

RESEARCH REGARDING THE INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON VOCATIONAL EDUCATION

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ABSTRACT

Given the influence of technology on different fields of activity, we investigated the effectiveness of Information and Communication Technology (ICT) as a teaching, learning and evaluation method aimed at improving the educational process within high schools specialized in tourism. The research was conducted over a period of three school years in 12 high schools with main classes in Tourism and Nutrition.

In this article, we have selected to present the quantitative research carried out during the pre-experimental / finding stage. This part of the research highlights teachers' point of view about the use of Information and Communication Technology (ICT) in high school education in institutions with a profile in Tourism and Nutrition. The research method was a survey based on a questionnaire with questions grouped in three areas of interest: the characteristics of the population surveyed; the school infrastructure equipment and the use of ICT in tourism lessons.

The objectives of this research were as follows: O1: Familiarization of the teachers coordinating Tourism and Nutrition modules with the ICT methods and the various ways of using them in the educational process; O2: Identification of the teachers' opinion regarding the use of ICT as a teaching-learning-evaluation method in high school education in institutions with a profile in Tourism and Nutrition; O3: Selection of the modules and learning units that will be the subject of the research; O4: Evaluation of students' initial level of knowledge in the field of Tourism and Nutrition; O5: Determination of student homogeneous samples by selecting control classes and equivalent experimental classes.

KEYWORDS: *ICT, education, teaching, young students, tourism*

JEL CLASSIFICATION: *I25*

1. INTRODUCTION

The transformation of the Romanian society into an information society, the development of informatics required a more in-depth and diversified training of the young people in this field.

The specialists defined Information and Communication Technology as a diverse set of tools and resources used to communicate and to create, disseminate, store and manage information. (Blurton, 1999) These technologies include computers, the Internet, broadcasting (radio and television) and telephony technologies.

Information and Communication Technology can support largely the revival of the educational process, but teaching methods do not automatically improve due to ICT implementation in the classroom. It is necessary for ICT to be incorporated into the instructive - educational process in a

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careful, balanced way, the benefits of ICT being achieved especially when attention is paid to the entire educational environment and not only to technology as a medium for the transmission of information. (Vandenbroucke, 2007-2009)

Teachers and pupils can use computers in education in the following forms: (Richmond, 2002)

- Learning about computers and the Internet with the ultimate goal of technological literacy;
- Learning with computers and the Internet where technology facilitates learning within the curriculum;
- Learning through computers and the Internet - integrating the development of technology skills with curriculum application.

In order to determine the development of teachers' competences, the introduction of Information and Communication Technology in the educational process has to go through the following steps: (Government of Romania, Ministry of Communications and Information Society, 2012)

- 1) Substitution - the use of new technologies together with traditional teaching methods;
- 2) Transition - the use of both, new technologies and traditional methods;
- 3) Transformation - the use of new technologies instead of traditional methods

Teachers may use in the educational process many types of ICT tools and methods that can be grouped as follows:

- a) Information ICT tools; Location ITC tools; ICT tools for building knowledge; Communication ICT tools; (Government of Romania, Ministry of Communications and Information Society, 2012)
- b) Hardware tools, Software tools and Communication tools; (***, 2014)
- c) Collaboration tools, Communication tools, Social networks, Self-promotion tools (Institute of Education Sciences, 2011)

As a result of our documentation, we have noticed the existence of several concerns for the study of the use of the Information and Communication Technologies tools in the educational process at both international and national level. At the same time, we found the lack of previous research on the use of ICT methods in high school education of tourism in our country. That is why we considered it appropriate to carry out a research on the necessity and efficacy of the use of ICT tools in the pre-university educational process, in the high schools with classes Tourism and Nutrition.

In this article, we will present some of the activities carried out during the first stage of the study aimed at establishing the initial data of the research, highlighting the opinion of the teaching staff regarding the use of ICT as a method of teaching - learning - evaluation in high school education, profile Tourism & Food.

2. OBJECTIVES

The objectives of this stage are subordinated to the research objectives and they were as follows:

- O1: Familiarization of the teachers coordinating Tourism and Nutrition modules with the ICT methods and the various ways of using them in the educational process;
- O2: Identification of the teachers' opinion regarding the use of ICT as a teaching-learning-evaluation method in high school education in institutions with a profile in Tourism and Nutrition;
- O3: Selection of the modules and learning units that will be the subject of the research;
- O4: Evaluation of students' initial level of knowledge in the field of Tourism and Nutrition;
- O5: Determination of student homogeneous samples by selecting control classes and equivalent experimental classes.

3. METHODOLOGY

In order to familiarize the teaching staff with the subject of the research we have presented, in the framework of some methodical activities, pedagogical circles and symposiums organized on different themes in the high schools of Economics - Tourism and Nutrition in Constanta County, the utility of various ICT tools and efficient ways of using them in the lessons of tourism.

The activities performed were attended by high school teachers teaching economic subjects in the high schools in Constanta County, mainly teachers of Tourism and Food.

In order to know the teachers' opinion regarding the utility, necessity, degree of use and benefits of applying Information and Communication Technology as a teaching, learning and evaluation method in high school education, profile Tourism and Nutrition, we have created, distributed and interpreted a 20-question questionnaire using the Web 2.0 Google Forms tool.

(https://docs.google.com/forms/d/1PjSkESEYyYsnJIP_SOr1KgldADImF4HdrStakbIdNo/viewform?c=0&w=1)

The 20 questions of the survey were grouped into three areas of interest: *the characteristics of the population surveyed, the school infrastructure related to the provision of ICT equipment and the use of ICT in tourism lessons.*

The questionnaire was created using the Web 2.0 Google Forms tool that is easy to use because it allows sharing questions to respondents via email, the receiving of feedback at the same location from where it was sent, the automate interpretation of responses and the access to it from any computer connected to the Internet.

