

Analysis of gap between competencies developed by higher education and required by employers in Hungary

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Abstract

Several researches are focusing on education and competency-management (Tran, 2018; Herbert et al., 2020) refer to a „skill gap” between the acquired skills of graduated students and workforce skills required by the industry. The current Hungarian higher-educational system and regulations do not fully support the competency-based view of education. According to employers and reports of future work competencies (WEF, 2020) higher education programs are supposed to meet the requirements of work skills connecting to personal qualities of students. Therefore, the character building of graduates needs to be emphasized by universities. The aim of the research is to analyse the required skills of Human Resource Management graduated students from various aspects: from the point of view of the higher education training and outcome requirements defined by Ministry of National Resources; from the perspective of employers, and from the angle looking at future competency expectations. In order to reveal and compare these different aspects, based on the triangulation approach, document-analysis and focus-group interviews were carried out, and a case study method was applied in order to represent the outcome of the research. Our study indicates that competency based educational programs need to focus on the development of the personality and essential skills in parallel in order to provide professionals fit to employers’ expectations and future trends.

Keywords: character building, competency-based higher education, workforce skills

1. Introduction

It is evident that a competency gap exists between employer needs and the skill sets of university graduates (Conrad & Newberry 2012; Everson 2014; Adrian, 2017). However, we have limited knowledge (Clardy, 2008; Kormanik, Lehner & Winnick, 2009; Hirudayaraj & Baker, 2018) about the competency gap between the Hungarian employer needs and the skill sets of university graduates in the case of Human Resource (HR) educational programs. Therefore the aim of this research is to analyse and identify the competency gap between employer needs and the skill sets of HR university graduates in Hungary from multiple perspectives.

2. Literature review (framing the problem)

Employers usually perceive the insufficiency of skills among the employees (Mourshed, Farrell & Barton, 2012). Moreover, studies consistently report that higher education graduates are increasingly unable to perform work duties effectively (Tran, 2018).

Higher education institutions often fail to capture the need for skills in the labour market, therefore they cannot develop relevant employability skills for students (Harman, Hayden & Pham, 2010). “Employability skills are the personal attributes enabling the people to get a job and support an individual’s career life more easily” (Fajaryati et al., 2020, p. 600.). Yorke & Knight (2003, p. 8.) define employability as “a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy”. Beside the higher educational program, the level of skills that each graduate or employee possesses, depends on their effort. Students should understand the requirements of a targeted profession and invest efforts to develop relevant employability skills (Jackson, 2016).

“From a human resource supply perspective, understanding the trends in the field and the knowledge and the skill requirements of employers is important for educational programs to adequately prepare professionals to enter and thrive in the field” (Hirudayaraj & Baker, 2018, p. 578.). Although other occupational areas are consistently analysed (Frankenfeld, 2017; Meyer, 2017), there is limited knowledge (Jamshidi, Rasli & Yusof, 2012; Hirudayaraj & Baker, 2018) about the skill gap in the field of Human Resources.

2.1 Competency gap defined

The following chapter summarizes the theoretical background of the competency gap. First, the definition of competence is assigned, as the fundamental determination of the research. Following that the elements of the competence are explained, in order to be able to clarify and separate the various competences.

Competency is defined by the Education Policy Committee (Taguma (OECD) & Rychen, 2016, p. 3.) as follows: „a competence is defined as the ability to successfully meet complex demands in a particular context through the mobilization of knowledge, skills, attitudes and values”.

According to this definition, competency is based on three pillars, namely knowledge, skills and attitudes and values that are defined hereinafter:

„Knowledge includes theoretical concepts and ideas as well as practical understanding based on the experience of having performed certain tasks... disciplinary, interdisciplinary, epistemic and procedural.” (Speiser & Lang, 2018, p. 72.)

„Skills are the ability and capacity to carry out processes and be able to use one’s knowledge in a responsible way to achieve a goal... cognitive and meta- cognitive skills; social and emotional skills; and physical and practical skills.” (Speiser & Lang, 2018, p. 85.)

