

Study of leadership competences among young people in higher education

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Abstract

A central question in management studies is what a good manager looks like, what style and competences are needed to be effective and perform well. Today, most of what companies do is done through projects. Globally, project activities account for almost 20% of aggregate global GDP (World Bank, 2008; Project Management Institute, 2013). However, it should also be noted that the success rate of the projects studied is very low, with only one third of projects globally being successful after completion. (The Standish Group, 2015). The need for more and more qualified managers and project leaders has led to the focus on project management competencies in both academia and practitioners. This is the focus of our research, in which, after reviewing the relevant literature and the competency expectations of the labour market, we will examine a selected sample group of project management competency sets and, as a result, what kind of competency gap emerges. In the light of this, areas for competence development will be formulated. In this paper, we present the experiences and results of a research project that has been running for more than five years, which has identified students' competency expectations from the perspective of higher education challenges, and compare the competencies of foreign and Hungarian students.

Keywords: competence management, higher education, project management, labour market

Introduction

With the development of our time, the set of competences expected from managers, the set of knowledge, abilities and skills that is an indispensable source of the proper functioning and performance of companies, has become increasingly complex (Tóth et al., 2018; Tóth-Tóthné, 2019; Pálvölgyi, 2021). Basically, there are four broad groups of characteristics of a successful leader: technical skills, personal characteristics, cooperation, task performance and leadership skills (Heczi-Zöllei, 2007; Derényi, 2009; MKFI, 2010). The ability to adapt to the constantly changing environment and to be open to new things is a prerequisite for a leader. In addition to the acquisition of new information, it is important to transfer it in a timely manner, i.e. to ensure a smooth flow of information and open communication.

Professional knowledge, up-to-date skills, competitiveness and professional experience are also essential. A good manager is good with people, has a high level of employee relations, is loyal and honest. They should be committed to the continuous development of themselves and their staff (MKFI, 2010).

As a result, there has been a strong shift towards competency-based selection for project management jobs in recent decades. The aim is to allow for a more thorough selection of candidates before hiring them. The methods used in selection procedures are also adapted to this aim. In parallel, the Bologna process has resulted in a parallel process of competence-centred restructuring of higher education degrees (Czető-Kálmán, 2015; Vámos, 2016). For each degree, a set of training and output requirements is defined, to which the degree programmes to be launched or already existing must fit.

1. Literature review on leadership, leadership style and leadership competences

Effective management is one of the most important prerequisites for the survival and development of companies, ensuring the alignment of activities and participants as a complex process to achieve the missions and goals that the organisation wants to achieve (Bakacsi et al, 1991; Dobák, 2004). Taylor's theory of "scientific leadership", where the importance of the role of leaders is essential to achieve effectiveness and goals, and his work in the field of leadership tasks, emphasized by Fayol, marked the beginning of the development of the modern understanding of leadership science (Bayer 1995; Bakacsi, 2004). Leadership style is nothing more than the leader's guiding behaviour, which has been grouped into several categories in the management literature (Ternovszky, 2007; Bakacsi, 2004). The behaviour and style of a leader is influenced by many factors, such as the leader's personality and goals, the culture and goals of the organisation, and the personality, goals and values of the members of the organisation. In addition, the extent to which the leader allows his subordinates to participate in decision-making is an important area, and this approach is the basis of theories of leadership based on the way decision making is done (Dobák, 2004). When examining leadership competencies, it is also essential to explore personality-based leadership theories where the typology is based on the leader's personality, personality traits and attentional orientation (Dobák, 2004; Dobák-Antal, 2009). In the 1960s, contingency-based leadership theory was popularised, which argues that the impulses of the external environment also influence leadership style (Bakacsi, 1991).

Competencies provide the individual with applicable knowledge, competence and valuable attitudes to act, and provide the possessor with a durable and stable resource available to deal with environmental influences, processes and problems, and to answer questions that arise. Competency is essentially an activity-oriented definition because it is related to actions, action, problem solving, decision making and execution (Udvardi-Lakos, 2006).

In the literature, the Spencer - McClelland - Spencer iceberg model is the best known for describing the components of competences that are easier and more difficult to learn and develop (Heczi-Zöllei, 2007; Derényi, 2009). which also includes the use of personality traits in action. Competences are a set of descriptors of competence: knowledge, skills, abilities, competences (Falus, 2006; Tót, 2009; Henczi-Zöllei, 2007).

