

High education study program model towards employability. On a way to understand Employer's requirements for Generic Competences

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Abstract. *Better employability is raising concern of most higher education institutions in Croatia. Educational sector and employment sector usually lack of common understanding especially considering generic and information literacy competences. HE programs are focusing on learning outcomes and employers are mostly looking at competences and personal traits. Zagreb University of Applied Sciences in defining new study programs for 2025 timeframe is building a model which can help closing the gap.*

Keywords. employability, generic competences, transferable skills, ICT sector, information literacy

1 Introduction

Between the start of the financial and economic crisis and 2014 (the latest data available), there were considerable differences in the performances of the individual labour markets in EU. While the overall employment rate for the EU-28 in 2014 remained 0.8 percentage points below its level of 2009, the Greek employment rate fell from 61.4 % in 2008 to just below 50 %. There were also considerable reductions — of at least 5 percentage points — for the employment rates of Cyprus, Spain, Ireland, Croatia, Portugal and Denmark¹.

Today, Croatia is second to Greece² in low employment rate of all EU member states, with very high percentage (38.9%) of youth unemployment rate³, so employability should be very, very high on government priority list.

¹ EUROSTAT, Employment statistics http://ec.europa.eu/eurostat/statistics-explained/index.php/Employment_statistics#Main_statistical_findings, retrived on 28.06.2016

² European Commission DG for Employment, Social Affairs and Inclusion, *Employment and Social Developments in Europe Quarterly Review Summer 2016*, pg 22.

Unfortunately, Croatia, Greece, Bosnia and Herzegovina, Serbia, Cyprus Portugal and Romania are in a group of countries where higher education graduates face higher unemployment ratios than young people with medium levels of education, which implies that even a higher education degree could not provide a safeguard for young people against the impacts of the 2008 economic crisis⁴.

2 Employability

Hillage and Pollard from the Institute for Employment Studies, UK carried out a report on developing a framework for policy analysis on employability for the UK Department for Education and Employment defining employability as “having the capability to gain initial employment, maintain employment and obtain new employment if required “. For the individual, they emphasize that „employability depends upon: assets in terms of knowledge, skills and attitudes, the way these assets are used and deployed, presentation of assets to potential employers and the context within which the individual works, e.g. labour market, personal circumstances“ (Hillage & Pollard 1999).

Employment commands a central place in labour market policies in the European Union (EU). It was a key element in the European Employment Strategy (Commission of the European Communities, 1999, 2003a, 2003b), which aimed to make labour markets function better, to equip people with the right skills for employment, and to improve job quality and working conditions. Subsequently employability was an

³ EUROSTAT, Youth Unemployment rate for March 2016, <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>, retrived on 28.06.2016

⁴ European Commission/EACEA/Eurydice, 2015. *The European Higher Education Area in 2015: Bologna Process Implementation Report*, pg. 187.

important underpinning concept for the *Europe 2020 Strategy for Growth*, underpinned by the *Agenda for New Skills for New Jobs* and the *European platform against poverty and social exclusion*. The Agenda for new skills and jobs is of particular relevance to current policy formulations, because it is concerned with increasing the share of the working-age population (20-64 years) in work to 75% by 2020. To achieve this target wide ranging actions are proposed including reforms to improve flexibility and security in the labour market (i.e. ‘flexicurity’), to equip people with the right skills for the jobs of today and tomorrow, to improve the quality of jobs and ensure better working conditions, and to improve the conditions for job creation (Green et al. 2013).

In the same report - *Literature Review on Employability, Inclusion and ICT, Report 1: The Concept of Employability with a Specific Focus on Young People, Older Workers and Migrants* various employability frameworks are considered, the narrower, the broader ones, and for this research the (Dacre Pool & Sewell 2007) framework is considered. It was developed to be used as a framework for working with students in higher education in the UK to develop their employability skills. This model has wider applicability to other EU countries, especially pertinent given the prevailing policy concern on employability of young graduates.

