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The Role of Information Technology and Labor Market Orientation in Vocational Training

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Abstract

In the present study we undertook a dual approach to explore the vocational training level of Hungarian high school students in Romania: in the light of career orientation and career socialization (vocational training and career choice factors, intention to further studies and further education, overview of work opportunities, conception of field of work) and from the perspective of information and communication technologies used in schools (school infrastructure, electronic didactic equipment, use of ICT tools). Our nationwide, cross-sectional survey with diagnostic purposes, can serve as a starting point for further research, which is necessary for the development of vocational training. The topic of our study fits into the European educational objectives, because the examination of vocational training is timely, since improving the quality of vocational training is being dealt with at the European level.

Keywords: vocational education; career orientation; digital skill;

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1. Introduction

In Europe youth unemployment is still high, many young people leave school with no qualification that would ensure stable employment. The possibility of employment, the length of the transitional period can be significantly affected by the level of education. Within secondary education, professional education has a greater advantage than the Baccalaureate Certificate itself (Lettmayr, 2012). In the competition for jobs digital skills play a significant role and are considered an essential competency.

The world in which young people need to find their place is changing rapidly, productive adult roles are no longer predictable for young people, therefore they need to acquire skills and values required for a successful career (Csikszentmihalyi & Schneider, 2011). For a successful adulthood, students must understand that the world of work is characterized by change and not stability, and occupational success and efficiency requires continuous training and learning. Studies must be continued after high school, in fact learning becomes a lifelong activity. This applies for all forms of adult labor, in industrial and intellectual occupations as well.

Young people's direct access to information greatly affects the number of possible alternatives of decision-making. When choosing a career it is essential for young people to have an adequate knowledge of the chosen profession, because having too little information can easily lead to an ad hoc decision. Schools need to prepare the youth for continuous orientation, information gathering, and not only for a one-time decision-making. In the course of orientation young people should become familiar with the economic characteristics of their social environment, training opportunities, and they should also gather genuine information about occupations (Fazakas, 2008). In the importance of career planning the concept of career guidance (Ginsberg, 1951; Super, 1968; Conger, 1989 in. Szilagyi, 2005; Szilagyi & Volgyesy, 1996; Betz, 2011). On one hand emphasizes the process nature, which is a new requirement contrast to the phased nature of schoolwork, on the other hand it underlines that students' individual chances should be increased, what also differs from the usual school tasks.

On the present labor market competitiveness and developmental skills increasingly depend on the knowledge of new information and communications technologies (ICT) and their innovative and effective utilization. Computers, mobile phones and digital technologies are becoming an integral component of our daily lives and they offer a solution for several challenges that we have to face. Development and dissemination of these technologies are an integral part of the European Union's strategic plan. According to the Digital Agenda presented by the European Commission the objectives for 2020 include that education and educational systems need to get acquainted with digital competences and must recognize their importance (Com, 2010). One element is the e-skills strategy that aims competitiveness, productivity and improving employment of the workforce. Europe must create more favorable framework conditions for innovation, growth and new digital jobs. It should also ensure that the knowledge, skills, competence and ingenuity of the European workforce - including ICT professionals - meets the highest global standards, and that these capabilities are kept up to date through continuous training and lifelong learning.

In recent years, the institution of the Romanian Department for Education responsible for vocational education (CNDIPT) has the mission to make vocational education more attractive, more efficient and more accessible by improving schools' IT equipment supply, as well as to encourage, train and develop teachers to use ICT tools, thereby promoting the concept of lifelong learning, and to help young people to become active players on the labor market (Cndipt, 2013). According to the international surveys Romania is currently in last place regarding mid- and high-level ICT skills (CEDEFOP, 2012). The European Parliament's recent motion (Ini, 2015) urges the Member States to immediately involve ICT technologies in the learning process, to enhance and develop digital skills education, to encourage young people to learn and choose professions that are related with ICT technologies. It emphasizes that better technological bases need to be established in schools, and that

the necessary infrastructure and educational resources should be provided, which ensure access to education for all, and by lifelong learning helps to increase employability.

