

“The emergence of soft skills in agricultural education”

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THE EMERGENCE OF SOFT SKILLS IN AGRICULTURAL EDUCATION

Abstract

As the possession of soft skills is becoming an essential part of the basic skill set of entrants, it is undoubtedly essential to research and develop these skills. The purpose of this study was to examine how students studying at the largest agricultural university in Hungary perceive their soft skills to be in line with employers' expectations, i.e. whether demand matches supply, in what qualities students feel strong, what employers expect, how well supply and demand in the agricultural labor market match in terms of soft skills. Furthermore, whether educational institutions are able to develop these qualities in students and what other possibilities there might be to strengthen these qualities. The research results confirmed that the university students in the sample perceive the quality of their soft skills to be influenced by several factors, including age, gender and work experience. They show that women over 40 with work experience tend to have stronger emotional soft skills, while men of the same age who have not started their careers are stronger in leadership skills. The study also concluded that students do not feel that current schooling in institutions can strengthen the soft skills expected by the labor market (the average on a five-point Likert scale was 2.74), while the development of these soft skills was considered by respondents to be as important as the development of hard skills (agreement was very high with an average of 4.52 on a five-point Likert scale).

Keywords

employees, labor market, university student, skills by gender, employers' expectations

JEL Classification

J23, J24, J29

INTRODUCTION

Every industry requires specific skills, and agriculture is no exception. In a large number of different sectors, both hard and soft skills of workers are needed. Hard skills are easier to define and measure than soft skills (Sopa et al., 2020). Hard skills are a measure of a worker's ability to perform a particular task, while soft skills are more about how adaptable, cooperative, problem-solving and decision-making workers are in particular situations (Greene & Burleson, 2003).

Organizational success is also employees' success (Siddiqui, 2014). To be successful and to remain successful in the workplace, one of the most important things is to be able to adapt to changes, because suddenly your working environment may change, your company strategy may change, you may have to work with different people, different age groups, different time management, and therefore the most important thing is not whether you have the skills that are necessary and essential in the given situation, but rather whether we will be able to learn new skills and adapt to changing circumstances (Tulgan, 2015). As soft skills have become an essential part of job-interviews in agricultural sectors as well, it is essential to highlight the necessity and importance of developing and teaching soft skills in tertiary education.



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Conflict of interest statement:

Author(s) reported no conflict of interest

1. LITERATURE REVIEW AND HYPOTHESES

1.1. The importance of soft skills

Today, there is no question that human resources are the most important asset for companies (Barakonyi, 1999; Fredriksson et al., 2006; Davenport & Prusak, 2013). Of course, the skills of the workforce are not the same. For a long time, this meant professional skills, but nowadays there is also a focus on other soft qualities that add value and represent the unique value of an employee. The question is: What are these soft skills, which ones does the labor market need, and how to develop them?

The diversity of career opportunities in agriculture (engineering, science, finance and general jobs) also means that both hard and soft skills are needed in the sector. These are important skills that all agricultural professionals must have in order to succeed. Perhaps the most important of the hard skills required is technical competence, as almost all areas of agriculture are increasingly driven by technology. Whether it is irrigation, pesticide use, plant breeding, genetic engineering, growing, harvesting, storage or even transport methods and techniques, drones, technology is undoubtedly playing a crucial role. This means that agricultural professionals need to keep up with technological developments, to know and use the technologies that will enable them to provide and produce a better, higher quality, healthier product or service.

Some of the soft skills are absolutely essential for professionals working in the agricultural sector: adaptability, interpersonal skills, time management skills, and organizational skills. Adaptability for agricultural workers means being able to apply and use the theoretical and practical knowledge acquired in real-life situations. Adaptability is also essential because of the constantly changing nature of agriculture, both in terms of methods and consumer needs.

Moreover, interpersonal skills are needed by all employees who work with others rather than alone, as they need to be able to understand others, work in teams, build business relationships, argue,

support and share knowledge (Lepeley, 2021). For example, for those working at any link in the supply chain, there is a strong need to know and be aware of what the participants in the process are creating, and ongoing communication is essential for shared success.