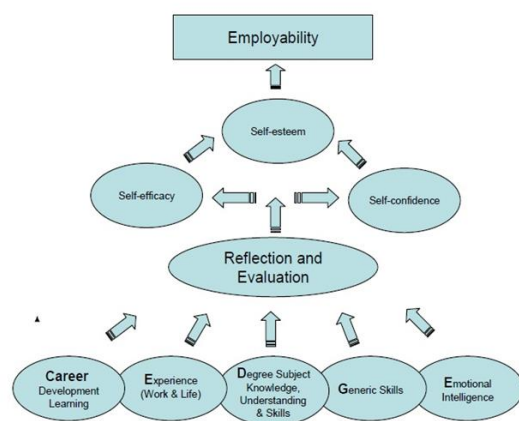


Figure 1. Essential components of employability
Source: Dacre Pool & Sewell (2007: 280, Figure 1)

The term *Generic Skills* used in this model is also of wide meaning – in different frameworks, especially different languages and/or cultures terms *generics*, *transversal*, *transferable*, *soft* or *key skills* are often interchangeable. In (Lindsay & McQuaid 2005), a broader employability framework including individual, personal and external factors, term basic and key transferable skills are used and elaborated in detail. For the perspective of this research maybe best explanation of term generic skills is “the difference between technical, subject matter knowledge and qualification graduates obtain from HE and soft skills

needed for employment”, explained and researched in detail in (Andrews & Higson 2008).

2.1 Bologna Process

One among first actions taken from Ministers responsible for higher education in the Bologna Process signatory countries was to consider how to improve employability in higher education. In (Executive Summary 2009) Working Group identified the main challenges and called upon immediate action:

- i. employability of graduates at the Bachelors level is a particular problem for some countries, with a perception amongst some graduates and employers that the qualification is not adequate for employment;
- ii. work experience for graduates;
- iii. some employers do not think that universities are doing enough to prepare graduates for the world of work. Some universities query whether employability should be a part of their mission and purpose; &
- iv. Some employers and some higher education institutions have little practical experience of engaging with each other, especially in curriculum design focusing on improving employability.

Few years later, in Bucharest Communiqué (European Higher Education Area 2012), in paragraph *Enhancing employability to serve Europe's needs* it is repeated that “Today’s graduates need to combine *transversal, multidisciplinary* and *innovation skills* and *competences* with up-to-date subject-specific knowledge so as to be able to contribute to the wider needs of society and the labour market”. And welcome considerable progress in developing qualifications frameworks as they improve transparency and will enable higher education systems to be more open and flexible. “The development of qualifications frameworks must continue so that they become an everyday reality for students, staff and employers”.

Croatia is still in first phase of this long journey. Curricular reforms, creation of national qualification framework (HKO) based on European qualification framework (EQF) are in progress. There are actively going on 30 European Social Fund financed projects just in building of competence based curriculums in HE, signalling significant presence of applying competence and employability based approach into HE.

According to the Act on Scientific Activity and Higher Education, the definition of curricula in Croatia is at the discretion of HE institutions, and employers are legally regulated only with regard to the election of members to NCSHE. “University-enterprise cooperation is neither regulated nor analysed at national level and is a component of Croatian higher education that needs to be strengthened in the future” (Agency for Science & Higher Education 2010).

Dialogue between Croatian HE and enterprises is weak, not institutionalized at all. It is based on individual effort and occasional initiatives like Tempus project “Furtherance of Bologna Promotion in Croatia”

in 2008, part of which was employer survey of more than 150 enterprises to familiarize them with Bologna transformation of HE. Responses were very positive, large majority (52%) supported reforms aimed at more closely alignment of HE to labour market needs indicated that preparation of graduates to fulfil work tasks is weak or none (53%). From their side they clearly indicated competences expected from young graduates like *fundamental knowledge in the field, application of professional knowledge, ability to learn, creativity, innovativeness and initiative* and *team work* and offered/promised practical placement of students at their companies to gain working experience (79%) (Divjak & Spahić 2008).

That was just before economic crisis and in the very beginning of Bologna process in Croatia, so during next years nothing much changed. HE was heavily involved with their reform and employers with their economic survival.

And as it is stated in first CSR – Country Specific Report for Croatia (European Commission 2015) - the adoption of a comprehensive strategy for education, science and technology is acknowledged as a positive development and will be the main driver of reform in the coming years. In the same report it is explicitly pointed out the need for “modernizing initial VET curricula in line with the needs of the labour market”, which suggests much higher level of cooperation between education and labour stakeholders. Individual effort and occasional initiatives from HE side are clearly not good enough.

