TRANSFERABLE COMPETENCIES OF STUDENTS IN TECHNICAL FIELDS AT A SECONDARY VOCATIONAL SCHOOL

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Abstract

The paper presents an exploratory survey focused on 8 transferable competencies in vocational education in students at secondary vocational schools and on their interest in studying at a university. The paper aims to: (1) find out a comprehensive order of transferable competencies among students of secondary vocational schools based on evaluation of subjective degree of acquirement of transferable competencies by the students, (2) find out whether students of secondary vocational schools are interested in their further studies in technical fields at a university. It was concluded that the students have acquired the following competencies to the greatest degree: Communication in the mother tongue, Sense of responsibility, Work with digital technologies, Teamwork. Another conclusion is that almost a half of the respondents (43 %) would like to continue studying at a university, namely mostly in the same or related field of study of their technical specialization.

Keywords: Interest in studying at a university, self-evaluation, students, survey, transferable competencies, vocational education.

1 INTRODUCTION

Competencies are the essential concepts of theory and practice in the field of education, research and professional activities. In the Czech Republic, countless authors deal with the issue of competencies for a number of years. It is possible to trace interpretations to the term competence itself (e.g. Urban [1], Vašutová [2], Slavík [3], Veteška and Tureckiová [4]), to the context of the profession (e.g. Janišová and Křivánek [5], Belz and Siegrist [6]) and to corporate education (e.g. Hroník [7], Bartoňková [8]) as well.

Based on analysis of databases Klieme, Maag-Merki and Hartig [9] point out that in various disciplines and research fields there are used specific but also mutually incompatible meanings of the term competence. The issue of competencies has constantly been widely discussed. While Urban [1] points to the expected performance, Hroník [7] accentuates the efficient performance. We are inclined to the concept of a competence understood as an excellent capability expressing a complex of knowledge, skills, attitudes and experience [3]. In this sense a postulate that the term competence refers to the excellent performance can be perceived. Janišová and Křivánek [5] shift the characteristic of a competence even further and define it as “the key behaviours needed for an excellent performance in a certain role”. Just the context of the role refers to the specific area of the activity. According to McClelland [10] a content of a competence is related to the requirements needed for a certain specific activity. In this connection competencies are given various attributes (e.g. key competencies, transferable competencies).

Competencies “have even become the global currency of 21st century” [11]. It is therefore possible to agree with the initiative of the European Union called New Skills and Jobs in Europe which claims that the improvement of competencies and their optimal utilization becomes a win-win strategy for individuals, society, employers and the economy [12].

Transformation of working environment (its conditions, requirements, technological development) and globalization of the labour market directly encourages the development of transferable competencies. In this respect then there are put demands on the educational environment (on qualifications of graduates). Transferable competencies therefore represent an attractive area of research both in scientific discourse and in the field of practice.

Transferable competencies are “the generic capabilities which allow people to succeed in a wide range of different tasks and jobs” [13]. Yorke [14] specifies that “the basic idea is that skills learned in
one context could fairly readily be transferred to another”. In other words, “transferable skills are important for individuals to enhance their employability, for employers to find qualified and able employees and for the economy that needs highly skilled workforce for economic growth and competitiveness” [15].

Yorke (in Ylonen [15]) mentions transferable skills as the subject of the following: “they are attributes acquired in education and training that are not specific to the subject studied, but are skills and abilities that can assist students to enter the world of work or other activities”. They are therefore applicable in both academic and professional situations [16], [17], [18].

In the Czech Republic research of transferable competencies is known in these authors: Kozel and Vilamová [19], Borůvková, Půlkrábková and Vaniček [20], Krčmarská, Černý, Vaněk and Magnusková [21]. Other interesting foreign researches in the field of transferable competencies are brought e.g. by Frey, Balzer and Ruppert [22], OECD [23], Rocha [24], Yorke [25].

The mentioned researches, however, are of different methodologies compared to the presented paper. On the contrary, as for the same methodology and the same subject of investigation it can be referred to: (a) the research comparing graduates of vocational education of university studies in the Czech Republic and in the Netherlands [26], (b) the research comparing students of secondary vocational schools with technical and natural science fields of study [27].

In the last mentioned research some of the results can be compared with results reported in this paper since it is the same target group of respondents. The difference lies in the survey at another school, with different fields of study, but which still belong to the group of technical fields.