„Attitudes and values ...refer to the principles and beliefs that influence one’s choices, judgements, behaviours and actions on the path towards individual, societal and environmental well-being.” (Speiser & Lang, 2018, p. 101.)

We applied this competency definition during the research because the Education and Outcome Requirements defined by the Ministry of National Resources includes the qualification standards. Qualification standards do not only include the name and level of a qualification, the professional qualification and its outcome features, but also several other elements are included, for example the main knowledge areas to be covered by the program furthermore, other criteria such as the skills, and attitudes too. This definition is based on the Hungarian Qualification Framework and contains the same definition as applied by OECD.

Researchers often employ different perspectives to examine the skills gap in the workforce (Tran, 2018). In the current research we applied the following one: skills mismatch „is an encompassing term which refers to various types of imbalances between skills offered and skills needed in the world of work” (ILO, 2014, p. 6.). One type of the skills mismatch is the competency gap which is defined by several authors (Shah & Burke, 2005; ATD, 2015). The present research applied the following definition: “Competency gap can be defined as the difference between the market’s need (demand) and the current skills supplied by local education institutes (supply)” (Alsafadi & Abunafesa, 2012, p. 285.).

3. Context of the study

The Human Resources Bachelor program is available at 12 different universities and in 5 different regions in Hungary. The research is connected to the University of Pannonia, Veszprém, the only university with an HR Bachelor program in the western and central region (Transdanubia) of Hungary. It means that the university has a key role in the education of HR students. Based on the DPR AAE Career Orientation Support Module 2020 (Diplomán túl, 2020) we found that 56% of the graduated HR students had a job position in the last year of their studies, 40% of these students got a job in the location (therefore the country retention has a key role), 46.2 % of the graduated HR students had a position with the requirement of BSc and the graduate earnings premium was 128% in the case of the graduated HR students. Altogether we can state that the well-graduating HR students had a strategic role in this region, therefore the continuous development of the educational programs and the engagement in the needs of different actors regarding this educational program is essential.

3.1 Research questions, design and data collection method

Despite the unique role of the University of Pannonia in the Transdanubian Region, the competition in higher education is significant. Based on the literature review and the feedbacks from the university’s industry partners, the following research questions were formulated:

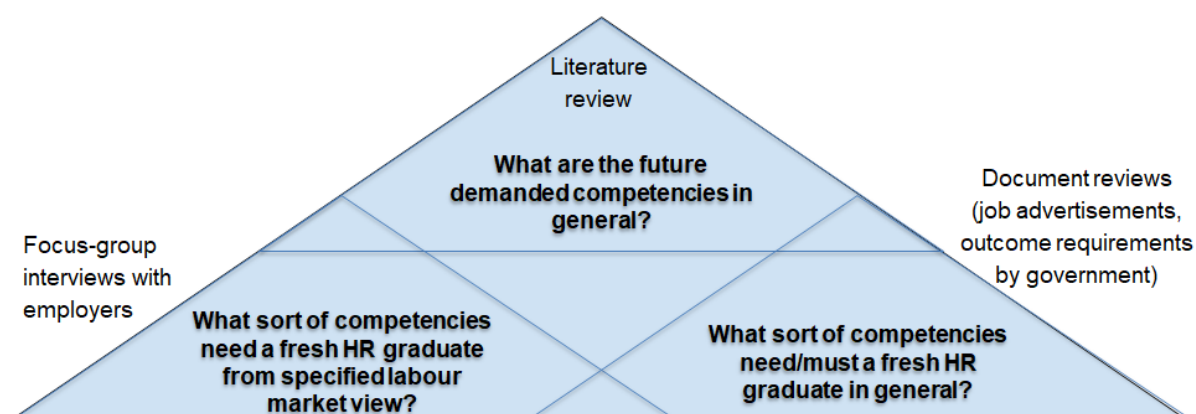
RQ1: What sort of competency gap can be identified between employer needs and the skill sets of university HR graduates?

RQ2: How will future competency demand influence this gap?

