STUDY REGARDING THE USE OF COMPUTER IN ADULT EDUCATION

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Abstract*: The paper presents a study having as its purpose the comparison of adult trainers' perceptions with the perceptions of adult trainees on the advantages of using computer in the didactical process for identifying common interest aspects. The premise on which this study is based is that the quality of teaching by means of computer is reflected on the quality of learning results. For this reason, research is focused on the perceptions of adult trainees on the investigated processes and phenomena. The research design is of multi-method type which combines qualitative and quantitative methods to collect data. Used instruments: the semi-structured in-depth interview based on the focus-group method; questionnaires applied on pair samples. The results of the study reveal training needs of adult trainers in the fields of innovation, teaching, learning, evaluation methodologies through the use of computer as a pedagogic tool and as an effect of knowing adult trainees' perceptions in this regard.*

Keywords: *adult trainers, adult trainees, learning by means of computer*

I. INTRODUCTION

In the new European context created after the adoption in 2000 of the Memorandum on Lifelong Learning by the Commission of the European Communities, a justified increase of the interest for the innovation of the pedagogical methodologies used in adult education, is established.

The pedagogical instruments which created the highest impact on teaching-learning, evaluation processes are the new information and communication technologies, especially the *computer.*

The appearance of computer in the training environment generated a series of controversies. Some experts in education sciences are skeptical about the advantages of using this training means: "Through the intermediation of inter-human relationships by the computer – as Albu G. (2009, p.24) states - we lose the biggest gift mankind ever had: the national and international contact among people, ideas, information, opinions, creative works and connections". There are experts also openly expressing their doubts as regards the results of the learning facilitated by computer: *Do the trainers working with computer obtain better results in adult education as compared to those not using it? –* as Cojocariu wonders, V.M. (2010, p.137).

A very serious problem is that of adult trainers' resistance as to the use of these new types of instruments. The main causes of this attitude could be: fear of embarrassment, conservative attitude, lack of computer skills, misunderstanding the program, poorly maintained infrastructure (Iulian Manea, 2008).

II. HYPOTHESIS AND RESEARCH OBJECTIVES

The basic idea around which this study was undertaken is: are there significant differences between the perceptions of adult trainers regarding the use of computer in the didactical process and

the perceptions of adult trainees as regards the manner of acquiring knowledge when they are taught and when they learn by means of computer? What expressly interests us is, therefore, to identify the aspects which may contribute to the innovation of teaching-learning-evaluation strategies as a consequence of using computer in the didactical process.

In order to verify the presented hypothsis, the following objectives were established:

OB1. Establishment of criteria to select the adult trainers already using computer and interested in using it in the didactical process.

OB2. Identification of competences necessary to adult trainers for using computer in distinct moments of the didactical process: teaching-learning-evaluation.

OB3. Identification of competences necessary to adult trainers for developing the trainees' learning potential, through the use of computer.

III. RESEARCH METHODOLOGY

The research design is of multi-method type, based on distinct methods to collect qualitative and quantitative data. The collection of qualitative data was made through the application of the focus group method in which 40 adult trainers were involved. Debates were organized in two rounds, at the end of which 18 adult trainers were selected, according to the following criteria: to have a psycho-pedagogical background, to have computer skills, to be interested in the use of computer in the didactical process. Two questionnaires on pair samples were also applied.

IV. RESEARCH HYPOTHESES

   a. There are significant differences between the perceptions of adult trainers and the perceptions of trainees as regards the contribution which the use of computer brings in the didactical process.
   b. Adult trainers are more favorable as regards the advantages of using computer in the *teaching* process as compared to adult trainees.
   c. Adult trainers are more favorable as regards the advantages of using computer in the *learning* process as compared to adult trainees.
   d. Adult trainers are more favorable as regards the advantages of using computer in the *evaluation* process as compared to adult trainees.

V. INSTRUMENTS

The instruments used in this study were: the semi-structured in-depth interview based on the focus-group method and the questionnaire for appreciating the advantages of using computer in the didactical process.