3. Generic Competences

Dialogue of employers and higher education in role of practitioner production in Croatia is poor partially because there is lack of mutual understanding of needs and offerings but also of terms and valuation processes used. Educational reforms in Croatia rarely focus on generic competences related to the information literacy skills. As research of the university syllabi (Banek Zorica & Spiranec 2014) has shown, there is no general approach to building up generic competences, but a partial incorporation of information competences in the study programs, mainly in librarian field of expertise, totally neglecting employment and employability skills. Employment sector and workplace research in Croatia shows that there are a lot of valuable generic competences expected from new practitioners, which can be mapped to information literacy (Banek Zorica et al. 2014) often bringing more value than their subject matter expertise. On the other hand, structured approach to information literacy requirements in workplace such as SCONUL employability lens (Goldstein 2015) proves a necessity to define information literacy competences as in workplace context in order to bridge these communication gaps. Recent research on Croatian employers' job advertisements (Pažur Aničić & Arbanas 2015) shows

employers focus on official qualifications and generic competences in specific as an employment criterion in ICT jobs. Research analysed 50 randomly chosen job advertisements in March 2014 with the purpose to observe the appearance of competencies, as defined in European e-Competence Framework 3.0 versus generic competencies as defined in Tuning project. Comparison of the appearance of e-competencies and generic competencies in job ads clearly shows that Croatian employers do not perceive e-competencies. Typical job advertisement contains almost twice more generic competencies (6.24) than e-competencies (3.22) and the appearance of e-competencies in job ads could be recognized mostly from the job description, while the generic competencies appear in the obligatory conditions part of ads and are more clearly defined.

The body of literature from the human resource management field shows that competencies present the most prevalent method used to define ideal employees and have become a fundamental part of talent management (Griffiths & Washington 2015). Also, competency management enables effective hiring decisions and present a common language (Wilton 2014). Unfortunately, the emergence of various competency models is actually deepening the communication divide between higher education and employer consequently also with graduates.

3.1 Competence Frameworks

In Croatian HE landscape most popular and more and more used competence frameworks are European EQF (European Parliament and Council of the European Union 2008) and national HKO (Ministry of Science Education and Sports 2013) with accompanied generic competence frameworks (European Council 2006), (Croatian Employment Service 2016). From educational standpoint it is mostly (TUNING Educational Structures in Europe 2006). But when approaching employability issues, 31 generic competences defined in Tuning project are exceedingly too many for operational use.

From employability perspective simplification and reduction of competences concentrating just too few areas like *using tools interactively, interacting in heterogeneous groups* and *acting autonomously* started with (OECD 2003) framework. Still, there are wide variety of views and valuable frameworks like (Bartram 2005), (Rutherford 2005), (CIPD 2007), (Bowman 2010), (Gallup 2010), (OECD 2014), (CIPD 2015). All the way to recent and most suitable to today's environment - (UNESCO 2015) and (WEF 2015). All of them are looking to generic competence with different lens clearly indicating there is not “the best” framework which can be applicable to general use.

European concept of generic/key competences for 21st century implies lifelong learning - a European

reference framework developed within the Education and Training 2010 work programme, approved by the Council and European Parliament in 2006. This framework builds on the outcomes from the OECD-DeSeCo programme has two main goals. On the one hand, it aims at identifying and defining the key competences that are necessary in the knowledge society of 21st century and as well as providing a European level reference for supporting Member States' efforts towards ensuring the development of these key competences across all age groups.

The European Reference Framework clearly defines key competences for lifelong learning as comprising 'a combination of knowledge, skills and attitudes appropriate to the context' (European Council 2006). They are: *communication in the mother tongue, communication in foreign languages, mathematical competence and basic competences in science and technology, digital competence, learning to learn, social and civic competences, sense of initiative and entrepreneurship* and *cultural awareness and expression*. Each has a concise definition of its scope and all emphasise *critical thinking, creativity, initiative, problem solving, risk assessment, decision taking, and constructive management of feelings*. Each of the eight key competences is given a broad definition, providing each Member State with flexibility to interpret and incorporate a key competences approach within its own specific national context. The European Commission's Thematic Working Group on the assessment of key competences have reported that key competences or similarly broad learning outcomes have been or are being incorporated into their curriculum frameworks. However, they have found that operationalising these broad learning outcomes as a basis for planning and assessing learning is a challenge (Pepper 2011).