Previous research in the literature clearly demonstrates that project leadership competencies have a significant and positive impact on project and organizational success (Rees et al, 1996; Pinto-Trailer, 1998; Dulewicz-Higgs, 2005; Crawford, 2007). The impact of project leadership competencies on project success is the most significant of all other factors, and the current research direction confirms that leadership competencies are the most effective and important components of project success (PMI, 2013). The time-cost-outcome/quality triad identified earlier is complemented by an emphasis on the role of managerial competencies and an examination of the positive correlation between project success and project managerial competencies. After reviewing the literature, we can conclude that the development of management science has made the set of competences expected of managers, the set of knowledge, skills and abilities that are an indispensable source of the proper functioning and performance of companies and projects, more and more complex.

2. Description of the research

The overall research investigates the general and professional competences of students studying in higher education, of which in the present study I compare the set of project management competences of Hungarian and foreign students studying in economics with the labour market competences. Based on the gap that emerges between them, the challenges facing higher education become interpretable and I propose competence development opportunities.

Related research questions:

To what extent do the competences of the students in the sample group match the competences expected on the labour market? Is there a competence gap? Is there a difference in competences between Hungarian and foreign students? What suggestions for improvement can be given to higher education for competence development?

3. Test methodology

The research methodology has been continuously refined over the years and adapted to the needs of higher education and the labour market. Since 2016, our research team has regularly conducted student competency surveys among foreign and Hungarian higher education students. In the present study, we examine the results of the last five years of measurements among students studying economics. We use simple descriptive statistical indicators to make general statements about the quality of competences and compare them with results reflecting labour market expectations, including a self-report survey of partner organisations of the University of Miskolc and a collection of the most important (most frequently appearing) expected competences from current job advertisements of project managers. It can be concluded that the results of two grounding studies are in line. The student results were compared to this. From 2016, we conducted a project management competency survey among 459 students. Of these, 297 were men and 162 women. In terms of age distribution, as the survey was mainly conducted among higher education students, the younger age group was over-represented. 65% of students aged between 21 and 42 were aged between 21 and 26. Nearly 47% of the sample are foreign students.

For students, the Viennatest system was used to assess general competences. The MAP (Leadership Potential Test) was developed at the Institute of Psychology, University of Bochum. The test is a validated test based on Heckhausen and McClelland's studies on motivation. As a result of the factor analysis, the developers separated 12 factors into three higher level groups. These are "cooperation" (affiliation motive group), "task completion" (performance motive group) and "leadership" (strength motive group).

On the other hand, to assess the professional competences, we developed a set of practical tasks based on the Project Management Institute (PMI) Project management professional (PMP) qualification, which measures the cognitive ability to apply basic methodological knowledge in practice in different project situations. The self-administered test took an average of 20 minutes to complete and the practical task took approximately 30 minutes.

4. Results

In the following, I will present the results of my analysis of the match between student competences and labour market expectations. The aggregated results (main descriptive statistical indicators) are summarised in Table 1.

Table 1: Summary of the statistical values of the competences tested

Competence	Arithmetic average	Median	Source	Minimum value	Maximum value	Lower quartile	Upper quartile
1. Reacting to frustration and criticism	39,60	35	27,93	1	100	16	56
2. Seeking connections	29,51	22	25,47	1	100	8	49
3. Attitudes towards others	65,11	69	30,63	2	99	42	92
4. Teamwork	56,74	71	36,16	3	100	15	90
5. Style of work	63,71	64	30,24	4	100	34	92
6. Task preference	17,80	10	22,52	0	82	3	17
7. Reaction to failure	12,89	10	13,61	0	60	3	19
8. Willingness to work under pressure	58,46	65	25,24	4	98	36	76
9. Leadership ambition	53,54	55	27,54	12	99	31	79
10. Leadership dynamics	12,89	7	15,51	1	63	2	18
11. Leadership focus	85,20	90	18,80	28	100	77	99
21. Leadership funds	59,89	60	27,94	12	100	36	92

The competences in the test are not necessarily independent of each other. Therefore, I have examined the correlation coefficients between the competences based on the scores of the responding students (Table 2).

