes), and which are also based on some methodological view supporting skills development and cooperative work” (age 42, male, grammar school). Such individual concepts and wishes frequently remain unsatisfied, and duly some people are highly critical of educational material: “. . . what the school bought at a high cost from the publishers is from a professional perspective weak and many times useless” (age 38, female, primary school). “There are doubtless many useful things on SDT,¹ but a lot of it is useless. The pages download at a terrifyingly slow pace, are not available, or freeze the computer (not a fault of our system!); the educational material (e.g. documentaries) cannot be downloaded, and thus it can only be used in classrooms where there is Internet access, and we only have 1 or 2 such rooms. Thus, even if the material was useful, we could not use it!!!” (age 38, male, vocational secondary school). Some people urge content development for “personal” reasons, “. . . as I have no time and energy to create ‘everything’ myself” (age 35, female, vocational secondary school). Further, we found examples for the misplaced investment of energies, too: “. . . for the time being, I can only use what I created. I also experience that programs developed by me for the request of different institutions (NFI, SZI²) are not distributed” (age 62, male, grammar school).

Irrespective of external conditions, the effective application of ICT devices also requires the preparedness and appropriate attitude of teachers. Out of the 1146 interviewees, 96 (8.4%) were satisfied with their use of the devices. “In my opinion, I use it as frequently as necessary” (age 56, female, grammar school); “I cannot use it any more frequently than this, and we have nearly everything from the subsidies for developments” (age 38, female, vocational secondary school). This, however, does not always mean that ICT devices are used in every class! “I use informatics devices in the majority of my classes (approx. 70%), and would not like to apply them any more than that” (age 45, female, mixed-type institution). Three interviewees gave reasons for not wanting to use the equipment more, and their self-restraint derives from the same sources in all three cases: “I think I utilize the possibilities of IT devices to the maximum in my classes. This is enough, as it would take away part of the significance of personal contact, which I deem an important principle of education” (age 54, female, primary school).

At the same time, in addition to the satisfaction regarding the use of devices, several responses reflect the problems that have been identified during the discourse on different conditions. Accordingly, the lack of devices appears here, as well: “In my opinion, I use computers for appropriate periods of time. The problem is not this but that my colleagues

¹ Sulinet Digitális Tudásbázis

² NFI – Nemzeti Felnőttképzési Intézet; SZI – Szakképzési Intézet

are also catching up, and thus I will have fewer possibilities to use the equipment, as there is only one portable computer and projector in our institution” (age 48, male, primary school). The reliability of devices is another restrictive factor, “When it works, I always use it” (age 37, female, mixed-type institution), similarly to the lack of utilizable digital contents, “I use it in every class, but if the digitalized versions of pictures and images in the course book would come with the books on CD or DVD, that would really assist the teacher’s work!” (age 47, male, primary school). There are some who are even more ahead and are thinking of how to assist students missing classes with the help of ICT devices, in order to ensure faster catching up, or how to make available for the parents any complex assignments made on the computer.

Among the reasons for the more frequent application of ICT devices in class, a relatively low number of teachers, 61 (5.3%), included factors that relate exclusively to themselves. These few pedagogues indicated their own hesitation, the lack of will or proper mood (!) as hindering factors, and only one interviewee wrote about a need for external appreciation as motivation. Time is prominent among the factors mentioned by the interviewees; nearly two thirds of the 61 persons would like to have more time for preparation. It is not known whether they deem their IT knowledge as appropriate or include learning, too, in the time allotted for preparation, but out of the teachers several indicated separately their inadequate knowledge: *“I need to develop my IT knowledge—and develop it a lot” (age 46, female, grammar school). There are also big differences in the amount of knowledge to gain. Some people would only like to learn how to install the equipment or use the devices, while others intend to use more spectacular presentations and wish to learn, e.g. the creation of Flash animation. Others still wish to improve their methodological preparedness: “To know how to apply these things during teaching and learning” (age 45, female, primary school). Several people feel that their lack of professionalism is a problem, and they would need much more practice to be more certain; the use of these devices would be only then integrated organically in their pedagogical practice. As we have previously seen, the necessary amount, profundity, and content of practice vary, primarily on the basis of personal commitment. A perfect example is the subject of PE. Among our interviewees, five people stated that they would only be able to use ICT equipment in class if they did not teach PE. In contrast, out of those satisfied with their daily practice, two teachers indicated that they use such technology with pleasure in all of their classes, including PE: “I exploit my possibilities to the maximum. I even use IT for PE. For instance, I show the animation of physical phenomena and other things” (age 52, male, primary school). It is also important to note that in contrast to the 61 replies denoting some lack or deficiency, only 28 people indicated that according to them the more intense application of IT devices in class would be enhanced through trainings: “to me it is trainings, free of charge, as only teachers are expected to finance their own obligatory further education from their meager salary” (age 49, female, primary school).*

Although our question, “What would you need in order to use informatics devices in class (more frequently)?” referred expressly to the interviewees’ personal needs, 16 people still found the key to change not in the external system of conditions, not in their own knowledge or training, but in other persons. According to five people, it is students that need to change. They are expected to be more attentive and to have more reliable, higher-level IT knowledge. 11 interviewees, on the contrary, criticized the preparedness and attitudes of their colleagues, thinking that they would need higher-level further education in order to be able to use IT devices more freely, to learn the rules of application, and, last but not least, “. . . the majority of teachers would need to substantially change their views” (age 60, male, vocational secondary school).

7. Summary

On the basis of the data presented above, the majority of the pedagogues interviewed acquired their IT knowledge primarily in the course of self-education, and also extend such knowledge in the same way. Therefore, higher education should devote more attention to this field, moreover, the number of further education programs of this type should be increased, as – despite the fact that in the last few years the range of supply has widened and a strong support was present in the supply of further education courses centered on ICT – Hungarian teachers are still voicing a marked demand for further education programs providing IT knowledge required for teaching (cf. [4])

Yet, the interest in new technologies and the related methods as well as the rather positive attitude manifests itself only slightly in everyday practice. The role of the classic book-board-chalk asset system remains to prevail, while interactive boards, for instance, are used by few. Moreover, digital boards are very often made use of for activities which could be realized without this asset, that is, they in fact do not exploit the possibilities available. This problem also signifies that there are still gaps in the preparedness of pedagogues, but it is positive that the competent parties are also aware of this, and many make an attempt to change their or their colleagues' attitudes. According to the large majority of our interviewees, however, to achieve quality improvement, the system of conditions must first be developed. This does not only mean the increase in the number and quality of devices available, but also relates to the development of available content. In order to enhance progress, therefore, first these fields must be successfully developed.

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