Analysing the job advertisements is a commonly used method to study the skill gap on workforce, but employer surveys and interviews are the most common means of forecasting skills requirements and future trends within an industry (Hirudayaraj & Baker, 2018). However, these do not always provide reliable representations of actual needs of employers (Wilson, 2008). Predicting solely on employers' expectations could be problematic because the forecasts based on the industry aspects are sometimes too idealistic, and it is hard to predict the exact demand for the future (Wilson, 2008; Lanier, 2009). Offsetting the disadvantages of these type of predictions, adopting primary and secondary data sources during the data collection process

can be effective. According to Senge (2000) triangular approach allows us to study the problem from multiple perspective using qualitative and quantitative data, in order to provide a useful way of addressing the problem. Therefore, to get reliable answers to the research questions we used a triangulation approach (Senge, 2000; Rosenberg, Heimler, & Morote, 2012) during the data collection process, and a case study method was applied so as to understand and represent the outcome of the research. Figure 1 presents the triangulation approach that was used during the data collection process. Regarding the data analyses, we accomplished comparison analyses in order to find the differences between the approaches, whereby we analysed the keywords (competencies) from all aspects. The content analyses of the different aspects need to be considered as well in the future.

FIGURE 1. TRIANGULATION APPROACH USED DURING THE DATA COLLECTION



Source: created by the authors

Relevant literature was reviewed in order to reveal the *future demanded competencies* for HR graduates and professionals. General competency reviews (Davies, Fidler & Gorbis, 2011; Bakhshi et al., 2017; Speise & Lang, 2018; Fajaryati et al., 2020; WEF, 2020) as well as HR specific literature (Donkor et al., 2017; JazzHR, 2021) were collected. Based on the reviews the most important future demanded competencies as keywords were listed in general.

Four focus-group interviews were conducted with the focus of what sort of competencies are necessary for graduated HR students. Altogether 13 HR representatives from different sectors were invited to the interviews: manufacturing companies (23%), service sector (23%), public sector (31%) as well as self-employed HR managers (23%). The general interview protocol of the focus groups was the following: short representation of the applied definitions, clarification of job requirements (HR jobs without experience or maximum 1 year experience; should connect to one or more HR function) to which the competencies were collected, defining competencies (definition and examples) highlighted by the participants, discussing consequences of the lack of certain competencies. Based on the interviews, the demanded competencies as keywords were listed in a transcript and definition of all competencies was added in order to find the similarities and differences between keywords.

Job advertisements were analysed in order to establish a list of *demanded competencies* of graduated HR students. Job advertisements were extracted from several Hungarian websites between January and April of 2021, whereby altogether 992 job advertisements were collected. Based on the investigation of the content the demanded competencies were listed. It was important to make a comparison between the demanded competencies according to the job

advertisements and focus group interviews. The training and outcome requirements by the ministry were also analysed in order to list the *obligatory competencies as keywords*. Altogether 143 competencies as keywords were listed and analysed in order to find the gaps between the different approaches (obligatory, demanded and future demanded competencies).