4. INTERPRETATION OF RESULTS

Fifty teachers participated in this questionnaire, and the results and their interpretation are presented below.

4.1. Characteristics of the population surveyed

a) Concerning the *age category*, 36% of the interviewed teachers are between 30 and 39 years of age, 46% between 40 and 49 years, and 18% are older than 50 years.



Figure 1. Age structure of respondents

Source: Contribution of the author

b) Concerning the *teaching environment*, of the total number of teachers undergoing research, 76% are teaching in lyceums from urban medium and 24% in rural lyceums.

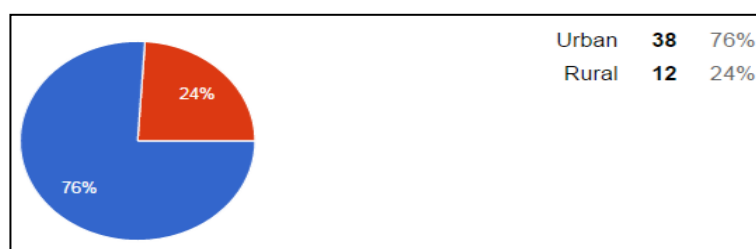


Figure 2. Structure of respondents according to the teaching environment

Source: Contribution of the author

c) Regarding *seniority in education*, of the total number of teachers surveyed, most (40%) have 15-20 years education seniority, 26% work in education for 10-15 years, 16% for over 20 years, 14% 5-10 years and 4% less than 5 years.



Figure 3. Structure of respondents according to seniority in education

Source: Contribution of the author

d) According to the *didactic degree*, most of the interviewees (42%) have the didactic degree I, 19% didactic degree II, 18% have permanent teacher certification and 2%, respectively a person is a debutant.

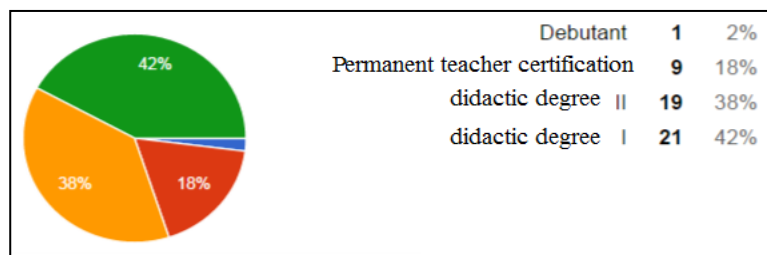


Figure 4. Structure of respondents according to the didactic degree

Source: Contribution of the author

e) In terms of gender, of the 50 teachers questioned, 94% are female, while only 6% are male.

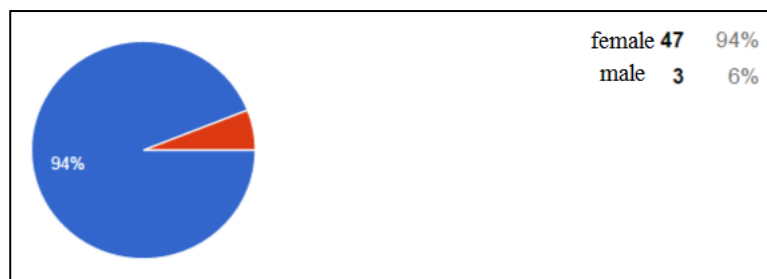


Figure 5. Respondents' gender structure

Source: Contribution of the author

It can be noticed that in Constanta County, teachers who teach economic subjects in the curriculum Tourism and nutrition in high schools are characterized by the following features: they are mostly young female (aged 30-49), have between 10 and 20 years experience in teaching, and most of them graduated the exams for degrees I and II, which demonstrates good training in the field of activity. Regarding the workplace, most of the teachers are working in high schools and in the economic colleges in the urban area, the cities of Constanta, Mangalia and Eforie, which offer several teaching positions.

4.2. School infrastructure on ICT equipment

a) *Does your school provide computers?*

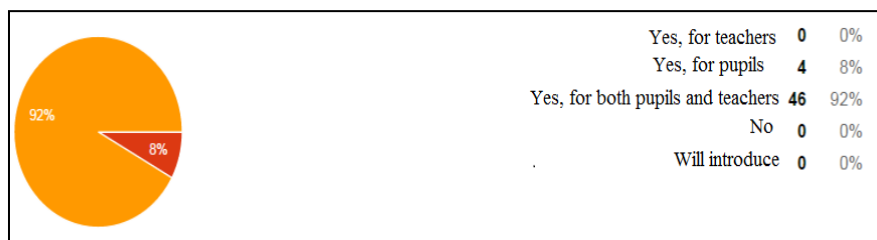


Figure 6. The provision of high schools with computers

Source: Contribution of the author

To this question, teachers answered in the majority (92%) that their high schools provide computers for both students and teachers, and 8% of the surveyed people said that the high schools they belong offer computers for pupils only. It is worth mentioning that all high-schools are equipped with computers.

b) *How are computers distributed for student use?*

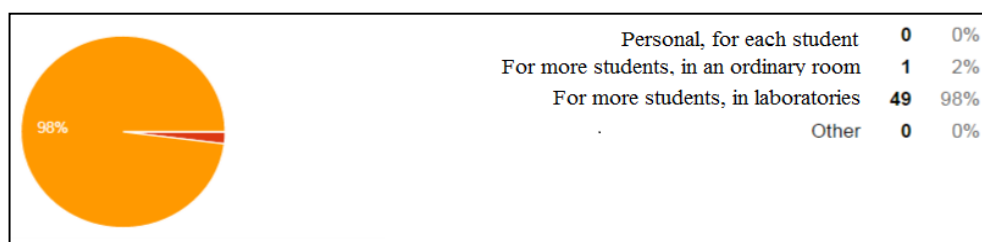


Figure 7. Use of computers

Source: Contribution of the author

Answering this question, 98% of respondents said that computer assignment was done for more students in specially designed laboratories.