Good organization and time management skills mean that they can easily cope with daily tasks. For example, a logistics manager needs to ensure that raw materials (often multiple products) are properly transported and stored from the producer to the wholesaler and the consumer.

Of course, soft skills in combination with hard skills complement each other perfectly and only in this way can the best results and sustainable long-term success be achieved (Tripathy, 2021).

Good performance in the workplace comes from the right combination of hard and soft skills. According to a Harvard University study, 85% percent of success in the workplace is due to soft skills, while only 15% is due to hard skills. LinkedIn Global Talent Trends 2019 reports that 92% of experts think soft skills are as important or more important than hard skills. And 89% of experts said that if a new hire doesn't live up to expectations, it is because they lack or do not have the necessary and critical soft skills.

In agriculture, hard skills are job-specific skills that can be learned or acquired through theoretical and practical training and experience. In agriculture, hard skills may include knowledge of precision agriculture, qualifications as a veterinarian, agronomist or agricultural mechanic.

Soft skills are increasingly needed and are in increasing demand (Scheerens et al., 2020). Soft skills are not so easily acquired, soft skills are typically learned over time by individuals as they gain more experience in their jobs as appropriate (Rasli et al., 2020). Soft skills are often viewed as personality traits and behaviors that individuals either possess or do not possess.

During job interviews, the intelligence quotient (IQ), the emotional quotient (EQ) and the so-called curiosity quotient (CQ) should be measured, since a high EQ, for example, indicates strong in-

terpersonal skills, which are essential for managing and leading a team, for good cooperation with colleagues and for building further useful relationships. During job interviews, it is also possible to measure IQ, EQ and CQ with so-called behavioral questions. EQ and CQ play a major role in leadership skills (Haddon, 1999).

In addition to the hard skills necessary to do agricultural work, HR interviewers also look at the soft skills that the candidate has. More and more employers are finding that people with multiple soft skills are often indicators of long-term success. According to Jeff Weiner, CEO of LinkedIn, the biggest skill gap in the US is in soft skills. Although many organizations have employees with an abundance of technical skills, they lack soft skills. This skill gap can leave organizations facing challenges such as a lack of communication, collaboration and problem solving.

In a Wall Street Journal survey of more than 900 executives, 92% of respondents reported that soft skills, including communication, curiosity and critical thinking, are at least as important as hard skills. 89% of managers surveyed said that it is quite difficult to find employees with the right soft skills. The problem is probably also due to the fact that communication, curiosity and critical thinking are harder to measure than hard skills, i.e. technical skills.

The most important soft skills for a career in the agricultural sector are: creativity, 'thinking out of the box', teamwork, reliability, assertiveness, good problem solving, good communication skills, flexibility, good time management, responsibility, leadership.

There are many training courses on the internet, both in Europe and outside Europe, where you can learn, master and practice soft skills through learning about agriculture-related activities. An Israeli institute (Galilee International Management Institute), for example, offers a 3-week program to help people working in the agricultural sector to start a business or enterprise, by developing problem-solving skills, communication skills and time management through training, programs and study trips on the following agricultural topics: Project Management

for Smallholders, Rural Development and Youth Involvement – the Israeli Model, The Farmer as Manager, Smallholder Business, Dairy and Milk Production, Intensive Aquaculture Production, Small Family Farming, Modern Poultry Farming, Small Farm Finance, Change Management, Farm Machinery Use and Management in Field Crops.

University agricultural communication programs have been in existence in the United States for about 100 years (Miller et al., 2015). Agricultural communication programs strive to train prepared individuals who are ready to meet the challenges of the profession upon graduation.

McGaha (2000) sought to explore the ranking of employability skills of agricultural communication graduates. Based on his research, effective use of oral communication skills was ranked first, followed by effective use of written communication skills, planning and completing projects, analyzing information to solve problems, teamwork, and leadership skills.

Simon et al. (2005) identified the following skills as necessary for an agri-communication professional with a master's degree, according to both academics and industry professionals: knowledge of planning elements; thesis project; media, crisis and information management; marketing; communications law; strategic communications planning; public relations; writing; and mass communication. Other skills mentioned were graphic design, research, video/advertising production, knowledge of case studies and technical writing, report writing and good communication. The list also shows the emergence of the importance of soft skills almost 20 years ago.