Another issue with key competences is providing assessment of them. Current assessment models, which are mostly focused on the measurement of discrete knowledge, apart from first three (languages, native and foreign and mathematics) fail to assess remaining five competences and call for new assessments grounded in authentic tasks and complex (Gordon 2009).

To help tackle those skills challenges, pressed by speed of changing economic (digital) landscape, forced by global competitiveness, with 70 million Europeans lack of adequate skills (40% employers reporting that can't find people with right skills to grow and innovate) on June 10th 2016 European Commission announced new and comprehensive Skills Agenda for Europe which will in 10 actions in next two years tackle the problem. In fostering HE and employer communication most important are those two:

- i. A review of the European Qualifications Framework and the related annexes for a better understanding of qualifications and to make better use of all available skills in the European labour market.

- ii. A review of the Recommendation on Key Competences to help more people acquire the core set of skills necessary to work and live in the 21st century with a special focus on promoting entrepreneurial and innovation-oriented mind-sets and skills.

3.2 Employers View

Six years after (Divjak & Spahić 2008) quantitative research on Croatian employers and their evaluation of students' competences and skills important for work, new dialog with employers was conducted (Banek Zorica et al. 2016). This time it was qualitative research on employers' requirements of generic competences of ICT practitioners they seek during hiring process. It was conducted by interviewing interviewers - human resource managers from 5 top Croatian private sector companies. These companies were chosen due to their high employment rates, wide coverage of most propulsive IT job positions (telecom, financial and retail industry), with strong corporative IT departments and internal IT driven business development. Hiring rate of these companies is 10-40 new employees per year which are the quite big numbers for Croatian industry field, and have internal 150-600+ jobs with strong ICT competences. All companies have long, well developed corporate HR driven culture which was perfect for spotting the requirements put on young employees just arriving from HE. All interviewers were senior positioned (3/5 were HR managers) with 10-20 years of experience, knowledgeable about various competence frameworks, with personal experience in competence based management systems. Personally, they were very opened and attentive thus giving very valuable, experience based observations.

Research was based on grounded theory as from research of body of literature proposed frameworks are very socio-economical bound and some even very culturally based. One of research questions was to investigate if and what generic skills are recognized as key elements of hiring young ICT professionals. Goal of the research was also to investigate employers' perception of importance of generic competences vs. technical ones, in this particular research ICT related, required for their job position.

When selecting big, well developed companies with HR professionals which understand (and internally develop and run) competence based culture, drawback was that all those companies have very strong inside people development practice. For development of young professionals, they dedicate enough time, resources and man power to mentor or train them. Thus, during the employment process they were actually looking more into generic than subject specific competences as they are much more likely to hire young potential and develop them internally than hire experts for some senior position.

Hiring procedures are usual and standardized. Candidates' CV are means of fulfilling the posted

requirements and just a first filter. All candidates are then tested with more or less standardized employee assessments which usually include cognitive ability tests and various psychological personality assessments. After first round of interview with HR personal, line managers are included in staff selection to check specific technical abilities and requested knowledge, but also to understand how candidate would fit in existing organization, with already developed specific working culture and habits. Hiring manager is always present to spot any personality extremes which can be show stopper for hiring.

All interviewers agreed that finishing technical study and passing cognitive tests is clear sign of having core ICT competences they were looking for. Those candidates clearly have sufficient *digital competences*, but also *problem solving*, *critical thinking* and *analytical thinking* competences as well. These competences are considered gained well through study, which is excellent feedback to Croatian HE. Of the other generic competences, they indicated strong need for *teamwork* and good *communication skills* together with preference of employability skills like *adaptability* (to new way of work), *flexibility*, *positive attitude*, *proactive approach*, basic *self-management* capabilities, *goal orientation*, *business awareness*, just to mention most mentioned ones.

In discussion part, a question of hiring “show stopper” was asked: meaning if there is usual that line manager recognise a sufficient or even superior technical competence of an employee, but HR manager suggest “no hire” based on some obvious lack of general competence. All responders confirmed, not just hypothetically, but remembering real situations - it was mostly because of common lack of *communication* or *teamwork skills*. They more or less confirmed the rule that no “technical individual/introvert genius” deserves to be hired in their company remembering bad examples with those kind of people, much more present in ICT related field than other industries.