c) *Do you think that it would be necessary to provide a computer for each student?*

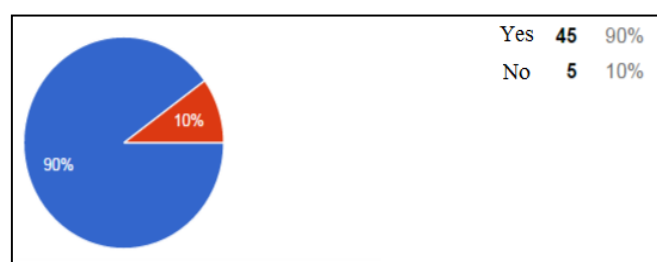


Figure 8. The need to provide computers for each student

Source: Contribution of the author

Out of the total number of teachers surveyed, 90% consider that each student should have one computer that he can use at school.

d) *Are computers connected to the Internet?*

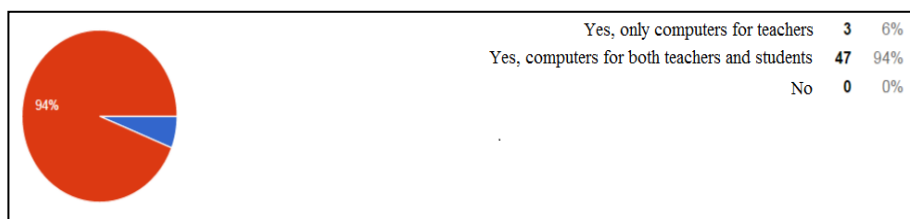


Figure 9. Internet connection
 Source: Contribution of the author

To this question, 94% of the total number of respondents claim that both the teachers' and students' computers are connected to the Internet, and 6% said that only teachers' computers are connected to the Internet. It is noteworthy that there is Internet connection in all units subject to research. Concerning the endowment of ICT equipment of the high schools that provide students with training in the field of Tourism and Food in Constanta County, it is found that all units have computers and other ICT equipment that both pupils and teachers use in specially arranged laboratories.

4.3. The use of ICT in tourism lessons

a) How often do you use the following methods during the Tourism lessons?

- Traditional Methods (Didactic Exposition, Didactic Conversation, etc.)

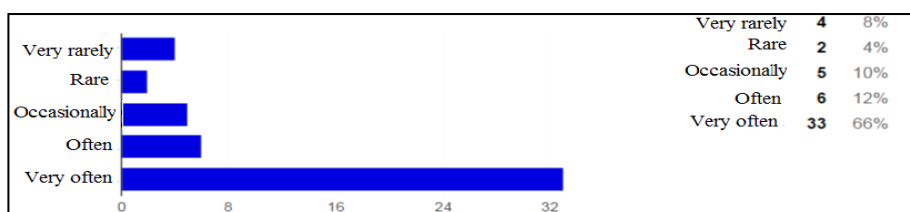


Figure 10. Degree of use of traditional teaching methods
 Source: Contribution of the author

To this question, 66% of the respondents answered that they use very often the didactic methods in didactic activity, 12% use them often, 10% occasionally, and 12% rarely and very rarely.

- Modern Methods (Method of Reciprocal Teaching, Mosaic, Gallery Tour, Brainstorming...)

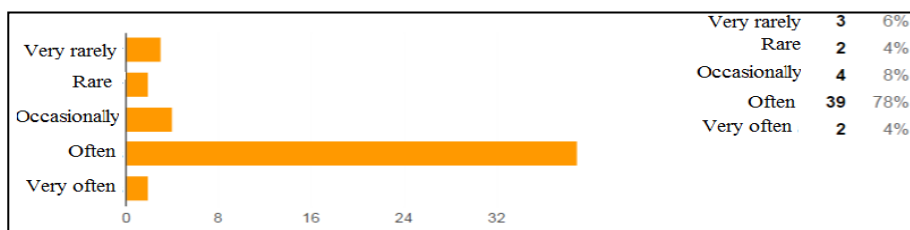


Figure 11. Degree of use of modern teaching methods
 Source: Contribution of the author

78% of the surveyed respondents said they use modern methods often, 8% occasionally, 4% very often and 10% rarely and very rarely.

- ICT Methods (eTwinning, easyclass, Wikipedia, wikispaces.com, drive.google.com, prezi.com, blogger.com, slideshare.net, roct.ro, etc.)

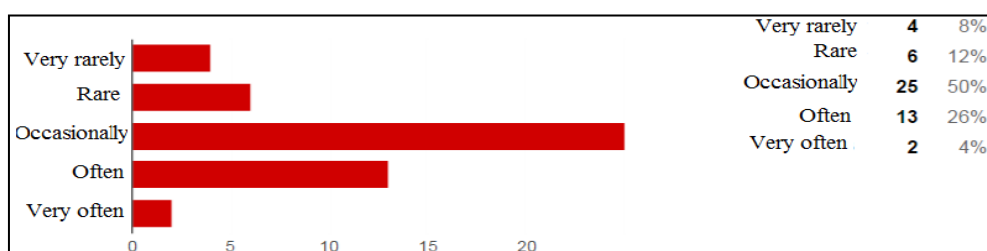


Figure 12. Degree of use of ICT methods

ICT methods are used very often by 4% of the interviewed teachers, often 26%, occasionally 50%, and rarely and very rarely 10%.

b) Specify in a few ideas what your opinion on the integration of ICT in the educational process is.

