

POLISH LABOR MARKET NEEDS IN TECHNICAL PROFESSIONS FROM EMPLOYERS AND TEACHERS POINT OF VIEW

Marcin Matuszak

Department of Mechatronic Devices,
Faculty of Mechanical Engineering and Mechatronics,
West Pomeranian University of Technology Szczecin,
al. Piastów 19, Szczecin 71-131, Poland,
marcin.matuszak@zut.edu.pl

Paweł Waszczuk

Department of Industrial Automation and Robotics,
Faculty of Electrical Engineering,
West Pomeranian University of Technology Szczecin,
ul. Sikorskiego 37, Szczecin 70-313, Poland,
pawel.waszczuk@zut.edu.pl

Abstract: The paper presents results of survey performed in a group of representatives of technical profession employers and vocational school teachers. The survey concerns the quality of education and skills required in technical professions. The aim of the survey elaboration is highlighting polish labor market needs and showing possibilities of secondary schools opportunities in educating future employees.

Keywords: polish labor market, secondary education, vocational education.

Introduction

The modern labor market is changing rapidly [8, 11, 15], which forces jobs candidates to permanent adaptation to labor market needs. Skills acquired during vocational education repeatedly appear to be insufficient from the employer's point of view, which requires from a graduate upskilling on additional courses. The use of existing curricula and teaching methods by vocational subjects teachers is insufficient to meet the needs of contemporary labor market due to slow adaptation to rapidly changing external conditions. The survey was conducted among employers and teachers in order to determine dynamic changes of labor market needs. Employers' representatives participating in the survey identified the preferred competences that should be acquitted by school representatives and used during the teaching process. Teachers' representatives participating in the survey exposed reality of methods and education process in modern school. They also referred to the expectations of the employers'

representatives. The survey was conducted in a representative group of vocational schools teachers and representatives of technical branch industry.

Problem description

All kinds of technical professions taught in vocational schools are nowadays evolving very fast. They constantly changing their range and increase scope of knowledge and skills required for efficient operation in specific area. Business requires from their employees constant update of their knowledge by sending employees to the specialized training or by providing them access to the latest sources of knowledge. From future job candidates employees require a reliable core curriculum which will be solid basics for further professional development [4, 5, 6, 7]. According to the representatives of business it is necessary for vocational school to see the exact needs of labor market and target teaching in these direction. The new core curriculum [16] might be the right move in this

direction, but without teachers' involvement and their understanding of modern labor market it could not be sufficient. The curriculum should be structured to provide graduates with the possibility of finding themselves in the profession. Additionally graduates should be shaped to creative person and ready for further professional development.

Survey results

The survey was performed in representative groups of entrepreneurs and teachers. Respondents were asked if a specified skill is, in their opinion, important in future graduate career. The survey results for 20 most important skills are presented in tab. 1.

Tab.1. Chosen survey questions – graduate skills

No	Question	Representatives of industry	Representatives of education
1	Foreign language	75%	52,5%
2	Basic technical concepts	60%	52,5%
3	Complex technical concepts	40%	28%
4	Computer skills and specializes software	80%	75%
5	Updates knowledge or increases qualifications	60%	25%
6	Choosing the right tools for assembly and disassembly	80%	60%
7	Evaluation of device condition	50%	22,5%
8	Technical drawing	40%	40%
9	Distinguishing companies in the branch	30%	15%
10	Ability to read diagrams and manuals	55%	60%
11	Communicativeness	62,5%	50%
12	Working in a group	75%	65%
13	Compliance with safety rules	90%	80%
14	Making measurements	70%	40%
15	Environmental protection	50%	50%
16	Work organization	70%	30%
17	Work ergonomics	45%	30%
18	Independence and creativity	60%	35%
19	The principles of culture and ethics	75%	65%
20	Dealing with stress	65%	70%

The most important graduates' skills from entrepreneurs' point of view are illustrated in fig. 1 in comparison with teachers' point of view. Both entrepreneurs and teachers emphasize the role of safety at work.

Closer relations between companies and schools

Close cooperation between business and school seems to be the obvious solution for keeping a positive feedback between entrepreneurs' expectations about graduates skills and knowledge and vocational schools possibilities to provide appropriate qualifications. Contacts between these two groups are not sufficient and are usually limited to occasional reciprocal visits. It seems to be paradoxical because both entrepreneurs and schools representatives

express willingness of cooperation in case of expanding theoretical and practical knowledge. Entrepreneurs indicate that they could use their time and resources for didactics and education improvement. Additionally they could offer access to their knowledge and experience and help students during internship. Establishing and maintaining closer relationship between teachers and employers in both teachers and employers group opinion is the best way to improve teaching results through focusing teachers on aspects relevant for employers. The described cooperation should be standard in vocational schools. It should focus teachers' attention on changes in labor market and indicate changes in specific subjects to adjust them to constantly changing economic realities.