2. The aims of the research

In our research we examined the educational situation of Hungarian-language vocational schools in Romania regarding career choice and information, and communications technologies applied in the process of education. We examined the issue of career choice with the purpose of obtaining an insight on its main factors in the final stage of secondary education. We wanted to gain a detailed image of (1) the factors of vocational training and career choices, (2) students' intentions regarding further studies and training, and (3) the importance of factors that influence career choice. Regarding the use of ICT technologies in education we mapped (4) the school infrastructure that ensures access to communicational technologies in vocational schools, (5) the technical didactic tools that eases the job of vocational teachers and (6) the degree of utilization of technical tools in the learning process.

3. Results

Our sample is representative, as it encompassed the entire Hungarian-language vocational school network of Romania. In accordance with the topic and objectives of the research the target population were the graduate students of vocational schools and the teaching staff of Hungarian-language vocational schools. Data collection took place during the second half of the 2014/2015 academic year.

The questionnaires were filled out by students of Hungarian-language vocational schools, (N=1892) of which 1301 individuals were in 11th (24.05%) and 12th (75.95%) grade. The present study processes their responses. 11th grade students were measured in cases when the particular department had no graduating class. The teacher sample was made up by teachers of vocational subjects (N = 99). Teachers of general education subjects were not included in the sample. In case of both target groups questionnaires were used. As the examination had two target population, it was essential to include certain questions in both questionnaires.

3.1 Factors of vocational training and career choices

When the majority of Hungarian-language vocational school graduates (66.1%) started secondary education, they chose their current vocational training. On the other hand more than a third of the students (33.9%) said they didn't choose this particular programme of study, they ended up here (33.9%), or this was their only possibility (7%), or in primary school they didn't learn enough (3.6%). Almost half (49%) of the graduate students believe that their current training will give them the possibility to exercise the preferred profession. 28% of the students think the exact opposite, while 23% don't know the answer to this question.

Based on their experiences 60.5% of the surveyed students said that Hungarian-language vocational schools offer a proper training, 31.4% think that there is a lack of training opportunities, and 8.1% have found that for the popular professions only Romanian-language training is available. Consequently, more than a third of the students sensed the scarcity of vocational training in their mother tongue. Based on the documents at our disposal we also demonstrated that the Hungarian-language vocational school network offers only 17 specialization options. These include fields that have over-specialization (such as mechanics and tourism, of which there are 26 classes on the national level), and some others with under-education (such as forestry, electronics, media, electro-mechanics, of which there is only one class at the national level).

3.2 Further education and continuous training intentions

67.8% of the Hungarian-language vocational school graduates think that they will work after graduation, 20% plan to continue their studies (8.9% gave other responses, 3.3% did not answer). Thus, one fifth of the queried vocational school graduates plan to continue their studies. 80% of the students who plan to continue their studies would want to learn in their mother tongue, 11% would undertake Romanian-language training, while 9% would like to continue to study in other languages (preferably in English).

53% of the students who want to work says it is important to find a job corresponding to their professional qualification, while 47% says it doesn't matter what kind of a job they find. The study doesn't examine the extent to which vocational qualifications are marketable, we only inquired about students' vision regarding job placements. The answers show some insecurity, students' presumption, knowledge about the fact that in their surroundings not many can find a matching job to their qualification, or that the first employment is not always or not necessarily linked to their professional qualification, moreover, after graduation it might turn out that the qualification is "useless" in the current labor market.

3.3 Factors affecting career choice

We examined the main factors that affect career choices in case of every graduate whether they intend to continue their studies or not. They were asked to point out the importance of factors on a scale from 1 to 5, where 1 indicates that it is not important at all and 5 indicates that it is very important. Table 1. shows the mean and standard deviation of the responses. Based on the means we stated that students consider interests, abilities and given conditions (we refer to the possibility of learning in the mother tongue as well) to be the most important factors in career choice, while the least important are a friends suggestion, the reputation of the school and the teachers' proposal.