When discussing question from Graduates’ employability skills report (Institute of Directors skills briefing 2007) on balance of generic vs “technical” competence skills of new hires, they all concluded that generic competences are at least equal or more important than pure technical skills, even one of them rate it 70:30 in favour of GC.

The deficiency of generic competences is seen as a lack of today’s Croatian HE – “These things (generic competences) are not taught/practiced during their study. Our education system is rigid – fully content oriented, and Bologna process made it even worse. Students are checked just for knowledge, never rewarded on mode, methods how they got the results, which is all the difference we need from them. Proper way of solving problems, working in teams, helping

colleagues, ... that is the only way to teach them to learn, be proactive, make difference”.

Comparing the competences employers need from new hires in very wide (150 mixed industry companies) quantitative research of (Divjak & Spahić 2008) and these latest one there is (despite obvious difference in segmented population) clear message to HE: we, employers need much more generic competenced students than “technical experts” that are hard to fit in existing working environment. And even competences, lack of it, to be more precise, are more or less the same like pointed out 6 years ago: *application of professional skills/fundamental knowledge of the field*, *team work*, *oral and literal communication*, *ability to learn*, and *computer skills* (which was obviously not an issue in hiring ICT professionals).

4. Polytechnics 2025

With more than 3.500 students, Zagreb University of Applied Sciences is the largest Croatian Polytechnic college in the areas of computer science, electrical engineering, mechatronics, construction, orthotics and prosthetics. Together with ICT industry partners APIS IT, IN2 and SPAN, through European Social Fund co-funded project “*The development of higher occupational standards, qualification standards and study programs on the basis of the Croatian Qualifications Framework in the field of specialist Polytechnics studies*”, abbreviated name Polytechnics 2025, is in the process of designing educational standards and harmonization of study programs to the needs of existing and future Croatian labour market. It is 18-month project, with more than 50 members of project team and is expected to finish in September 2016.

Main contribution⁵ will be applied research analysis and *projection of needs and demand*: present and future, of real and public sector for competence, qualifications and occupations at polytechnic markets, analysis of expected *technological trends* and platforms in the domain of ICT in polytechnic domain and, on the basis of the results obtained, the development of new *occupational and qualification standards*, specialized professional studies and study programs in polytechnics.

Project team will develop 13 new occupational standards proposals, improvement proposals for 9 existing study programs and 4 completely new study programs.

Apart from that, web and mobile software application will allow student’s simplified choice of courses and curricula based on desired competencies for the qualification and/or selected occupational profile, and on the same time will allow employers recognition of study programs by competencies they

⁵ All the preliminary results are already published (in Croatian only) on official project page

<http://politehnika2025.tvz.hr/rezultati>, and will be updated upon project closure

need for specific job or occupation. It will be first of a kind application in Croatia which will connect both students and employers needs through complex and detail model with *competences as a pivotal entity* facing HE entities and attributes on the educational side and job competences and work profiles on the demand side.

Model contains more than 80 entities with more than 600 attributes and it is still in a process of fine tuning and adjustment as more than 50 contributors (faculty staff and employers) are doing daily data entry. So far database has more than 15.000 records and upon completion it will be used not only to serve the needs of students and employers but also to analyse and dimension need for all kind of faculty requirements (in terms of staff competence, various resources needed, new curricula, change of expected competences, etc.).

Usual entities from education point of view like *Education institution, Department, Study, Study program, Course, Learning Outcomes*, etc. are related to employers' side entities like *Occupation, Working place, Key job*, etc. through *Skills* and *Competences*, which are the central entities enabling mutual understanding of students wishes and employer's needs.

Very important role in a view of this research is a role of *Generic competence* entity which will enable more detail insights into its role in polytechnics education and employment. As of now, in first iteration of data entry it is not very well populated and properly related to fully existing learning outcome fields, but as more and more employers and professors understand their employability value it will be used and related to related business competences in appropriate way. This competence based model and its openness to general public of future students and their employers will definitely foster so much needed HE – employers dialogue much more than 2025.