Table 2: Correlation between competences

	1	2	3	4	5	6	7	8	9	10	11	12
1. Reacting to frustration and criticism		0.2	0.1	-1	0.4	0.2	-0	-0	0.3	0	-0	0.2
2. Seeking connections			0.4	-0	0.1	0.3	0.2	0.2	0.5	-0	-0	0.1
3. Attitudes towards others				-0	0	0.2	0.5	0.2	0.2	0	-0	0.1
4. Teamwork					-0	-0	-0	0.2	-0	0.3	0.2	-0
5. Style of work						0.3	-0	0.2	0.6	0	-0	0.2
6. Task preference							0.4	0.2	0.4	-0	-0	0.4
7. Reaction to failure								0.1	0.2	-0	0	0.4
8. Suitable for working under pressure.									0.1	0.5	-0	0.2
9. Leadership ambition										-0	0	0.3
10. Leadership dynamics											-0	0.3
11. Leadership focus												0.2
12. Leadership funds												

The results show a relatively high positive and medium strong (0.6) relationship between work style and leadership ambition. There is a medium-positive relationship of 0.5 strength between the competence pairs of attitudes towards others and reaction to failure; relationship seeking and leadership ambition; and willingness to work under pressure and leadership dynamics. It can be concluded that these results are in line with expectations. More precise data and a larger sample size are expected.

The importance of exploring correlational relationships is that when developing competences, it is important to bear in mind that some elements of competences are interrelated, i.e. the development of one element may have an impact (even in the opposite direction) on the development of another element.

These scores were summarised by key competences for Hungarian and foreign students, and the results were evaluated and presented in a box plot.

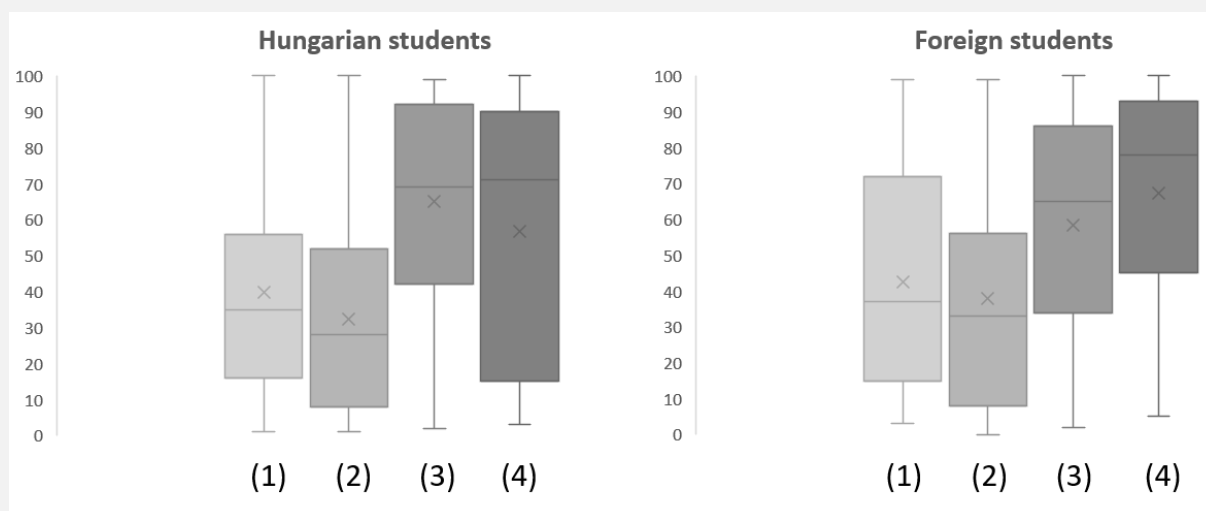


Figure 3: Core competences of cooperation for Hungarian and foreign students (n=459 students)

For the competences within the key competence of cooperation, the following can be identified. In general, students' *reactions to frustration and criticism* (1) tend towards tolerance and openness for both Hungarian and foreign students. For foreign students, the variance of the values displayed is relatively higher. In the case of *striving for relationships* (2), activism is typical across the board. *In relation to others* (3), the majority of respondents tend to focus on task orientation, and in *teamwork* (4), working in a team is more typical, regardless of nationality, although the variance is higher for Hungarian students.