At this demand, the most interesting answers were the following:

- Integration of ICT in the educational process is of benefit to both teachers and pupils;
- The use of technology is a reality of the current world to which school must manifest openness;
- In the current technological age, ICT integration is very necessary;
- It would be desirable to equip the laboratories with computers according to the number of pupils in a class so that each student can work individually;
- The use of ICT in education has several advantages, including: Strengthening students' motivation in the learning process; Development of visual culture; Awareness of the fact that learned lessons will later find usefulness; Stimulate logical thinking and imagination; Using various pedagogical methods;
- The benefits to the teacher's activity are obvious, he becomes more interested, more attentive to the learners learning needs, better trained, more creative;
- Current modern technologies facilitate access to information, occupying a very important place in the life of students and teachers and facilitating teaching-learning activity.

c) At what point in the educational process do you use the computer?

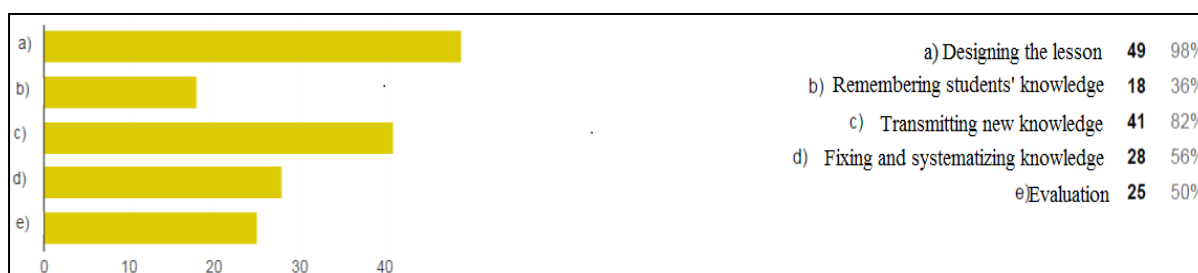


Figure 13. The moment of the educational process in which the computer is used

Source: Contribution of the author

Teachers interviewed use ICT methods mostly (98%) when designing lessons (the computer's use is mandatory and at the same time effective for drawing up school documents as plans, projects and lesson plans, catalogs, etc.), 82% in the moment of transmitting the new knowledge, 56% at the time of fixing the knowledge, 50% at the time of evaluation, and 36% at the moment of updating the knowledge.

d) How necessary do you think is the use of ICT methods in tourism lessons?



Figure 14. The need to use ICT in tourism classes
 Source: Contribution of the author

At this question, 58% of the respondents believe that the use of ICT in tourism education is very necessary, and 42% think it is necessary.

e) What prevents you from using computers at tourism classes in your school?

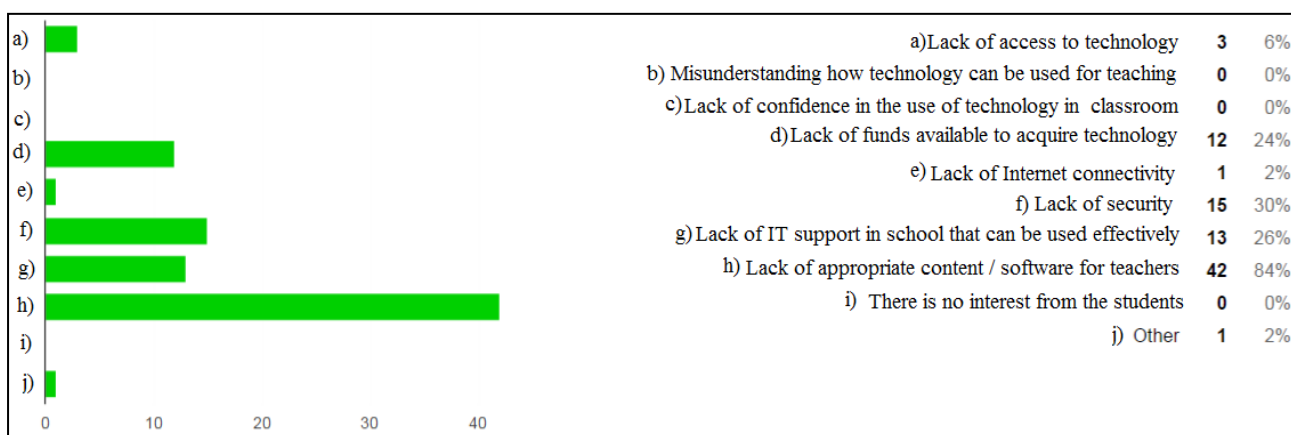


Figure 15. Factors that hinder the use of computers in the tourism classes
 Source: Contribution of the author

Reasons why teachers cannot use computers in all course hours are diverse, but the most frequently mentioned is „lack of proper content / software for teachers” (84%). Another reason why 30% of respondents cannot use computers in didactic activity is „lack of security or inability to restrict content”. 26% of respondents claim the lack of efficient IT support in school, 24% - lack of funds available for technology acquisition, 6% - lack of access to technology (in rural areas), 2% - lack of Internet connection.

f) Have you ever participated in a training course in the field of ICT teaching / learning methods?