Strickland identified three main categories of agricultural communication skills important for graduates: networking, relationship and team building skills, communication and social skills, and leadership skills (Strickland, 2011). Within these categories, he identified various additional skills. In the area of networking, relationship and team building, the additional skills were: collaboration with other groups; developing personal and professional networks; negotiation skills; teamwork; understanding different personalities, personality typing and analysis. Additional com-

munication and social skills included: verbal and non-verbal communication skills; active listening skills; the ability to lead meetings; developing public speaking skills; understanding appropriate etiquette; and learning to initiate conversations. Within the category of leadership skills, critical and strategic thinking, understanding diverse cultures, self-awareness, leadership, and developing a sense of accountability were further identified (Strickland, 2011).

Individuals, employees, as well as institutions and companies, can do a lot to develop the soft skills of employees (Kirubhakaran, 2021). On the one hand, they can take part in a number of high-quality online courses, where they can develop a myriad of soft skills, from project management to negotiation techniques and creativity. It is important to be aware of your own strengths and weaknesses, and it is even worth doing an SWOT analysis. Highly qualified coaches are also available to help you improve your skills. Situational exercises, so-called role-plays, are useful, as they allow you to practice and rehearse tasks in a real situation, and there is always a discussion and feedback at the end of the situation. However, the source of the skill set is not only the qualifications acquired in formal education and training, certified by certificates and diplomas, but also the constantly changing and enriching fields of knowledge and skills acquired in non-formal and informal learning areas. (Tribble, 2020).

Agricultural communication is a recognized discipline in many countries, and every year agricultural communication researchers present significant research in the *Journal of Applied Communications* (JAC) and the *Journal of Agricultural Education* (JAE) on the skills employers expect agricultural communication graduates and new employees to have.

Researchers know that one of the goals of agricultural communication courses is to enable students to develop skills such as time management, reliability, conflict management, ethics, and responsibility (Turchyn, 2021). This can be achieved through internships, cooperative learning, team-based projects, research projects and study abroad trips.

1.2. The state of the agribusiness in Hungary

Some thoughts on the agricultural situation in Hungary. The Hungarian Central Statistical Office (KSH) has carried out a full agricultural census in 2020, based on the legal mandate of the European Union and Hungary, which is collected every ten years. According to the KSH 2020 data, agriculture accounted for 4.1% of the gross value added of the national economy in 2020, 4.3% of investment and 4.6% of employment. The food industry employed 3.2% of the workforce in 2020, unchanged from the previous year. Investment in the food industry increased compared to a year earlier. Hungary accounted for 2.1% of the EU's agricultural output in 2020.

According to the KSH survey, a positive development is that the share of people with an agricultural education has increased since 2010. Younger farm managers are more likely to have some kind of professional qualification than older farmers. Most farmers do not know or have not thought about what will happen to their farm in the coming years. This is particularly interesting for farmers over 65.27% of whom only want to run the farm for 1-5 years, while 51% do not know or have not thought about how long they will run the farm. However, 9.2% of young farmers also said they would like to hand over the management of the farm to someone else within 5 years.

The use of digital tools is most widespread among younger managers. The most commonly used tool related to precision farming is crop health monitoring, with 5.3% of farms using their own equipment or services, and most of them planning to use it. 15% of farms use an adviser, with younger managers more often than average (22%). The higher the level of education in agriculture, the higher the proportion of farmers who seek information from companies and consultants. This is why quality agricultural education in higher education has a huge role to play.

The management of the Hungarian University of Agricultural and Life Sciences aims to help young graduates to guarantee a secure livelihood and an inspiring career by providing world-class training in the management of Hungary's long-es-

tablished and highly talented agriculture. With the establishment of the Hungarian University of Agriculture and Life Sciences on February 1, 2021, one of Europe's largest agricultural-focused, multidisciplinary training institutions was created. The 11 research institutes and several companies of the National Centre for Agricultural Research and Innovation (NAIK) have joined the institution, making it the intellectual, policy and innovation hub of the sector, with greater scope for modernizing and developing training, management and organization.