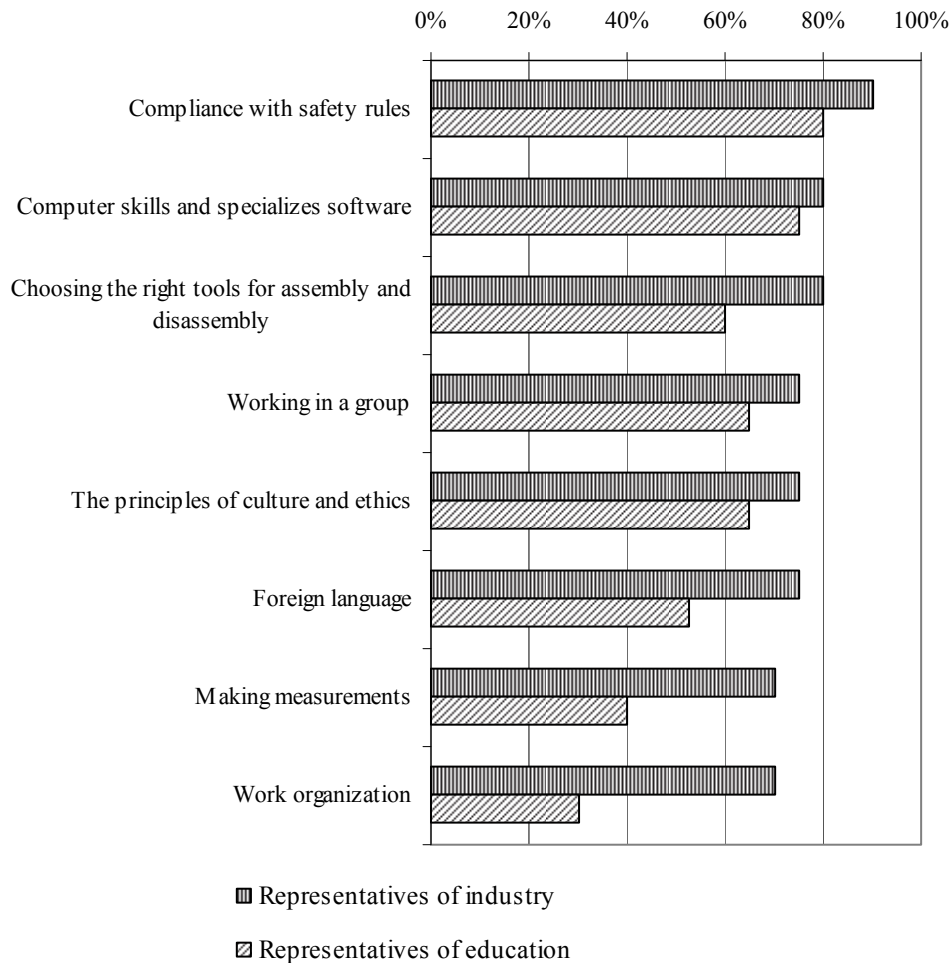


Fig. 1. Most important skills in entrepreneurs' opinion in comparison with their importance in teachers opinion

Familiarization with the company's structure

Getting familiar with the company structure, principles of its operation, acquisition of new customers and relationships with customers are, in entrepreneurs' opinion, the next important aspects on which vocational schools education should be focused. These issues are basic from entrepreneur's point of view and are the basis of company market success. Student should be aware of dependencies on the free market, on circulation of money in a free market system which are consequences of these phenomena. Teachers should remember about aforementioned issues in education process so the graduate had no difficulties in labor market. Entrepreneur hiring a new employee counts on his willingness of improving general financial situation of company. Vocational school

graduates should pay attention to the economic aspects of their decisions. Resources and quality management are primary issues in the company operation. Equally important is getting students familiar with basic health and safety rules [10] and personal and social skills so that in the future student had no problems in dealing with difficult situations.

Polish schools reality

Teachers' representatives drew entrepreneurs' attention to the issue of Polish school reality. Financial problems, deficiency of equipment in educational workshops, staff shortages or reduced teaching plans are in their opinion the largest obstacles in teaching a graduate consistent with the contemporary labor market [13]. Teachers outlining the state of today's schools drew attention to the aspect of

resources at their disposal and the method of their usage in the teaching process. They were especially critical about schools financing and teaching workshops equipment. Teachers expect from entrepreneurs their involvement in the education process through financial support in the area of providing equipment necessary for practical activities. This could give students the possibility of getting familiar with the devices commonly used in modern industry and extend their theoretical and practical knowledge. In addition, the teachers pointed out willingness of intensifying visits at workplaces in order to familiarize students with the conditions, equipment and technical innovations in the industry. Educating graduates to meet the expectations of the contemporary employer only with teaching resources available in schools is impossible.