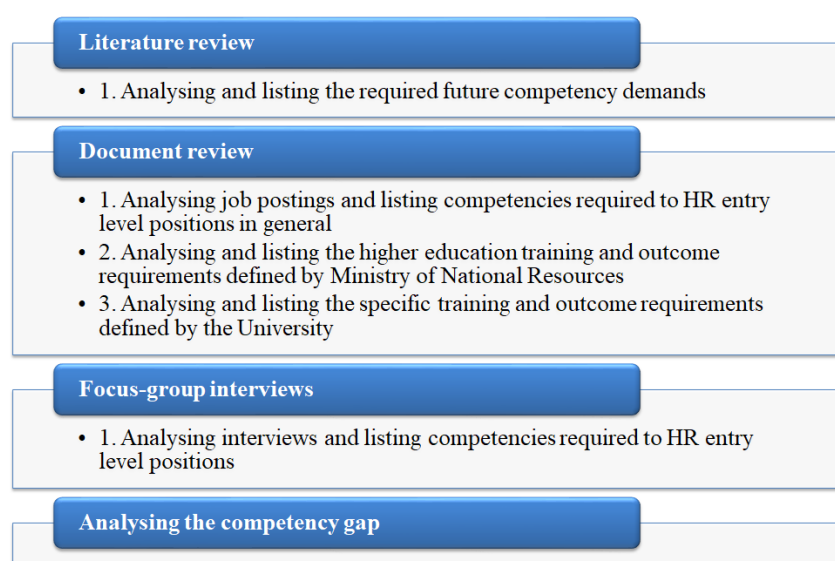
4. Case study and results

The case study will reveal how to analyse a competency gap with the use of triangulation approach with the aim of getting reliable results with the consideration of the present (*obligatory*) and the *currently demanded competencies* as well as *future demands*. The case study concentrates on the process of the identification, and then the results based on the analyses of the competency gap will be presented.

4.1 The detailed process of the competency gap analysis

In order to obtain a full overview based on the requirements (obligatory, currently demanded and future demands) of the educational stakeholders it is important to map competencies. Mapping competencies can be made as a reference for educators in order to improve the quality of learning and education, and moreover it helps to identify the competency gaps of an educational program. Figure 2 presents the process of the identification of the competency gap.

FIGURE 2. THE PROCESS OF THE IDENTIFICATION OF COMPETENCY GAPS



Source: created by the authors

In case of the present research, the first step was to analyse the *future demands in terms of* competencies based on the literature review, whereby general competency reviews and HR specific literature were reviewed. The literature review revealed 49 different *future competency demands*. In order to list the *obligatory competencies*, we analysed the training and outcome requirements by the Ministry of National Resources and altogether 29 different *obligatory competencies* were listed. The next step was to analyse the *currently demanded competencies* by the labour market, therefore first we collected and studied several job advertisements. Based on the job advertisements we listed the most important *demanded competencies* in case of fresh HR graduates. Moreover, to assess the *demanded competencies*, we conducted four focus group interviews where the key representatives of the labour market expressed their opinion. The main focus of the interviews was to find the most important *demanded competencies* and to define

these competencies in case of an entry level HR position. Altogether we identified 65 different *demanded competencies* during these interviews and based on the collected job advertisements.

Based on the above mentioned points of view numerous competencies were listed, we compared these lists in order to find the competency gaps.

4.2 Results of the identification of the competency gaps

Competency gaps will be presented according to the previously defined competency categories by the OECD, but it is important to note that knowledge, skills, attitude and values are interrelated systems together. Despite the fact that we present these parts separately, the elements of competency are both interconnected and mutually reinforcing. First, we list the *obligatory competencies* which are containing the required competency elements determined by the government. *Competency gap 1* contains the differences between obligatory and *demanded competencies*, which are defined by the focus group interviews, and based on the job advertisements. In the overlapping section of competency gap 1 and 2 those competencies were listed, that are considered as a crucial competency for the currently demanded and in the future demanded views as well. These skills are the ones which are both essential now in the labor market and will be important in the future too. *Competency gap 2* includes differences between obligatory and *future competency demands*, which were defined based on the literature review.

TABLE 1. IDENTIFIED COMPETENCY GAPS

KNOWLEDGE	Competency Gap 2 (Future competency demand)	New-media literacy, Transdisciplinarity approach, Predictive data analytics
	Overlap between competency gap 1 and 2 (Current & future competency demand)	-
	Competency Gap 1 (Current competency demand)	-
	Obligatory competencies	Basic Micro and Macro Economics, Informatics, Maths, Statistics, Project and team management, Ethical behaviour, Human Resource Management related knowledge, HR legal aspects
SKILLS	Competency Gap 2 (Future competency demand)	New technological skills, Active learning, Sense-making, Novel & adaptive thinking
	Overlap between competency gap 1 and 2 (Current & future competency demand)	Prioritization and time management, Critical thinking and analysis, Troubleshooting and user experience, Logical, system and process thinking
	Competency Gap 1 (Current competency demand)	Stress management, Administrative skills