Given the intention of this paper an exploratory survey reflecting two aims was chosen: (1) to find out a comprehensive order of transferable competencies among students of secondary vocational schools based on evaluation of subjective degree of acquirement of transferable competencies by the students, (2) to find out whether students of secondary vocational schools are interested in their further studies in technical fields at a university.

The following facts are the reason for the determination of the interest whether students would continue their studies at a university. People with tertiary education in technical and scientific disciplines “are irreplaceable potential that determines the economic development of the country to a large extent” [28]. In the Czech Republic, the proportion of graduates aged 20 - 29 in technical and scientific fields of tertiary education is increasing, per thousand inhabitants, but their involvement in the total number of graduates is gradually decreasing as young people prefer the study of humanities disciplines [28].

In particular, eight transferable competencies which were described through their characteristics were investigated. The respondents recorded their answers on a five-point Likert scale with a percentage of expressions. Furthermore, there was listed one item detecting whether the students would continue their studies at a university. The respondents recorded their answers on a categorical scale. The research tool took the form of a short questionnaire including also the questions of gender and age of the students. The questionnaires were distributed in September 2016 and processed in October 2016. Due to personal contact of researchers with the target groups the response rate reached 100 %. After sorting the data 61 questionnaires remained valid.

The data were processed so that to each grade of the Likert scale the points score was set in an ascending order. The data then represented the mean points score for each of transferable competencies. Based on it the order of transferable competencies was put together. The item investigating interests of students to continue their studies at a university was processed as absolute and relative frequencies for the selected answer on a categorical scale.

2 MATERIALS AND METHODS

The research sample was obtained by the intentional selection and it consisted of 61 respondents, of which 8 were women (i.e. 13 %) and 53 were men (i.e. 87 %). Respondents were students of a secondary vocational school in Prague, the Czech Republic, which wished to remain anonymous. Students of the secondary vocational school have studied fields of study with a technical specialization finished by a school-leaving examination (graduation); these were in particular the following fields: (a) Building Restoration, (b) Timber Constructions, (c) Technical Equipment of Buildings. They were the students of the 1st, 2nd and 4th classes. The representation of all of the classes of the field of study
was not complete. There was the absence of the 3rd class because there was no interest of students in these fields of study in the given school year and the class therefore was not realized.

A characteristic of transferable competencies was based on the interpretation of the following sources of information: items No. 1 - 5 (The European Framework for Key Competences for Lifelong Learning [29]), the item No. 6 [30], items No. 7 - 8 [31]. These were the following transferable competencies: (1) Communication in the mother tongue, (2) Communication in foreign languages, (3) Work with digital technologies, (4) Learning to learn, (5) Sense of initiative and entrepreneurship, (6) Problem solving, (7) Teamwork, (8) Sense of responsibility.

Responses to each of the items (competencies) represented a scale with a selection of the percentage in the range of the degree of saturation of the given competencies among students as follows: (1) 0–20 %, (2) 21–40 %, (3) 41–60 %, (4) 61–80 %, (5) 81–100 %. The responses were converted into the points score (in an ascending order) which ranged from 1 to 5 points for each response. Responses to the item relating to the interest in further studies at a university represented the following categorical scale: (a) "yes - the same field of study", (b) "yes - related field of study", (c) "I do not know", (d) "no".

Presentation of the data is represented by absolute and relative frequencies. Descriptive statistics was used for data analysis on transferable competencies, namely the mean.

3 RESULTS AND DISCUSSION

The first aim of the explorative survey was: to find out a comprehensive order of transferable competencies among students of secondary vocational schools based on evaluation of subjective degree of acquirement of transferable competencies by the students. The results are provided by the empirical data shown in Table 1.

Table 1. The order of transferable competencies of students of the secondary vocational school.

<table>
<thead>
<tr>
<th>TRANSFERABLE COMPETENCIES</th>
<th>Saturation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>score</td>
</tr>
<tr>
<td>Communication in the mother tongue</td>
<td>4.25</td>
</tr>
<tr>
<td>Communication in foreign languages</td>
<td>3.03</td>
</tr>
<tr>
<td>Work with digital technologies</td>
<td>3.77</td>
</tr>
<tr>
<td>Learning to learn</td>
<td>3.33</td>
</tr>
<tr>
<td>Sense of initiative and entrepreneurship</td>
<td>3.44</td>
</tr>
<tr>
<td>Problem solving</td>
<td>3.22</td>
</tr>
<tr>
<td>Teamwork</td>
<td>3.66</td>
</tr>
<tr>
<td>Sense of responsibility</td>
<td>3.96</td>
</tr>
</tbody>
</table>

It is expected that the greatest degree of acquirement is perceived by the students in the Communication in the mother tongue competence. The placement of the Sense of responsibility competence in the second place is a positive finding. Is it possible to suppose that the students are aware of this competence towards their future profession and do they feel a greater affinity to it? Also a teaching form of practical training when the students have to follow the safety rules, care for the entrusted equipment, tools, etc., can play a certain role. In other words, the school creates and forms prerequisites for the development of this competence with its curriculum.