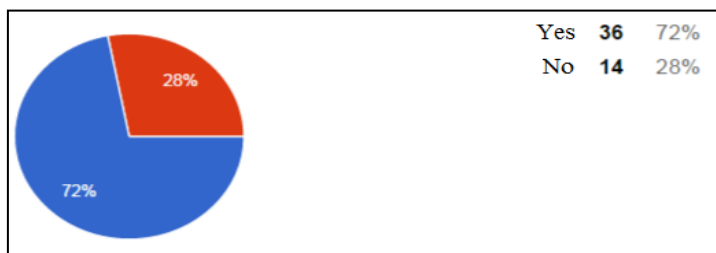


Figure 16. Participation in ICT training courses
 Source: Contribution of the author

Of the total number of teachers surveyed, 72% participated in training courses on the use of ICT in education.

g) *What ICT teaching-learning-evaluation methods do you know and use in your classes?*

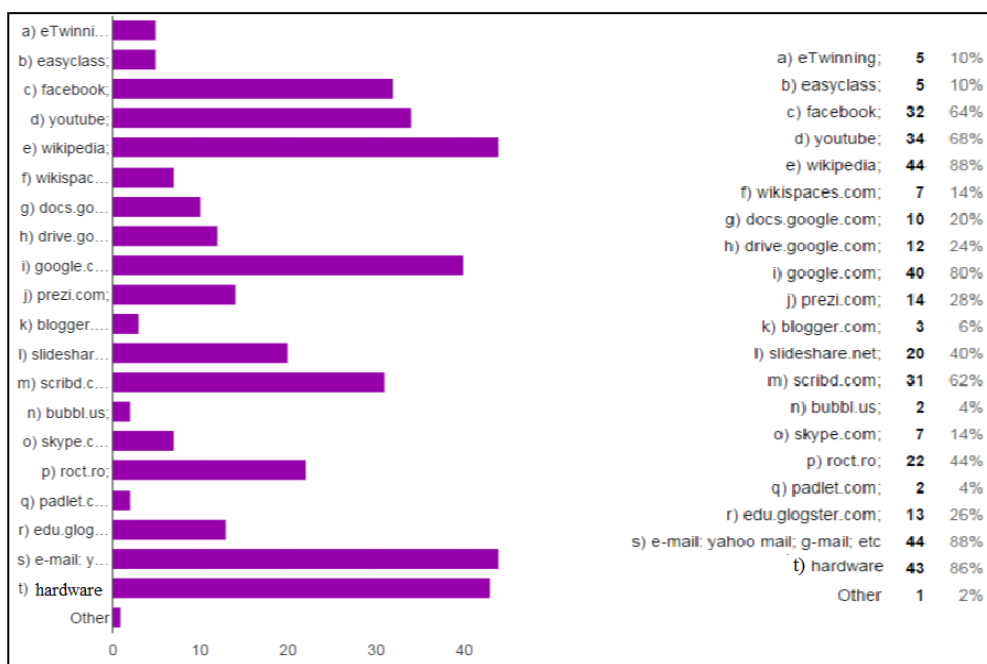


Figure 17. ICT methods used by respondents

Source: Contribution of the author

From the list of proposed ICT methods and tools, most teachers (88%) of respondents selected Wikipedia and email, 86% hardware tools (video monitors, interactive desktops, videoprojectors, projection screens, scanners, etc.) 80% google.com. It is worth noting that at least one person, demonstrating that they are known and used, has selected each method. Besides the proposed list, the answer „other” was completed with the following methods: Titanpad, Popplet, Glogster, Classtools, Diigo, Creately.

h) *How often do you use computers during classroom activities?*

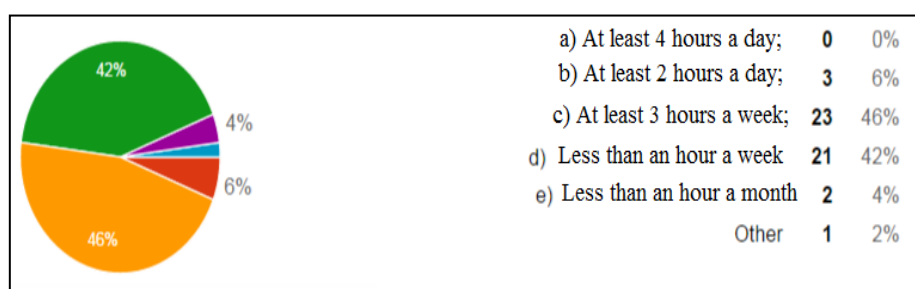


Figure 18. Frequency of computer use in didactic activity

Source: Contribution of the author

Most teachers (46%) of those surveyed use the computer during their teaching at least three hours per week (often), 42% less than one hour per week (rarely) and 6% at least two hours a day (very often).

i) *What behavioral changes have you noticed in your students because of using computers in their tourism classes?*

- Increasing interest in learning

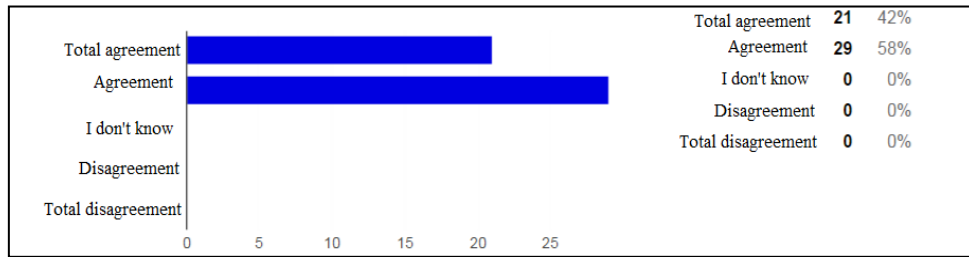


Figure 19. Increasing interest in learning
 Source: Contribution of the author

- Improvement of frequency at classes

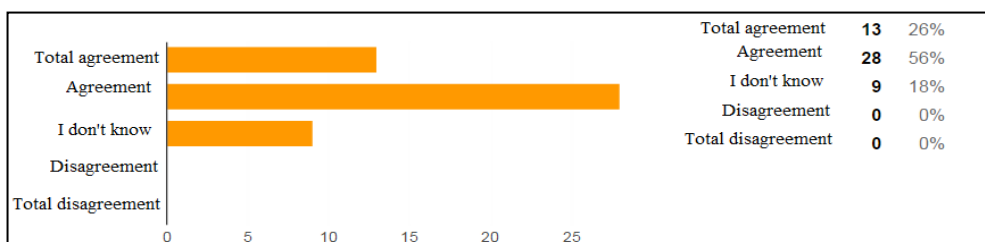


Figure 20. Improvement of frequency at classes
 Source: Contribution of the author