	Obligatory competencies	Communication, Problem solving, HR leadership and management skills (such as organizational and change management, planning, controlling), application of knowledge, team work
ATTITUDE, VALUES	Competency Gap 2 (Future competency demand)	
	Overlap between competency gap 1 and 2 (Current & future competency demand)	Resilience, Creativity, Originality and Proactivity, Adaptability, Emotional Intelligence
	Competency Gap 1 (Current competency demand)	Positive attitude, Self-assertive approach, Commitment, Hardworking attitude, Patience, Kindness, Practical approach, Dynamic attitude
	Obligatory competencies	Proactivity, cooperative skills, supportive attitude, professionalism, empathy, social intelligence, responsibility, open-mindedness, cross-cultural competency, precision, reliability, developing ability, leadership and social influence, reflectivity

Source: created by the authors

In the case of the knowledge element we found that the knowledge requirements defined by the government are very extensive, in this case there is no gap between the obligatory and currently demanded knowledge. Furthermore, we investigated the gap between the demanded and future demanded competencies, and we found three knowledge elements which are expected to be relevant in the future.

The first is the new-media literacy which is based on the understanding of mass media tools, and the digital media (Davies, Fidler & Gorbis, 2011), since forthcoming communication tools will require new media literacies. The next important knowledge element is the transdisciplinary approach that is the knowledge in concepts across multiple disciplines (Davies, Fidler & Gorbis, 2011). It means in the future the ideal employee will have a deep understanding of at least one field, but also will have “the capacity to converse in the language of a broader range of disciplines” (Davies, Fidler & Gorbis, 2011, p. 9.). Another important competency in the future will be the predictive data analytics, which contains the knowledge about the data analytics, predictive modelling and programming in order to be able to use people-related data to make predictions about dynamics in the workforce (Donkor et al., 2017).

Regarding the skill gap we found a mismatch in the terms of new technological skills, containing a sort of competencies, such as the use of technology, monitoring and control, data-gathering skills, data-analytics skills, research skills, predictive data analytics, tech-savviness, digital HR, visual-presentation skills, digital employability, virtualization and so on (Davies, Fidler & Gorbis, 2011; Donkor et al., 2017; Fajaryati et al., 2020; WEF, 2020; JazzHR, 2021).

Moreover, active learning will be an important skill in the future: understanding the implications of new information both for current and future problem solving and decision making (WEF, 2020).

Besides learning in an active way, sense-making will be crucial as well as smart machines take over routine manufacturing and services jobs, so “there will be an increasing demand for the kinds of skills machines are not good at. These are higher level thinking skills that cannot be codified” (Davies, Fidler & Gorbis, 2011, p. 8.). Sense making skill is helping us to create a unique insight to critical decision making. Alongside the above skills, novel and adaptive thinking is a forthcoming considerable competency, which means “the proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based” (Davies, Fidler & Gorbis, 2011, p. 9.).

With regard to the skills, the overlapping competencies are prioritization and time management, critical thinking and analysis, troubleshooting and user experience, logical, system and process thinking.

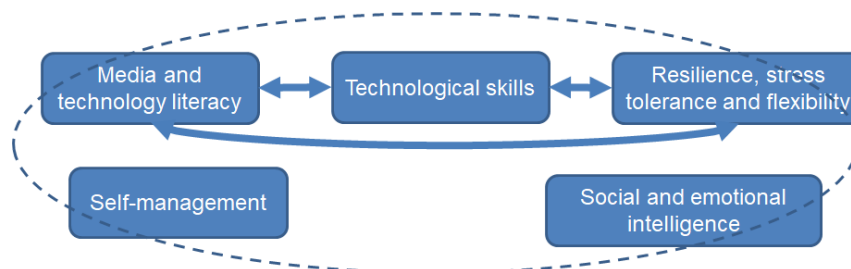
Concerning attitude and values, we also found gaps between the currently demanded competencies and future requirements. The importance of having resilience, emotional intelligence, and a positive attitude is growing. “The maturity, flexibility and restraint to cope with pressure, stress, criticism, setbacks, personal and work-related problems” (WEF, 2020, p. 156.) could be an attitude which will need to be developed by educational institutions. In the case of an HR job it could be an essential requirement to be open to changes (positive or negative) and to show considerable variety in a workplace.