Further to the application of the focus group method, it resulted that adult trainees were never evaluated by means of computer. This aspect influenced the manner of configuring the two applied questionnaires, *i.e.*: the Questionnaire for appreciating the advantages of using computer in the didactical process by adult trainers and the Questionnaire for appreciating the advantages of using computer in the didactical process by adult trainees. In this regard, the questionnaire applied to adult trainers (QATrainer) included 9 items, and the questionnaire applied to adult trainees (QATrainee) included 6 items, as a consequence of the elimination of the three items associated to the use of computer in the evaluation. If such items had been eliminated also from the other questionnaire (QATrainer), there would have been extremely little improvement of the instrument internal consistency coefficient. Due to this reasoning, the items associated to adult trainers' perceptions on the use of computer in the evaluation were maintained.

The psychometric characteristics (internal consistency coefficients) of the two questionnaires evaluated on the group of participants are: α = 0.73 for QATrainer and α = 0.91 for QATrainee.

VI. PARTICIPANTS

18 adult trainers and 36 trainees involved in continuous training courses organized by the Department for Teachers' Training in the Piteşti University participated in this study. The criteria for the selection of adult trainers identified through the application of the focus group method were: the holding of digital competences, the diversity of background specializations, the holding of basic psycho-pedagogical competences.

VII. RESEARCH RESULTS

In order to verify research hypotheses, the two pair samples were compared: adult trainers and their trainees as regards the perceptions on the advantages of using computer in the didactical process, distinctly *in the teaching process* and in the *learning process*. In this regard, the Wilcoxon non-parametric test for pair samples was applied.

Table 1 (WILCOXON SIGNED RANKS TEST – RANKS) presents the mean rank, the sum of ranks, and the number of comparisons for each of the three comparison situations. The negative ranks indicate the number of negative differences between adult trainers' perceptions and trainees' perceptions on the *use of computer in teaching* variable. Positive ranks indicate the number of positive differences between the perceptions of adult trainers and the perceptions of trainees on the same variable.

Table 1

WILCOXON SIGNED RANKS TEST – RANKS				
variable**:** *use of computer in teaching*		N	Mean Rank	Sum of Ranks
trainers' perceptions on computer based teaching trainees' perceptions on computer based teaching	Negative Ranks	12	6.50	78.00
	Positive Ranks	0	.00	.00
	Ties	6		
	total	18		

We present in Table 2 the compared items for the *use of computer in teaching* variable for each sample.

Table 2

COMPARED ITEMS FOR THE USE OF COMPUTER IN TEACHING VARIABLE	
adult trainers' appreciations	**trainees' appreciations**
I stimulate the deepening of theoretical training	I deepen theoretical training
I persuasively communicate specialized knowledge	Specialized knowledge is communicated persuasively
I stimulate trainees to better apply the explained theories	I succeed in better applying the explained theories

In Table 3 (Statistical Test) we present the results of the comparison test. Since z = .-376;-3.276; -3.276, p = 0.01, it results that there are significant differences between adult trainers'

perceptions on the advantages of using computer in teaching and tranees' perceptions on the same advantages. Therefore, the first hypothesis is confirmed.

Table 3

STATISTICAL TEST	
Z	-3.276
Asymp. Sig. (2-tailed)	.001

The results obtained for the compared items regarding the *Use of computer in teaching* variable reveal trainees' disagreement as regards the advantages of using computer in teaching by trainers. In terms of detailed behaviors, it means that teaching by means of computer cannot lead to the results expected by the trainees, *i.e.*: theory deepening, intensification of the persuasive nature of acquiring specialized knowledge, the stimulation of the capacity to apply the explained theories. Table 4 (WILCOXON SIGNED RANKS TEST – RANKS) presents the mean rank, the sum of ranks and the number of comparisons for each of the three comparison situations. Negative ranks indicate the number of negative differences between the perceptions of adult trainers and the perceptions of trainees as regards the *use of computer in learning* variable. Positive ranks indicate the number of positive differences between adult trainers' perceptions and trainees' perceptions on the same variable.

Table 4

WILCOXON SIGNED RANKS TEST – RANKS				
variable: *Use of computer in learning*		N	Mean Rank	Sum of Ranks
trainers' perceptions on computer based learning trainees' perceptions on computer based learning	Negative Ranks	0	,00	,00
	Positive Ranks	15	8,00	120,00
	Ties	3		
	Total	18		

Please find below in Table 5 the items compared for the *use of computer in learning* variable for each sample.