As the rector of MATE said on June 10, 2021 on the occasion of the agreement between the National Chamber of Agriculture (NAK) and the Hungarian University of Agricultural and Life Sciences (MATE):

“The University is one of the largest agricultural-focused training institutions in Europe. MATE aims to play a world-class role in the management of Hungarian agriculture, which has a long history and excellent potential, in research and development, innovation processes and the practical dissemination of scientific results in line with the technological challenges of the 21st century. In order to increase the competitiveness of Hungarian agriculture, the University is continuously updating and renewing its courses, contributing to the translation of modern knowledge into practice” (Gyuricza, 2021). The implementation of the content of the mentioned agreement would definitely raise the standard of education at the university.

It can now be seen that many studies have been carried out on this topic, and therefore a more in-depth and detailed study of the subject is necessary and indispensable to better understand and develop the skills currently required by the labor market.

In 2020–2021, a survey was conducted at one of the largest universities in Hungary (MATE) to find out how university citizens perceive the skills they possess and which of these skills are of value in the labor market. BsC, MsC and PhD students studying Agricultural Engineering, Wildlife Conservation and Management, Food Science, Food Safety, Horticultural Engineering, Landscape Architecture and Garden Design,

Crop Production Engineering and Animal Nutrition were respondents of the questionnaire. Among the skills, soft skills were the main focus of the survey. Are professional skills still at the forefront of employers' needs in the agricultural sector? What is the role of soft skills? What role does higher education play in their development and to what extent is the promotion of these skills embedded in the educational approach?

The research and the present study tested the validity of the following hypotheses:

H1: Respondents self-reported that there are differences in soft skills by gender, age and work experience.

H2: Respondents consider that there are differences between employers' expectations and their own soft skills, which could be developed mainly in education.

1.3. Research methodology

The study is also focused on the MATE educational institution because its courses cover the whole country in about five large cities (Budapest, Gödöllő, Gyöngyös, Kaposvár, and Keszthely), and it offers life sciences, environmental and agricultural sciences courses to more than 13,000 students. In addition, the university is joined by 11 other research institutes, making it an intellectual, policy and innovation center for the sector, in addition to providing education. As the aim of the training institute was to become one of the top 30 agricultural universities in the world, it is no coincidence that the research was carried out among the students of this university.

The study is divided into two parts. First, the researchers asked university students how they perceive their own soft skills, and second, the authors will ask employers what they think of students' soft skills, i.e. how well supply and demand match.

This paper presents the results of the first survey with students. This study consists of a quantitative questionnaire survey.

A questionnaire, available on the Internet, had to be filled in by respondents anonymously. The questionnaire could be answered by students via

social media, email and in classrooms at the institutions. The response and return rates were over 80% in the classroom, and difficult to measure on the social platform. The number of respondents was 500.

The structure of the questionnaire is illustrated in Table 1.

Table 1. Structure of the questionnaire

Source: Own table.

Specification of the sample	Soft skill interpretation	Soft skills in the labor market
Residence	Knowledge of the term soft skill	The value of soft skills in the labor market
Age	Evaluation of the soft skill of the completers	Soft skill acquisition tools
Highest level of education	Employer expectations of soft skills	Soft skill development opportunities
Marital status		
Work experience		

To analyze the questionnaire, the statistical software SPSS 25 and AMOS 27 were used. The following statistical methods were used for the evaluations: univariate and multivariate methods, frequency, mean, standard deviation, factor analysis, correlation tests, ANOVA, independent samples T-test. The sample specification is summarized in Table 2.

Table 2. Sample specification (Frequency, %)

Source: Own table.

Specification	Frequency (%)
Gender	31.4% male
	68.6% female
Current place of residence	21.6% North Hungary
	2.8 % Northern Great Plain
	7.8 % Southern Great Plain
	44.4% Central Hungary
	7.0% Central Transdanubia
	6.2% Western Transdanubia
Residence	10.2% Southern Transdanubia
	34.2% Budapest, the capital
	41% Town
	24.8% Village
The level of education	49% Secondary school degree
	50.6% Diploma
	0.4% PhD degree
Work experience	16% not yet
	45.6% 0-5 years
	13.4% 6-10 years
	13.6% 11-20 years
	10.4% more than 21 years

Note: The average age was 28.48 years.

