THE CATEGORISATION OF THE PUPILS' WORK WITH IPAD IN A SPECIAL ELEMENTARY SCHOOL

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ABSTRACT

The contribution introduces the detailed categorization of pupils with iPads at special primary schools in the Czech Republic. The first half of the contribution deals with a part of the survey. It refers to the methodology and selection of the informants who were used to create the final categorization. Based on this categorization, special teachers in the Czech Republic should be able to classify their pupils in order to find out what expected outputs they can expect from their pupils when working with iPads. Then a comprehensive verification across specialized primary schools will be in the second part of the survey. The aim is to verify whether the proposed categorization is applicable to a comprehensive sample, and whether any pupil with special educational needs can really be included in the category.

KEYWORDS

Categorisation, iPad, Special Elementary School, Individualization

1. INTRODUCTION

Nowadays, the use of ICT is an indispensable part of the work of a teacher and it can be considered as one of the pedagogical key skills. Using iPad mobile touch devices does not require the development of cognitive abilities as much as using other digital technologies. (Chmiliar 2015), therefore using these devices, which we rank among ICTs, may seem justified. Using iPads in a special elementary school for pupils with special educational needs, can bring many benefits but also a lot of negatives. Rahman (2012) said that iPad tablets are motivating especially for their interactivity. Two years later, Flewit, Kucirkova and Messer in their case study (2014) state, that writing on the iPad requires less effort and control of precise graphics and facilitates visual and sensory learning. We can say about Vygotsky's notion of gesture being 'writing in the air'. That is all right if we consider iPad as a new learning tool that offers a different kind of working on graphomotorics. MacDonald, Hill (2014) report that these devices can be sort, based on the primary use of pupils, such as in augmentative and alternative communication. Wianwright (online, 2016) adds that starting slowly with just one or two applications is natural, and it is very important to establish a clear and consistent policy for mobile devices for teachers, employees and students. Everyone needs to know what is expected, so it is important to set the rules in advance before we start using the iPad in the classroom. Epps (online, 2016), in his study "Special Education Teachers' Experience in the Implementation of the iPad as an Instructional Tool for Students with Intellectual Disabilities, says that using iPad tablets, when teaching pupils with moderate mental disabilities, greatly increases attention at work.

Tablets are attractive for the pupils. Working with tablets, compared to common teaching materials, is motivating for pupils. Allen (2016) in the study states, that digital touch technology provides a unique advantage and opportunity to adapt to the individual deficiencies of each pupil, that common paper material can not provide. Among the negatives, that are often mentioned, are the claims, that the iPad seems to be too expensive for potential users or that the App Store offers most of the apps for a fee. This is confirmed by Chmiliar (2017). As part of our dissertation on "Individualization of teaching in a special primary school using iPads", the research goal has appeared:

- to categorize pupils with special educational needs in the context of direct work with iPads in the educational process;
- to categorize the recommendation of using iPads in the classroom.

There is no such categorization in the educational process of pupils at special elementary schools in the Czech Republic, and special educators, when trying to implement iPads into teaching process, learn mostly from the experiment - what to do, when a pupil is not interested in iPad; a very common hypothesis - when this pupil cannot do the work, then the one, with worse diagnosis, will not be able to do it, etc. Chmilliar (2017) at the conclusion of his study confirms, that iPads can make a positive contribution to the education even of small children with disabilities. As a part of our dissertation, several partial studies have been carried out to confirm the positive effect of using iPads in education in the Czech Republic. These results were published in The ICDLSE 2017: 19th International Conference on Distance Learning and Special Education and at the 13th International Conference on Mobile Learning 2017 in Portugal, Algarve (04/2016). Partial researches have also shown that the absence of missing categorization, which clearly determines the content of the expected outcomes and the inclusion of a pupil, is very important for all teachers surveyed in the Czech Republic. However, the facts, how a teacher can categorize his pupils by working with iPads and fulfilling expected outcomes in the context of working with iPads, do not exist. In the framework of the 18th Annual International Conference on Information and Communication Technologies in Education, another sub-study was conducted, in which 115 special educators pronounced "for" the formation of categorization that would allow sorting of pupils in the context of working with iPads. This categorization will be an entry point for educators to know which pupils can individualize iPad lessons.