Table 1. Factors affecting career choices in order of importance

Factors	Mean	Dispersion
areas of interest	4,51	0,829
skills	4,44	0,844
circumstances	4,03	1,033
mothers' suggestion	3,79	1,164
fathers' suggestion	3,59	1,254
job prestige	3,37	1,138
teachers' suggestion	3,02	1,162
institution's reputation	2,98	1,249
friends' suggestion	2,69	1,051

Table 2. contains the values of factors influencing career choices in comparison with plans after completing secondary education. Regarding factors that play an important role in career choices, students who want to work after completing their studies consider the opinion of parents to be the most important. Students who choose to continue their studies marked higher values for factors like reputation of the institution, occupational prestige, own interests, as well as own abilities.

Table 2. Factors influencing career

	Work		Continue with studies		T-Test
	Mean	Dispersion	Mean	Dispersion	
teachers' suggestion	3,07	1,177	2,93	1,122	NS
fathers' suggestion	3,68	1,240	3,50	1,260	*
mothers' suggestion	3,88	1,153	3,67	1,157	*
friends' suggestion	2,74	1,069	2,63	0,977	NS
institution's reputation	2,91	1,274	3,17	1,145	**
job prestige	3,28	1,163	3,63	1,011	***
areas of interest	4,43	0,893	4,67	0,648	***
skills	4,38	0,870	4,61	0,708	***
circumstances	4,04	1,040	4,05	0,973	NS

Verified by t-test: NS - not significant ($p > 0,05$), * $p < 0,05$, ** $p < 0,01$, *** $p < 0,001$

Other differences in assessing the importance of factors:

- The mean of the fathers' suggestion factor is 3.71 (dispersion 1.228) for those who reside in the village, and 3.40 (dispersion 1.283) for those who reside in the city or county town ($p < 0.001$). Regarding the place of residence we did not find significant differences in the case of other factors.
- The occupational prestige factor is more important ($p < 0.001$) for students who prefer Romanian language training (mean 3.58, dispersion 1.069) if on the chosen field of study there is no education in the mother-tongue, than for those who would rather choose different fields of study with the possibility of learning in their mother-tongue (mean 3.31, dispersion 1.149).
- The own interests factor is more important ($p < 0.01$) for students who prefer Romanian language training (mean 4.63, dispersion 0.736) if on the chosen field of study there is no education in the mother-tongue, than for those who would rather choose different fields of study with the possibility of learning in their mother-tongue (mean 4.47, dispersion 0.853).
- The occupational prestige factor is more important ($p < 0.001$) for students who wish to find a job corresponding to their professional qualification (mean 3.49, dispersion 1.104), than for those who simply want to find a job (mean 3.23, dispersion 1.157).
- The own interests factor is more important ($p < 0.01$) for students who wish to find a job corresponding to their professional qualification (mean 4.57, dispersion 0.764), than for those who simply want to find a job (mean 4.42, dispersion 0.908).
- The occupational prestige factor is more important ($p < 0.001$) for students who opted for the particular vocational training (mean 3.45, variance 1.113), than for those who didn't choose that

programme of study, but ended up there, or that was their only possibility, or in primary school they didn't learn enough (mean 3.21, dispersion 1.164).

- The own interests factor is more important ($p < 0.001$) for students who opted for the particular vocational training (mean 4.57, variance 0.759), than for those who didn't choose that programme of study, but ended up there, or that was their only possibility, or in primary school they didn't learn enough (mean 4.39, dispersion 0.930).
- In the research conducted in order to identify the situation of Hungarian-speaking vocational education in Romania, a special emphasis was put on the examination of electronic equipment supplies of vocational education, as well as vocational teachers' attitude towards the use of ICT tools during teaching hours.