- Increasing attention

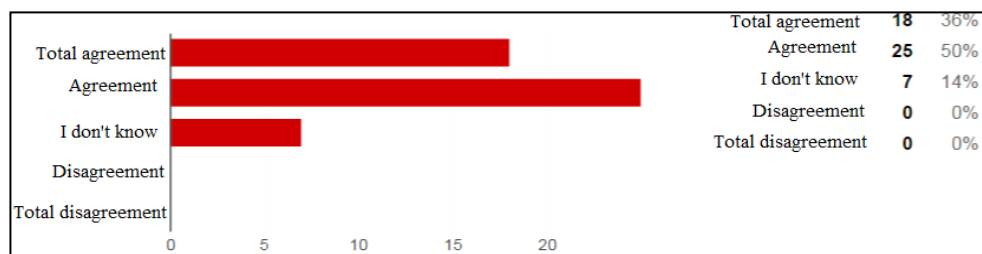


Figure 21. Increasing attention
 Source: Contribution of the author

- Active participation of students

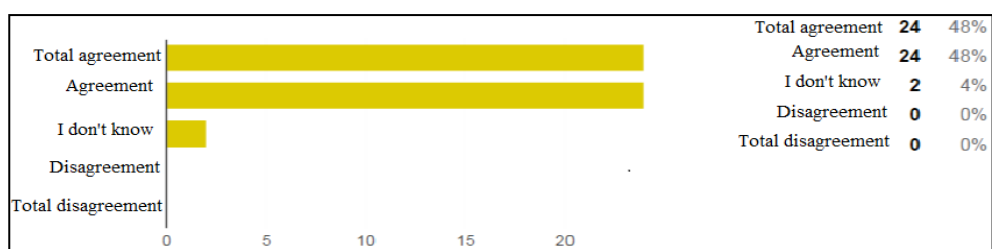


Figure 22. Active participation of students
 Source: Contribution of the author

- Improving teamwork

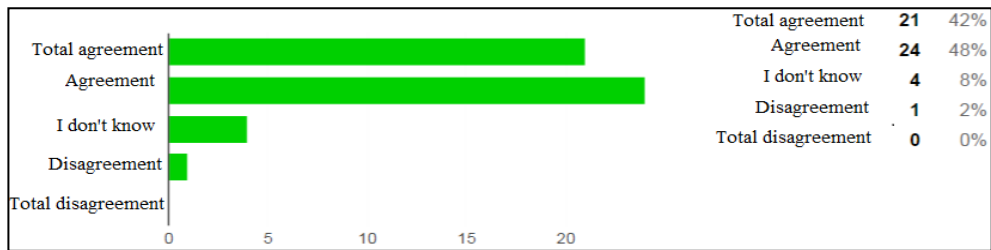


Figure 23. Improving teamwork
 Source: Contribution of the author

- Getting better results

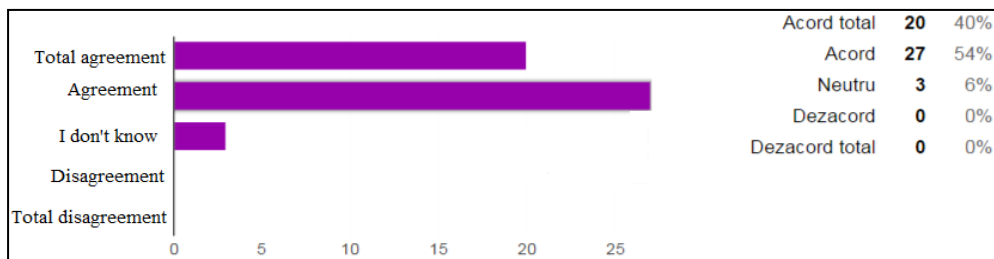


Figure 24. Getting better results
 Source: Contribution of the author

- Improving communication skills

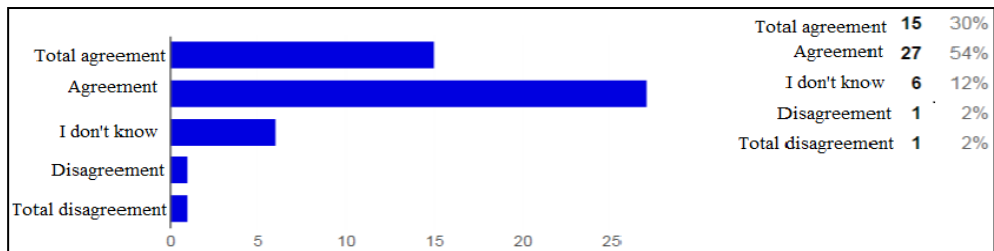


Figure 25. Improving communication skills
 Source: Contribution of the author

- Improving the ability to apply theoretical knowledge in practice

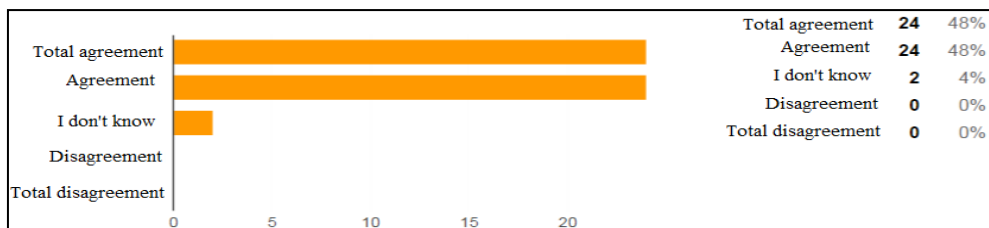


Figure 26. Improving the ability to apply theoretical knowledge in practice
 Source: Contribution of the author