5. Conclusions

Better employability of their students is raising concern of most higher education institutions in Croatia. Today, Croatia is second to Greece in low employment rate of all EU member states, with very high percentage of youth unemployment rate. And it is in a group of countries where higher education graduates face higher unemployment ratios than young people with medium levels of education, which implies that even a higher education degree could not provide a safeguard for young people against the impacts of the 2008 economic crisis.

Employment commands a central place in labour market policies in the European Union (EU) as well. It is a key element in Europe 2020 Strategy for Growth, underpinned by the Agenda for New Skills for New Jobs and the European platform against poverty and social exclusion. Main goal is to increase the share of the working-age population (20-64 years) to 75% by

2020. To achieve this target wide ranging actions are in progress to equip people with the right skills for the 21st century jobs, especially in European digital single market.

Generic, transferable skills needed in quick changing economy of 21st century is essential component of employability framework, as accepted in most of EU countries from research work of (Dacre Pool & Sewell 2007). The term is in different frameworks, especially different languages and/or cultures interchangeable with generics, transversal, transferable, soft or key skills, and in perspective of this research maybe best explained as “the difference between technical, subject matter knowledge and qualification graduates obtain from HE and soft skills needed for employment” (Andrews & Higson 2008).

In HE arena, one among first actions in 2009 taken from Ministers responsible for higher education in the Bologna Process signatory countries was to consider how to improve employability in higher education. Few years later, in Bucharest Communique in 2012 it is specifically pointed out that “Today’s graduates need to combine **transversal, multidisciplinary** and **innovation skills and competences** with **up-to-date subject-specific knowledge** so as to be able to contribute to the wider needs of society and the labour market”. And welcome considerable progress in developing qualifications frameworks as they improve transparency and will enable higher education systems to be more open and flexible.

And even further, quite recently, on June 10th 2016 European Commission announced new and comprehensive Skills Agenda for Europe which will in fostering HE and employer communication further review the European Qualifications Framework and the related annexes for a better understanding of the qualifications and review the Recommendation on Key Competences to help more people acquire the core set of skills necessary to work and live in the 21st century.

Croatian HE is still in first phase of this long journey of making employable graduates. Curricular reforms, creation of national qualifications framework (HKO) based on European qualification framework (EQF) are in progress. There are actively going on 30 European Social Fund financed projects just in building of competence based curriculums in HE, signalling significant presence of applying competence and employability based approach. But, as University-enterprise cooperation is neither regulated nor analysed at national level it is a component of Croatian higher education that needs to be strengthened to foster needed dialogue. So any individual effort or occasional initiatives trying to help HE to understand employers wants and needs are more than welcome.

In this paper, dealing specifically with generic, core competences three of rare researches were used – one from the beginning of Bologna process (Divjak & Spahić 2008), and two recent ones - (Pažur Aničić & Arbanas 2015) and (Banek Zorica et al. 2016). All

three of them testify importance of generic competences employers have and look in recruitment process and lack of their understanding in Croatian HE. Especially in Bologna adopted orientation towards learning outcomes with focus on measurement of discrete knowledge, neglecting skills and attitude components.

Recent push of ESF projects modernizing competency based curricula will be misused if not delivered with strong support of employers, considering their needs and using their experience. Due to rapidly changing business environment employers are considering generic competences more and more important, sometimes even more important than the technical, subject matter ones. It is of great interest of all to identify such competences employers expect from graduates and include them in educational process from the beginning.

This will obviously be very long and complex process, not because of lack of communication and mutual understanding of needs and offerings, but mostly because of terms and valuation processes used on each side. Education sector is still focusing on knowledge (i.e. learning outcomes), quite recently making shift to competences and employers are apart from implied technical expertise looking more and more for generic competences and personal traits, as HR managers always did.

Project Polytechnics 2025 - development of higher occupational standards, qualification standards and study programs on the basis of the Croatian Qualifications Framework in the field of specialist Polytechnics studies, opened very fruitful cooperation with real sector representatives taking in consideration employability skills of the students, thus successfully starting long awaited dialogue. And an underlying model, not finished and fully filled yet, has competences, including the generic ones in the center, thus enabling both sides to better understand their needs and wants. And this is what mission of modern HE should be – transparently connecting students and employers for mutual benefit goals.

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