3.4 Electronic devices in vocational teaching

In the questionnaire for vocational teachers we focused on topics such as e-learning tools and the facilitating factors and obstacles of using these in the classroom. Vocational teachers believe that in the teaching-learning process teaching would be more effective if students would have access to the basic study materials in electronic version. On one hand they are aware of the value of computer simulations in education, but on the other hand they think that it would be sufficient for the contents to be electronically available to students, and they not necessarily require interactive e-learning materials which would help the process of active individual learning. In case of their own subjects, vocational teachers favor the use of traditional teaching materials opposite to electronic options. They are significantly more comfortable with the traditional, paper-based textbooks, and teaching that requires personal presence in the classroom, rather than with online presentations or interactive learning materials ($\bar{x}_1 = 45.05$, $SD = 0.77$, $\bar{x}_2 = 54.95$, $SD = 0.72$, $t = -10.38$, $p < 0.05$).

With another question we tried to reveal the obstacles of e-learning expansion, namely we asked the teachers what are the main obstacles of using e-learning teaching tools in the process of teaching? Based on their responses we can state that teachers don't put the blame on the school management or the schools' equipment, and the explanation certainly does not lie in the fact that they don't have the necessary skills to manage computers on a level that makes it possible to incorporate prepared materials in the educational process. Most of them refer to the lack of Hungarian e-learning materials in their field, and to the fact that incorporating these in the educational process is too time-consuming. It is also noteworthy that nearly 30% of the respondents do not believe that e-learning materials could make the teaching and learning process more effective.

3.5 Utilization of electronic devices in education

We used a ten-item question group to examine students' experiences in the use of ICT tools during teaching hours. The utilization of electronic devices in secondary education does not show good rates. The possibilities of e-learning tools usage in the educational process are almost endless, yet nearly one-fifth of the students (18.87%) never had the opportunity to use such tools in the classroom, because their teacher never made this possible. In the case of a significant proportion of students (56.60%) their teachers use digital devices to process the curriculum, to illustrate or for communication, only in one quarter of the everyday teaching-learning process. ICT technologies are used during half of the classroom activity in case of a fifth (18.87%) of the students, while only 5.66% of them get a three quarters usage.

4. Conclusions

In the first part of the study we examined the issues of career choices and career socialization in the Hungarian-language vocational education in Romania, trying to identify the factors based on which students choose a vocational education, as well as a profession, their further education and training intentions, and the factors that influence career choices.

66.1% of the graduate students of Hungarian-language vocational schools chose their current vocational training, however as graduates only 49% think that the current training will allow them to practice the profession which they would prefer. 67.8% of the graduates plan to work after graduation, and only 20% would like continue their studies. Regarding career choice, they consider interests, skills and the given circumstances as being the most important factors, however in assessing the importance of factors listed in the questionnaire, significant differences were found between certain groups of students. For example professional prestige as a factor that influences career choice is more important for students who have chosen to continue their studies, for those who rather choose Romanian-language training if there is no mother tongue education on the field of study they opt for, for the ones that chose their current vocational training, as well as for those who wish to find a job corresponding to their professional qualification.

Many believe that the new ICT technologies set much higher expectations on the labor market than in the past (Eberts, 2008). The expansion of ICT and the Internet has increased the need for more people with ICT skills. From a more general point of view, when filling in a job, ICT skills are almost as important as general knowledge and math skills (Seybert, 2007). Public education plays an important role in developing and mastering these skills, therefore in the second part of our study we examined what kind of school infrastructure provides access to communication technologies, as well as vocational teachers' attitude towards the use of ICT equipment during teaching hours. Briefly summarizing the results, we can say that in vocational schools the IT facilities are considerably well-equipped, and that the renewal of teaching tool usage among vocational teachers has begun. In addition to teachers who still prefer the traditional teaching methods it is getting more accentuated the number of teachers who use ICT tools in the classroom, and there are also some who use electronic means while preparing for teaching hours (Orlando, 2014). Based on students' experience the use of electronic tools in education is necessary, and they believe that these devices should be used more often in the teaching-learning process.

With the rapid expansion of the internet, a major paradigm shift has to take place in education. All this imposes new expectations, requirements towards teachers, since their task is to develop students' ICT skills, thus helping young people to acquire such knowledge and skills, as well as to gain experience, what they need to get their first job (Ip, 2010).

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