4.3 Synthesis of case study

The triangulation approach used during the process of data collection could be a good basis to find differences between obligatory competencies and those required by the industry (now and in the future) from fresh graduates. Knowledge, skills as well as attitude and values are both interconnected and mutually reinforcing. The case study pointed at the existing shortage regarding knowledge, however it is important to analyse the level of the required knowledge (moreover the level of the required skills, and attitudes too). To answer the research questions, we can state that competency gaps can be identified in case of obligatory and demanded skills, attitude and values, and future demanded competencies will be influenced by the obligatory knowledge in the future, moreover the obligatory and the demanded skills, attitudes and values need to be think over according the future demand expectations too.

One of the competency gap is focussed on the consideration of how to adapt knowledge, skills and attitude elements in connection with technological changes (See on Figure 3).

FIGURE 3. INTERCONNECTED COMPETENCIES IN CASE OF IDENTIFIED COMPETENCY GAPS



Source: created by the authors

In case of knowledge it will be essential to consider media and technology literacy, in connection with these technological skills, as well as the development of students’ resilience, stress tolerance and flexibility, as these need to form a major part in the curriculum

development. However, not just the technological part is missing from the educational program, but also the development of self-management of students needs to be built into the educational program. The development of willingness to take on responsibilities and challenges, the understanding of the implications of new information, dependability, commitment to do the job correctly and carefully, being trustworthy and accountable and paying attention to details should be an integral part of HR education. Emotional and social intelligence will be a key competency for HR graduates in the future: to develop capacities used to work with people to achieve goals and being friendly, cooperative, sensitive to others, easy to get along with and enjoying work with people (WEF, 2020, p. 156.). Furthermore, the ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions are also crucial (Davies, Fidler & Gorbis, 2011, p. 6.).

Altogether we can state that higher educational institutions are increasingly investigating efforts in developing graduate attitudes and skills to match the demands of the 21st century. These competencies are necessary for the Industry 4.0 approach. In order to fulfil this goal of the higher educational institutions, it is important to highlight that solely focusing on knowledge and skills is not enough to achieve the aims, which could be the value that employers and students are seeking.

5. Discussion, future directions and limitations

Our research is a work in progress, and the applied triangulation approach does not allow us to make generalization in terms of HR competencies, however the results create a good basis to further improvements in the competency development process at the university and in the future research process. Our long-term goal is to develop a competency map regarding HR graduates. Therefore, we need to create competency sets, and to define the competency categories as well as the expected level of the required competencies. On the basis of the redefinition of competency outcome requirements, the most important and large-scale challenge is to find new directions of competency-development which are forming not just the skills but values and attitudes of graduates as well. Analysis of the competency gap between expectations of the labour market, future demands and outcome requirements of university programs have outlined the main areas of future development. Usage of information and communication technological assets, methods and opportunities will be essential skills for future employees. Because of the rapidly changing expectations, working environment and procedures, existing knowledge becomes forfeited, and competencies related to problem solving (creativity, critical thinking & analysis, process thinking, etc.) and active learning (adaptability, open mind, sense-making, etc.) come to the fore. On the other hand, we need to take into consideration that companies require more self-dependence, proactivity and responsibility from their employees who need to work together with several different and unknown people. Competency development of graduates needs to cover aspects of self-management, like confidence, time and stress management, as well as areas of emotional and social intelligence. Beside lectures and seminars, in the frame of elaboration of development methods we should define the most appropriate further opportunities of competency development, such as tutorship, soft skill training, volunteering, and corporate projects. The analysis and identification of competency gaps is only the first step in the process that has established our further research direction and developmental process considerably. If we aim to train competent graduates, we cannot ignore the fact that requirements of employers have changed significantly, and future trends advance more rapidly and complex changes in the future of jobs are expected.

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