- Improving the ability to collect and independently process information

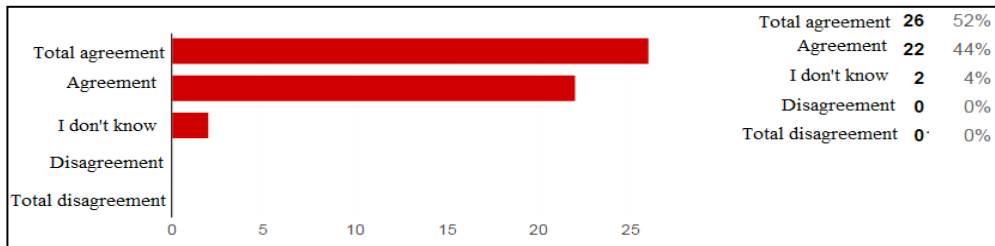


Figure 27. Improving the ability to collect and independently process information

Source: Contribution of the author

- Increase working autonomy

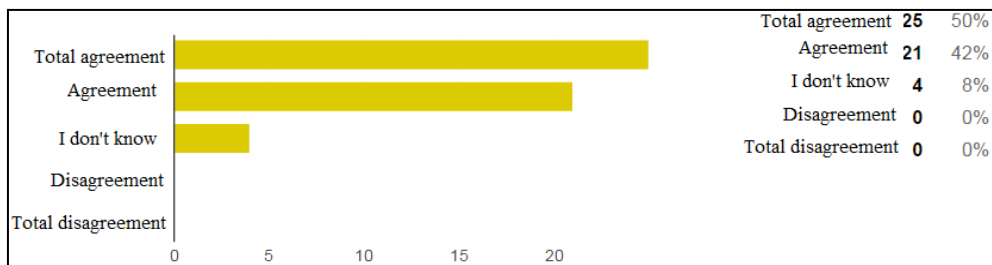


Figure 28. Increase working autonomy

Source: Contribution of the author

- Developing creative thinking

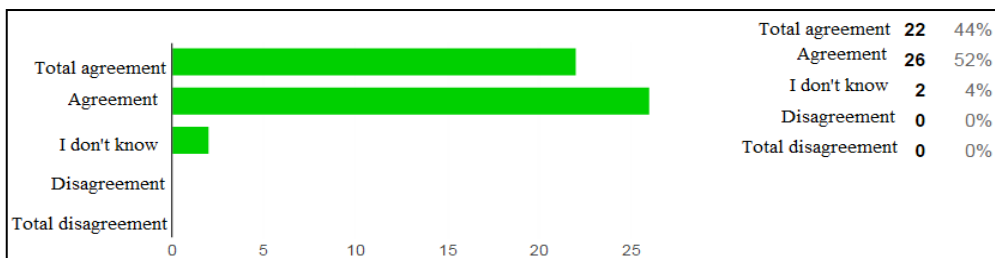


Figure 29. Developing creative thinking

Source: Contribution of the author

- Increasing problem solving capacity

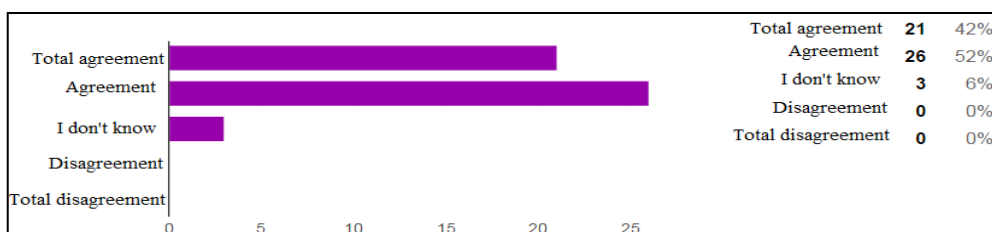


Figure 30. Increasing problem solving capacity

Source: Contribution of the author

Teachers interviewed believe that the use of new technologies in the educational process leads to multiple changes in student behavior, including those listed above. From Figures 19 to 23, we noted that most respondents agree and totally agree with the proposed changes. However, in terms of improving communication and teamwork skills, disagreements were also recorded, because of known situations of isolation and individualization of students through inappropriate use of computers. Used correctly, in an institutionalized environment, new technologies could eliminate these shortcomings.

j) How did the use of ICT methods change your teaching activity?

- Facilitating teaching

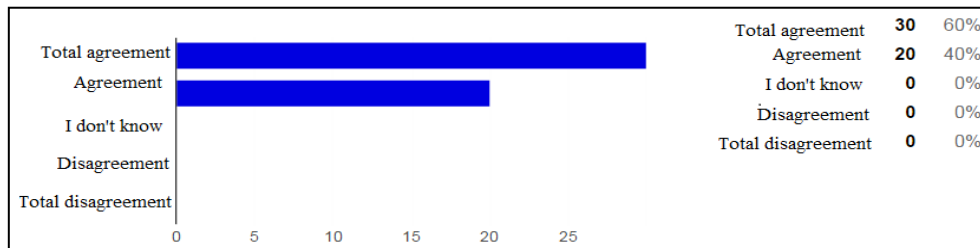


Figure 31. Facilitating teaching
 Source: Contribution of the author

- Adaptation of the lessons to the learning style of each student

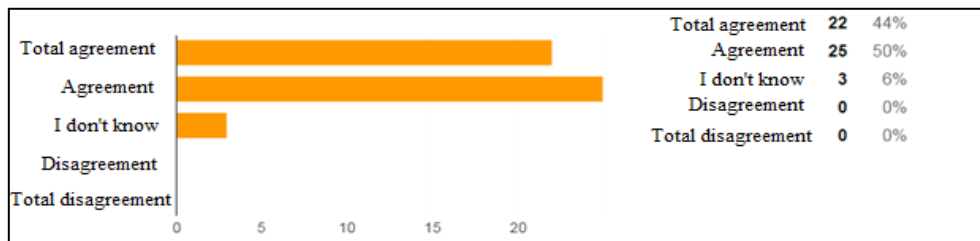


Figure 32. Adaptation of the lessons to the learning style of each student
 Source: Contribution of the author