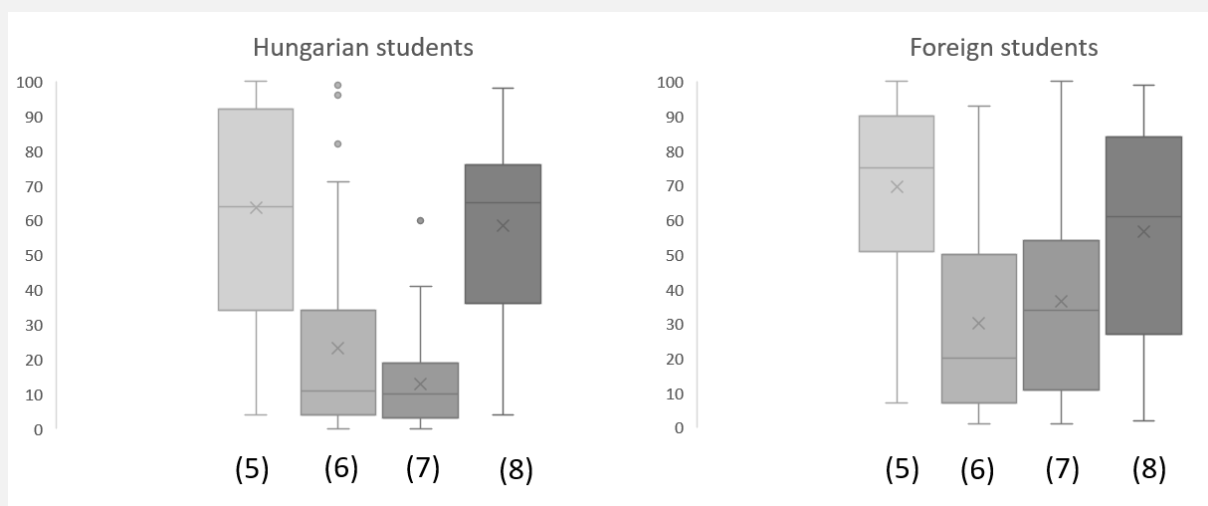


Figure 2: Main competences of task performance for Hungarian and foreign students (n=459 students)

Within the key competence of task performance, *work style* (5) tends to be more spontaneous, but the variance is relatively high across the board. In the case of the competence *task preference* (6), intrinsic motivation, the driving force of success linked to the task, is typical for the majority of the respondents, with a relatively low variance of the values displayed for Hungarian students. Both Hungarian and foreign respondents are typically sensitive to *failure* (7), Hungarian students perhaps even more so, but the variance is low for Hungarian students, while for foreign students the variance of the values displayed is relatively high. *Willingness to work under pressure* (8) cannot be said to be typical. Work tends to be balanced across the board, but the variance of the values displayed is relatively high for foreign students.

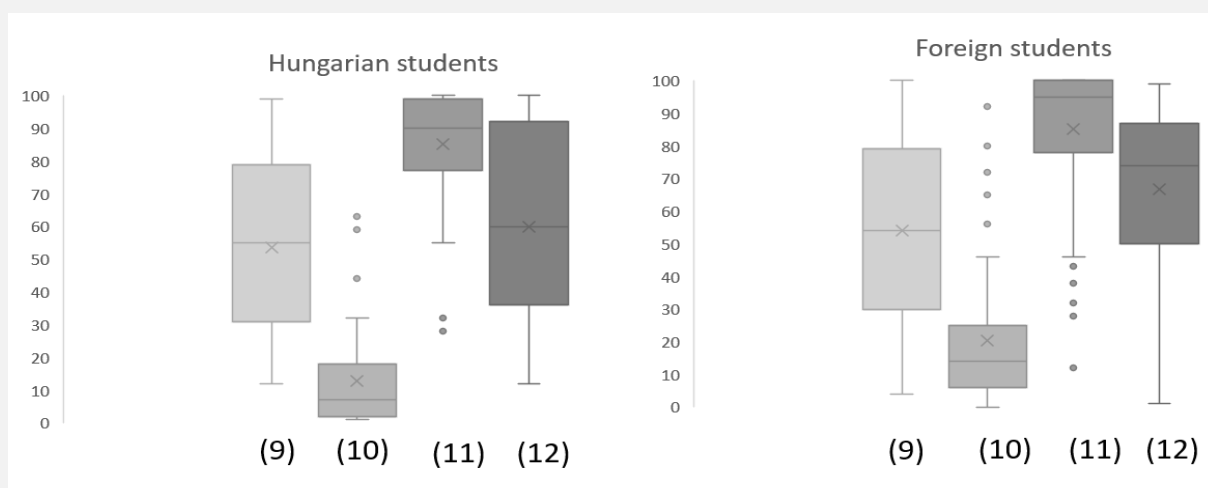


Figure 3: Leadership core competences for Hungarian and foreign students (n=459 students)