The Work with digital technologies competence appears in the third place and possibly it occupies the leading position due to the specialization of technical character. However, there is necessary to take into account the general preference of digital technologies among the young generation, so-called "Z" generation. The Teamwork competence is located on the fourth place. It can again be understood in the context with vocational preparation (training) for the profession. On the other hand, it is an indicator that young people at secondary vocational schools are not completely isolated from the social world.
The worst saturated competencies are: Communication in foreign languages (the last place), Problem solving (the last but one place), Learning to learn (on the 6th place). These competencies relate primarily to cognitive processes, respectively to abstract thinking. There arises a question whether it is a bias or not that the students of secondary vocational schools tend more to particular thinking and students of secondary general schools (i.e. grammar schools) are inclined more towards abstract thinking.

But what is the most interesting is the 5th place of the Sense of initiative and entrepreneurship competence. Students preparing for a career in a particular profession requiring entrepreneurship in the given sector of the labour market should have this competence acquired to a greater degree. Or, are these students not thinking about the business and do they want to be employed in a company? Thus, do they not expect incentives for such competence even from their employers? Does this competence require greater maturity of the students? Is such maturity related to postponing the entry into the labour market because the students intend to continue their studies at a university? These are questions that would require further detailed research investigations.

If the collected empirical data are compared to previous research also in students of secondary vocational schools with a technical specialization then the results will be similar, see Table 2.

**Table 2. Comparison of the order of transferable competencies of current data with previous research.**

<table>
<thead>
<tr>
<th>Current data</th>
<th>TRANSFERABLE COMPETENCIES</th>
<th>Data of previous research</th>
</tr>
</thead>
<tbody>
<tr>
<td>score</td>
<td>order</td>
<td>order</td>
</tr>
<tr>
<td>4.25</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3.03</td>
<td>8</td>
<td>6</td>
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<td>3.77</td>
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<td>3.66</td>
<td>4</td>
<td>4</td>
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<tr>
<td>3.96</td>
<td>2</td>
<td>3</td>
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</tbody>
</table>

These competencies occupy an identical or one place shifted order: Communication in the mother tongue, Sense of responsibility, Teamwork. The other competencies differ from each other by two places in the order, while the Learning to learn, Sense of initiative and entrepreneurship competencies are in favour of the current survey as they reach the better placement compared to the previous research. There, a curricular differentiation of the field itself within the fields of a technical specialization may have an influence.

The second aim of the exploratory survey was: to find out whether students of secondary vocational schools are interested in their further studies in technical fields at a university. The results are displayed in Figure 1.
The decisions regarding further studies at a university are nearly balanced in the answers “yes” and “no”, slightly in favour of the “no” statement. 26 students (i.e. 43 %) are interested in studying at a university in the same or related field of study. The number of those who do not want to continue their studies at a university includes 30 students (i.e. 49 %) and 5 students do not know (i.e. 8 %).

Out of the students who decided to continue their studies at a university, 4 of them (i.e. 15 %) voted for a completely different field than the field of a technical specialization. In general, the situation in the interest of students of secondary vocational schools in university studies is positive since these fields of study are not very popular in the Czech Republic. The lack of interest is not only due to the demographic decrease, but also because of the preference of humanities-oriented disciplines. It would be appropriate to initiate also a much more extensive investigation regarding the actual interests of secondary school students in their further studies at a university.

4 CONCLUSIONS

Empirical survey of the research sample proved that the following competencies which the students have acquired to the greatest degree have taken the leading positions among transferable competencies: Communication in the mother tongue, Sense of responsibility, Work with digital technologies and Teamwork. The placement of the Sense of responsibility competence in the second place was a positive finding. Conversely, reflective questions emerged from the placement of the competence Sense of initiative and entrepreneurship which reached up to the fifth place in the overall order.

The empirical data also revealed answers regarding the decisions of students on their further studies at a university. Almost a half of the respondents (43 %) would like to continue studying at a university, namely mostly in the same or related field of study of their technical specialization.

REFERENCES