2. METHODOLOGY OF RESEARCH

In accordance with established research questions and qualitative research techniques, as reported by Hendl (2008), Švaříček, Šeďová et al. (2007), the most appropriate method of collecting data was participative (participatory) observation, in the natural educational situations, induced especially by the teachers, because of mental retardation of the pupils. We can characterize this method as open observation, because the author of this survey actively participates in the "iPad in Teaching process" class project, and pupils are used to it for a long time. For this reason, the investigation has simplified the phase of contact with the research team and the search for a key informant. An advantage was also the knowledge of the school environment, school management inclined to test new teaching practices, and knowledge of the pupil's usual school work prior to iPad's intervention in the classroom. Another positive criterion for choosing this data collection technique was that the author had unlimited time for this work.

2.1 Research File

The entry research team was 21 special elementary school pupils, ranging from the 1st year to the 10th year of the special elementary school. Those were watching while working with iPads during classes.

Table 1. A detailed overview of student diagnoses, their associated partial deficits, the number of pupils in a given group and their age

Diagnosis of the pupil	associated defects	number of pupils	y.o.
moderate mental retardation IQ 35-49	0	8	7-16
moderate mental retardation IQ 35-49	Glaucoma, a great potion in a fine motorcycle	1	15
moderate mental retardation IQ 35-49	Down syndrome, impaired communication ability	1	13
moderate mental retardation IQ 35-49	autism, impaired communication ability	3	7-16
moderate mental retardation IQ 35-49	deaf - hearing loss	2	9
moderate mental retardation IQ 35-49 - lower boundary band	autism, impaired communication ability	3	11-15
severe mental retardation IQ 21-34	autism, impaired communication ability	3	7-10

2.2 Evaluation Criteria and Rating Scale

Because of the specifics of each pupil, the interaction pupils - iPad, the school work with this mobile device is not united. Due to the partial deficits of each individual pupil who is involved in this project, the iPad tablet's instruction must be individualized, so that each student is able to achieve his / her maximum school output in the course of his / her learning in his / her medium-term mental retardation and any associated disabilities. The results of the "iPad in Teaching process" sub-research study pointed to the need to introduce a certain categorization of pupils. It subsequently simplified the selection of teaching methods in relation to the work on the iPad, made it easier for a pupil to understand the working in groups on pupils' outputs and it was a prerequisite for individualizing school work on the iPad Based on the results of this pre-survey, the following three criteria were set for the relevant rating scales.

Table 2. Evaluation Criteria

difficulty	**Evaluation criteria**
↓	1. capability (from a technical point of view) to serve the iPad,
	2. level of pupil's ability to work in content-based applications,
	3. the degree of the pupil's ability to work with creative applications or so-called app smashing.

Table 3. Rating Scale

	Rating scales for criterias				
Difficulty ↓	Criterion nr. 1	manages self-services	work with the teacher's support	working with iPad only with the help of a teacher	does not have a job
	Criterion nr. 2	Individual work	After compensating for associated defects, he manages to work with mild aid	Only with the help of a teacher and assisted access	the pupil appears to have only a small visual / hearing interest or rejects the iPad
	Criterion nr. 3	work with the teacher's support	with teachers help	does not have a job	does not work and the iPad rejects it
	Independence →				