Within the core competency of leadership, *leadership ambition* (9) tends to be high for all respondents, but the scores show a wider spread. *Leadership dynamism* (10) tends to be more conservative across the board, with low variance. In terms of *leadership focus* (11), respondents strongly prefer detailed rather than generalist leadership. For *leadership fundamentals* (12), respondents consider that leadership competencies rather than expertise dominate. For the latter competency, the values are even more pronounced for foreign students, with lower dispersion. It can be concluded that there is not much difference between Hungarian and foreign students in terms of leadership competences, so we can provide them with the same basic training and competence development. As a result, a comparison of the students' competence sets with labour market expectations was carried out for the two groups.

The results on the labour market expectation and student competence set side are shown in Figure 4 and Figure 5. Figure 4 shows the relationship between the general competences, while Figure 5 provides information on the relationship between the professional competences studied.

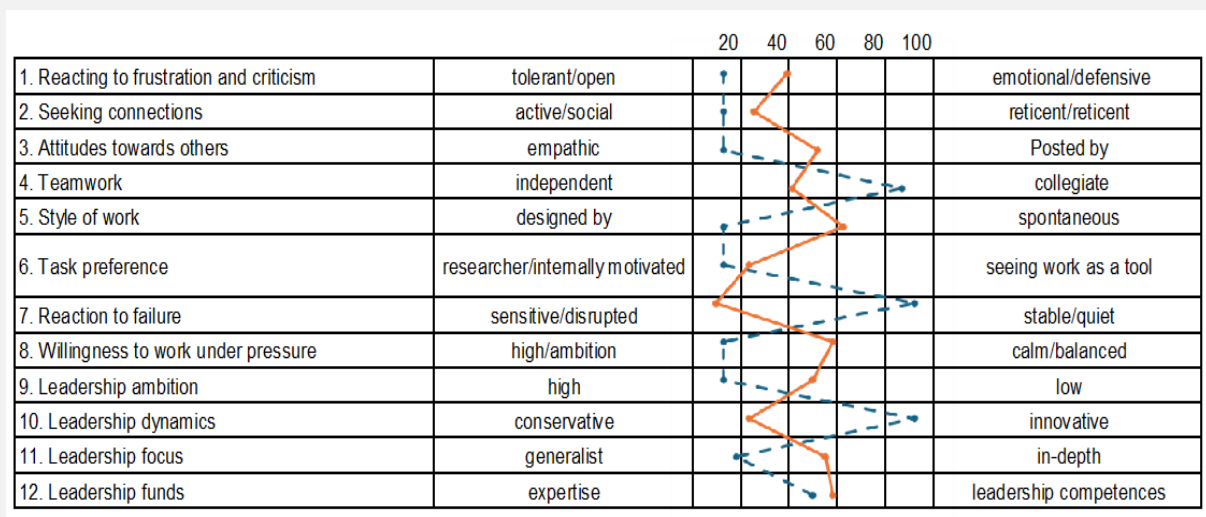


Figure 4: Comparison of previous labour market expectations survey and student survey results for general competences (dashed line: labour market expectations; solid line: student survey results - foreign and Hungarian students together)

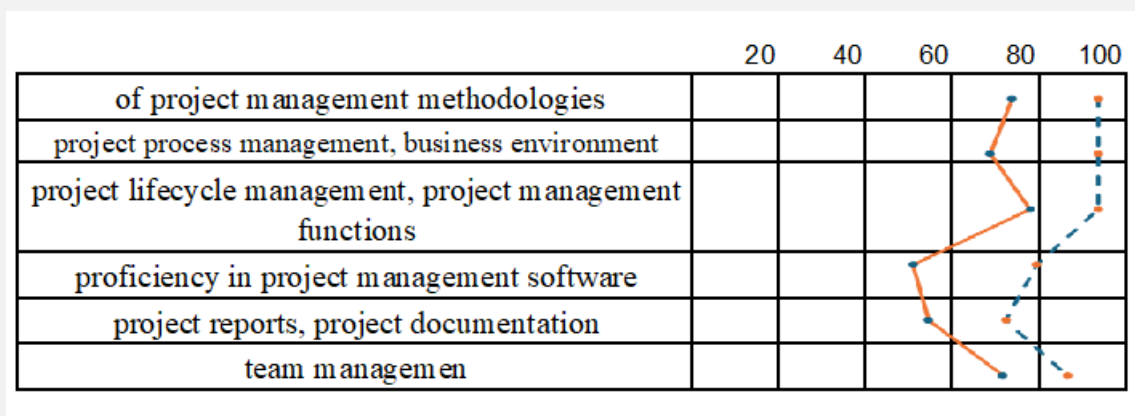


Figure 5: Comparison of previous labour market expectations survey and student survey results in terms of professional competences (dashed line: labour market expectations; solid line: student survey results)