Table 5

COMPARED ITEMS FOR THE USE OF COMPUTER IN LEARNING VARIABLE	
adult trainers' appreciations	**learners' appreciations**
I stimulate critical thinking and creativity	I find new, creative solutions
I favor the easier acquisition of specialized knowledge	I acquire specialized knowledge easier
I stimulate the easier application of the explained theories	I apply the explained theories easier

In Table 6 (statistical test) we present the results of the comparison test. Since z = -.376;-3.276; -3.276, p = 0.01, it results that there are significant differences between adult trainers' perceptions and trainees' perceptions on the advantages of using computer in learning. It means that both adult trainers and trainees appreciate the advatanges of using computer in learning, although there are certain differences between their perceptions. Hypothesis one is verified again.

Table 6

STATISTICAL TEST	
Z	-3.520
Asymp. Sig. (2-tailed)	.000

The results obtained for the compared items regarding variable: *Use of computer in learning* indicate that the negative appreciations of trainees are „0", which means that trainees consider that there are real advantages of using computer in the learning processes: it stimulates critical thinking and creativity, favors the easier acquisition of specialty knowledge, stimulates the application of explained theories.

As regards adult trainers' appreciations on the advantages of using computer in the evaluation, we present a descriptive analysis of the answers of questioned subjects in Table 7.

Table 7

DESCRIPTIVE ANALYSIS TABLE			
	manage to evaluate different learning results	manage to diminish emotional stress	manage to enrich the level of knowledge retention
mean	1.33	2.11	1.83
to a small extent	72.2%	33.3%	33.3%
to a medium extent	22.2%	22.2%	16.7%
to a large extent	5.6%	44.4%	50.0%

According to table 7, 72.2% of adult trainers believe that, through the use of computer, they succeed, to a small extent, to evaluate various results of learning. Almost half of the trainers (44.4%) consider that, through the use of computer in the evaluation, emotional stress is reduced. According to 50 % from the trainers, through the use of computer in the evaluation, they succeed to enrich the knowledge retention level. The qualitative analysis of such data reveals a paradoxal aspect: adult trainers are aware of the advantages of using computer in the evaluation (according to almost half of them, through the use of this didactical means, emotional stress is reduced and half of them consider that the knowledge retention system is also improved), however they do not use the computer in the evaluation at all. This aspect was revealed at the focus-group level, where trainers stated that they had not benefited until then from a specific training program.

VIII. CONCLUSIONS

The performed study has a diagnosis value for the Department for Teachers' Training of the Pitesti University organizing various training programs for many categories of adults. The perceptions of adult trainers and of trainees regarding the use of computer in the training process offer useful information on the manner in which the two categories of subjects valorize various practices to use computer in the didactical process.

The processed and interpreted data attest that:
- The first hypothesis regarding the existence of significant differences between adult trainers' and trainees' perceptions on the advantages of using computer in the didactical process is confirmed.
- The differences between the perceptions of adult trainers and those of trainers are given by the fact that, generally, the former consider that the advantages of using computer in teaching are greater than what trainees believe in this regard. Trainees are not of the same opinion, maybe because, most of the time, computer is used for power point presentations not enjoying a good appreciation among trainees, as illustrated within the focus group. In the same context, trainers recognized that they do not know to exploit sufficiently the power point presentation from a psycho-pedagogical point of view. They limit to the reading of slides without challenging, by means of them, the debate, dialogue, creativity and critical thinking.

- Trainees consider – on the other hand – that the biggest advantages are obtained from the use of computer in learning processes. Within the focus group, according to several trainees, this instrument allows the exercising of various cognitive functions and processes.
- Although holding a basic psycho-pedagogical training (Ezechil, L., Coman, P., 2011, p. 144), adult trainers do not know how to exploit the pedagogical functions of the computer to improve and diversify trainees' learning results.
- Adult trainers have very weak competences related to the use of computer in the evaluation. This fact resulted from the qualitative analysis of data. According to adult trainers' opinions, it results that they do not even suspect how varied learning results, which may be developed and evaluated through computer use, can be.

Analyzing the research results from the perspective of the institution within which the study was made, we appreciate that they may be used to prepare new programs related to the trainers' training using as a referential their real needs for the improvement and innovation of pedagogical methodologies.

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