3. CATEGORISATION OF THE PUPILS' WORK WITH IPAD

The students of the research team were always familiar with the iPad technical device; they were repeatedly provided with explanation of intuitive control and basic service, including charging and maintenance of cleanliness, and they were gradually acquainted with individual applications during one school year. During this training, the principles of proportionality, repetition, progress from simpler to more complex were followed. The pupils were part of the attendance of the teachers, who made the notes of individual pupils during this training and together they evaluated the work according to the set criteria. The set conditions and criteria described above, the study group has disrupted into 4 categories. It also follows, from the results of this five-year research study, that all pupils in a given research group, may be included in one of the categories after a certain period of time, with no possibility, that the pupil will "move" to another category, after another long- practical work with these pupils. Each pupil of a given category is an individual and finding two identical pupils, due to the manifestations of a given disability, is impossible. Therefore, it is also necessary to state, that within the category, pupils, when working with iPad, may have some differences, different specifics, or fluctuations, according to the actual health and mental state. The resulting

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categorization was complemented by expected outcomes, that do not agree with the currently valid Framework Education Program for the Specialized Primary School, because this educational program in the Czech Republic does not count on the use of modern ICT in teaching process. This Framework Education Program was established in 2008 and has not been revised so far. This study also aims to show that iPads (and tablets in general) can be of great benefit and that the Framework Education Program should be reviewed.

Table 4. Categorisation of the puppils' work with iPads

Expected Output	1. category	2. category	3. category	4. category
Operation on the iPad				
off / on; brightness adjustment, volume adjustment; desktop orientation; Launching and running the application keyboard orientation; typing text on the keyboard; put the iPad on the charger; working with web browser, App Store App; working with email; storing the camera; using gestures; lock the iPad	Manages self-service	work with the teacher's support	working with iPad only with the help of a teacher	does not have a job
Working with content-specific applications				
the ability to manage application instructions; keep your attention on the application desktop; Understand the importance of application and its use; ability to control individual application features	Individual work	After compensating for associated defects, he manages to work with mild aid	Only with the help of a teacher and assisted access	the pupil appears to have only a small visual / hearing interest or rejects the iPad
work based on own content creation - Appsmashing				
ability to switch between apps; to understand the individual application usage for each task - here I will do this, here, export the final output	work with the teacher's support	with teachers help	does not have a job	does not work and the iPad rejects it

difficulty ↓

independence →

4. CONCLUSION

Two-year day attendance, video recording, photographs and data interpretation clearly showed, that the pupil's diagnosis and the extent of his mental as well as associated deficits are not the primary factor for his place in the category. In practice, this means, that the pupil, who has a severe diagnosis, can be a level higher in the final categorization. The assumption, that a pupil would shift to a higher category, after a certain time, is disproved by two-year observation. None of the 21 pupils involved could do this. The two-year survey has also confirmed the fact, that iPad reduces the burden on the pupil's graphics, does not require the development of cognitive features as much as other ICTs or common teaching material require.

The purpose of further research is to verify this proposed categorization of work for pupils across the Czech Republic (only special elementary schools). The data obtained will be compared to those inputs. If the area verification brings new data, then the categorization of pupils will be adjusted, according to a higher number of informants, up to the final form. Our goal is to create a final categorization of pupils' work with iPads, where the teacher will be able to classify his pupils and know exactly how much work his pupils will handle with the pupil's own efforts and with the teacher´s help.

However, we can already say, that the diagnosis of a pupil, the degree of his / her disability, is not the primary determinant for the pupil's categorization. If a pupil accepts the touchscreen devices, then he is capable of successful interacting: the mobile touch device x student. Teacher´s assistance at a certain level is already secondary factor. If the pupil does not accept the mobile touch device then the interaction of the learner x the pupil x the mobile touch device is irrelevant. We can also say, that the successful implementation of mobile touchscreen devices, clearly eliminates and reduces the pupil's graphical load,

co-ordination eye x hand. It is clear, that the iPad mobile touchscreen device can compensate for writing equipment, where the pupil is unable to use it efficiently. Since the touchscreen device has a so-called visual keyboard, this device can eliminate the difficulties in fine motoring, which are a very common symptomatic disorder of a pupil within a range of mental disabilities. Then the pupil is capable of realizing a lesson, that he would normally not be able to realize with a computer keyboard.

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