The results of the research show that it is worthwhile to develop students' competences in a targeted way during their university years so that they meet or at least approach labour market expectations. In the proposal section, I summarise development options to address the outliers first, followed by the minor mismatches.

In terms of general competences, the response to failure in the student survey has a rank value of 12.9 percentile, which means that respondents have a very low efficiency in dealing with failures at work and may become discouraged in the process of performance. In developing competence, there is a need to move towards stability and calm, i.e. failure should not affect motivation levels and personal life. Calmness should be maintained in the face of increased stress.

The competence of leadership dynamics received the same score, i.e. respondents are more conservative in their leadership approach and rely more on established leadership solutions. There is a need to move towards innovation in development, i.e. towards new ways of doing things. Well-established methods should be challenged and creativity should play a major role in the choice of management tools.

These two competences are very different from what is expected on the labour market and from what is expected in the literature. It can be concluded that these two competences should be strongly developed for the participants in the study group. Six other competences also need to be developed to a lesser extent:

- 1) *Relating to others* - developing empathy (being empathetic, being receptive to your colleagues' feelings, working with more sensitive people, re-motivating colleagues after experiences of failure)
- 2) *Teamwork* - development towards the dependent (stronger dependence on the opinion of the environment, acting according to peer expectations, adapting to the atmosphere)
- 3) *Work style* - development towards the planned (minimising risks, planning tasks accurately, high sense of responsibility)
- 4) *Willingness to work under pressure* - development towards high/ambition (diverse work, tasks with excitement, striving for perfection, performance orientation)
- 5) *Leadership ambition* - developing towards the heights (bold movement in leadership role, presenting results to others, not shying away from being the centre of attention)
- 6) *Leadership focus* - developing towards generalist (retaining both the specialist's detailed and generalist approach)

In terms of professional competences, we can observe a better labour market fit of the research, which is due to the fact that the students studied had at least one semester of project management studies. Although the research also highlights the need for a more in-depth acquisition of these skills, and the test was constructed taking into account the professional expectations of the PMP exam, which is much higher than the curriculum taught in higher education, highlighting the knowledge of project management software. The two-sample statistical T-tests performed for the test of professional competencies confirm that all differences for the questions are significant, including differences in group means ($p < 0.01$).

When developing competences to a lesser or greater extent, it should be taken into account that the development of one competence may have an impact on another. The correlation analysis among the students in the survey showed that there is only a positive relationship between the competences to be developed, which is fortunate, since a change in the value of a competence in the direction of development can also improve the related competence to some extent.

Summary

In this study I examined the project management competences of Hungarian and foreign young people studying economics, and compared their competences with the competences required in the labour market for project management jobs. I started with a literature review, during which I collected the most important literature findings and models, which will help to understand the topic in depth.

Before starting the research, I considered the research methodology, thus helping to ensure that the study could be replicated in the future. The research is not representative, but the number of students surveyed allows for a basis for proposals for competence development in higher education. It can be said that there are no significant differences between the Hungarian and foreign students surveyed with regard to the competences examined. In summary, in terms of their reactions to frustration and criticism, both Hungarian and foreign students move towards tolerance and openness, with activity being the dominant characteristic in all cases when it comes to seeking relationships. Both sample groups emphasise task orientation and have a strong preference for working in teams. In terms of work style, spontaneous work is more prevalent than detailed work planning, intrinsically motivated, and task-related success is a strong driver for a large proportion of respondents. All the students surveyed are sensitive to failure, but this was more evident among Hungarian students. Working under pressure is frustrating for all of them. Leadership ambition tends to be high for all respondents. When it comes to leadership fundamentals, respondents say that leadership competences rather than expertise dominate.

By evaluating the research results, the differences between students' competences and labour market expectations are clearly highlighted. These differences formed the basis for my recommendations for guiding areas of competence development for higher education students in project management competences.

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