Improvement of didactic methods and communication between companies and schools

The next issue important for labor market needs is improving didactic methods and changing stereotypes concerning cooperation between schools and companies. Activities designed to prepare students for the profession do not fully meet entrepreneurs' expectations. In their opinion language learning, work in groups and setting up and running business should be emphasized in education process. These are the most important skills that a student should acquire during education. Today it is hard to have a good employee who cannot use at least one foreign language. This skill is essential in communicating with customers from other countries, customer service or reading technical documentation of devices manufactured in other countries. Moreover most computer software used in a modern company has interface in a foreign language.

Work in small teams is crucial due to specifics of work in technical professions. A well organized group of workers can manage large, complex tasks occurring in modern computer, mechanical or mechatronic systems [3, 9, 12]. It is unrealistic to demand from a worker the knowledge of all components used in devices that is why so important is the ability to communicate and cooperate with other people. In the opinion of most entrepreneurs' stereotypes about cooperation between

vocational schools and companies it is difficult to establish new contacts and maintain the existing ones. Teachers' consciousness should be changed so they could see in entrepreneurs potential partners who also care about graduates' education level. During visits at workplaces not only technological aspects but also social aspects of work should be presented [1, 2].

Certification

The last issues important in teachers' opinion were the issues related with documents proving the qualifications or confirming internship. Teachers pointed out that all kinds of documents evidencing additional skills in today's world are the basis for the career development and prove willingness of the worker's development. Additionally they show potential employers the involvement and willingness to self-development.

Teachers' representatives also expressed the request to access companies reference materials which could increase interest of learning. Companies materials are also a good education base for students that have the need of getting familiar with offers of companies operating in labor market which gives possibility of focusing on the specified workplace needs.

Summary

To sum up, opinions about the needs of labor market presented by entrepreneurs and teachers seem to illustrate all obstacles faced by one side looking for employee suitable to their needs and the other side trying to educate graduates appropriate from the labor market point of view. In companies representatives opinion the main problem is establishing successful cooperation with schools and insufficient focus of teaching to meet the needs of the modern labor market. Teachers' representatives consider hard realities of polish school and inflexible educational system as weakest links. A positive sign is willingness of cooperation between these two groups. Teachers are more often able to express their needs while entrepreneurs, if it is possible, try to satisfy teachers' needs. All these components indirectly affect the labor market and in long term could help to create a perfect vocational school graduate from the entrepreneur's point

of view. Clearly defined needs and capabilities of both teachers and entrepreneurs may allow to create an appropriate curriculum so that time spend on didactics was used efficiently and

brought results in a curriculum fitted to labor market needs.

References

1. Bernaciak A., *Przedsiębiorstwa wobec wymagań ochrony środowiska*”, Wydawnictwo Salamandra, Poznań 2000.
2. Chępa S., *Kwalifikacje kadr kierowniczych przedsiębiorstw przemysłowych. Kierunki i dynamika zmian*, Wydawnictwo Akademii Ekonomicznej, Wrocław 2003.
3. Dretkiewicz–Więch J., *Technologia mechaniczna. Techniki wytwarzania*, WSiP, Warszawa 2000.
4. *Mały rocznik statystyczny Polski 2011*, Główny Urząd Statystyczny, Warszawa 2011.
5. *Rocznik statystyczny przemysłu*, Główny Urząd Statystyczny, Warszawa 2011.
6. *Rocznik statystyczny Rzeczypospolitej Polskiej*, Główny Urząd Statystyczny, Warszawa 2011.
7. *Rocznik statystyczny województw*, Główny Urząd Statystyczny, Warszawa 2011.
8. Gnutek Z., *Analiza trendów w Polsce, Europie i na świecie dotyczących rynku pracy, w tym zapotrzebowania na nowe kwalifikacje i specjalizacje zawodowe w zakresie mechaniki i budowy maszyn*, [w] *Prognozy rynku pracy i zapotrzebowania na kwalifikacje*, red. Kupczyk T., Wrocław 2005, pp. 67-73
9. Górecki A., Grzegórski Z., *Montaż i eksploatacja maszyn i urządzeń przemysłowych*, WSiP, Warszawa 1996.
10. Hansen A., *Bezpieczeństwo i higiena pracy*, WSiP, Warszawa 1998.
11. Karpiński A., Paradysz S., Penconek B., *Szacunek zapotrzebowania na główne grupy zawodów do roku 2010*, Rządowe Centrum Studiów Strategicznych, Warszawa 1999.
12. Karpiński T., *Inżynieria produkcji*, WNT, Warszawa 2004.
13. Kukliński A., *Gospodarka oparta na wiedzy – wyzwanie dla Polski XXI wieku*, Warszawa 2001.
14. Kupisiewicz Cz., *Podstawy dydaktyki ogólnej*, PWN, Warszawa 1998.
15. Lewandowski R.: *Refleksje nad kształceniem zawodowym w Polsce*, General and Professional Education, 2/2011, pp. 28-32.
16. Załącznik do rozporządzenia Ministra Edukacji Narodowej z dnia 10 stycznia 2012 r., *Podstawa programowa kształcenia w zawodach*, Warszawa 2012.