- Achieving a balance between teacher-centered learning and student-centered learning

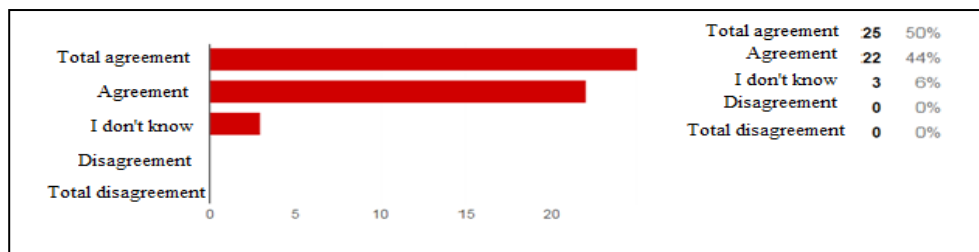


Figure 33. Achieving a balance between teacher-centered and student-centered learning
 Source: Contribution of the author

- Facilitating the preparation of lessons

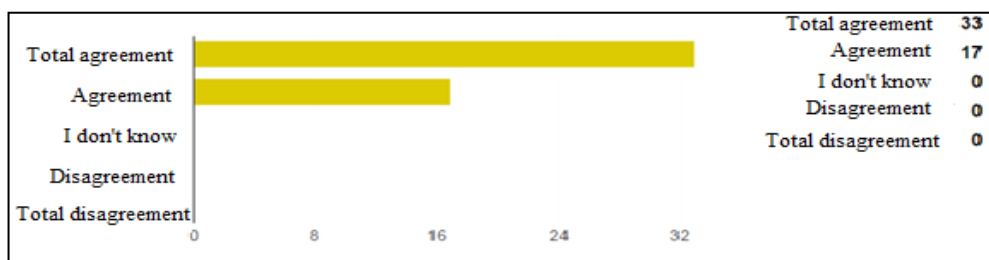


Figure 34. Facilitating the preparation of lessons

Source: Contribution of the author

- Facilitating the sharing of information

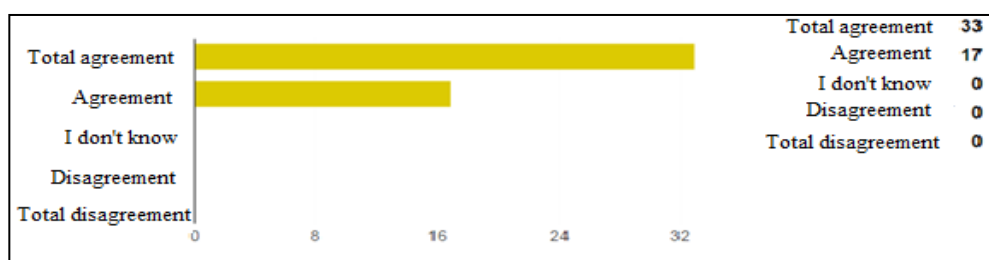


Figure 35. Facilitating the sharing of information

Source: Contribution of the author

- No impact on the teaching activity

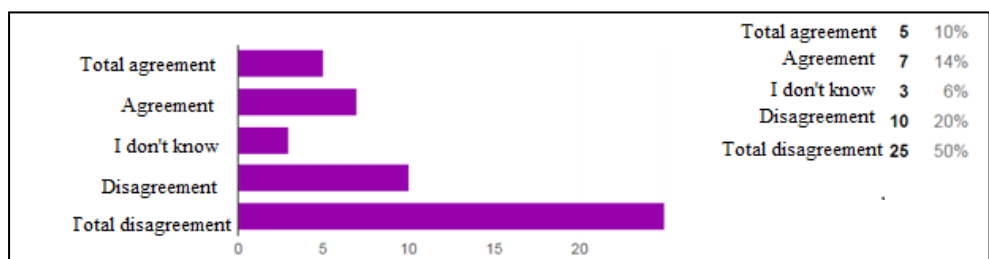


Figure 36. No impact on the teaching activity

Source: Contribution of the author

Most respondents (70%) found that the use of ICT methods influenced their teaching activity, while 24%, who use them less did not notice any impact. From Figures 31 to 35, it is noted that most respondents agree and totally agree that using ICT in education leads to positive changes in teaching, adapting lessons to student learning styles, achieving a balance between teacher-centered learning and student-centered learning, lesson preparing and information sharing.

5. CONCLUSIONS

The analysis of the answers to the questions regarding the use of ICT in tourism lessons allowed the following conclusions to be drawn:

- Interviewed teachers use in teaching most often the traditional didactic methods, often - modern didactic methods, while ICT methods and tools are used rather rarely. We consider that this tendency to use didactic methods in the educational act is primarily due to the

chronological order in which the different types of methods have appeared and developed. It is also clear that the use of ICT methods is constantly accompanied by the use of traditional methods, because the use of a computer tool or application is always supplemented by methods such as explanation and demonstration of how it works, the method of conversation between the teacher and its students, etc., while a learning unit can be taught only using traditional methods, without the use of modern technology being mandatory.

- Teachers consider that the use of information technology in didactic activity is very necessary, having multiple advantages both on teaching and learning activity. For this reason, most respondents were interested in attending different training courses on the use of ICT in education.
- Respondents have noticed positive changes in student behavior as well as in their didactic activity with the introduction of ICT tools and methods in the educational act.

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