2. RESULTS

To prove the hypotheses, respondents were asked to rate on a five-point Likert scale how much employers think a young job applicant should have the following skills. They were also asked how much they think employers expect the following soft skills and how well they meet these expectations. A score of one was not at all, while a score of five was the maximum. Table 3 summarizes the mean and standard deviation of the respective skills.

The data in Table 3 show that they are most likely to feel deficient in entrepreneurial skills, time management, presentation and leadership skills, while their strengths are in ethical and moral skills, emotional intelligence and empathy. For the deficits, the standard deviation values were high, which also confirms that the sample was not homogeneous in terms of the skills. In terms of employer expectations, the least expected by employers, according to students' perceptions, were leadership skills, entrepreneurship and emotional intelligence, while the most demanded were teamwork, problem-solving and communication skills. These results also show that management skills are less demanded by employers, which can then be reinforced by the employee on the job. At the same time, however, these soft skills would be indispensable for working in a team.

Table 3. Employers' expectations of skills (mean, standard deviation)

Source: Own table.

Statistics	Do you feel strong?		What is the employer's expectation?		How suitable do you think it is?	
	Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation
Cooperation skills (teamwork)	4.06	0.952	4.45	0.690	4.23	0.859
Empathy	4.22	1.049	3.15	1.162	4.30	0.852
Emotional intelligence	4.25	0.821	3.04	1.148	4.22	0.864
Time management skills	3.34	1.037	4.01	0.913	3.74	0.952
Strategic thinking	3.84	0.866	3.59	1.051	3.95	0.830
Leadership skills	3.39	0.944	2.83	0.972	3.43	1.004
Ethical and moral skills	4.27	0.830	3.59	1.137	4.37	0.787
Communication skills	3.62	0.945	4.22	0.776	4.01	0.922
Critical thinking	3.94	0.859	3.40	0.999	3.96	0.853
Presentation skills	3.35	1.090	3.74	1.060	3.60	1.044
Planning and organizational skills	4.03	0.848	3.79	0.915	4.02	0.853
Entrepreneurship skills	3.02	1.043	2.91	1.111	3.27	1.059

In response to the question on the extent to which entrepreneurial skills, leadership skills and presentation skills meet employers' expectations, these are the areas where young people still have the most room for improvement and the areas where they still have the most gaps in meeting them. But as the employer requirements show, it is in entrepreneurial and presentation skills that employers would have the least expectations.

Correlations were also examined to see which of the given requirements are the skills that employers expect, and how they relate to each other. Among the correlation tests, those where the *r* value was significant and above 0.5 or more are presented. From these results, it was basically drawn that management skills (strategic and operational) are closely related, while a significant correlation between emotional and internal relational traits was also confirmed.

The study also looked at factors that might influence the strength of their own soft skills. Three aspects were examined: gender, age and work experience. According to age, the sample was divided into four groups: under 20s, 20-30s, 30-40s and over 40s. By work experience: those who already had a job, even for a short time, and those who did not. By gender: the groups of women and men were distinguished in the survey. Significant differences by factor were analyzed, and, where present, it was indicated which group was stronger for the characteristic in question.

The data reflect that women tend to feel stronger than men in soft skills related to emotions, while men feel more comfortable with qualities related to leadership.

In terms of age, it is the over-40s who tend to stand out, as they can already shape and mold these

Table 4. Relationships between soft skill expectations and their closeness

Source: Own table.

Skill 1	Skill 2	r	Sign.
Leadership ability	Entrepreneurship	.689	< 0.01
Ethical and moral capacity	Empathy	.594	< 0.01
Ethical and moral capacity	Emotional intelligence	.541	< 0.01
Strategic thinking	Planning and organizational skills	.626	< 0.01
Strategic thinking	Presentation skills	.508	< 0.01
Time management skills	Planning and organization skills	.557	< 0.01
Self-awareness	Empathy	.652	< 0.01
Self-awareness	Emotional intelligence	.587	< 0.01
Emotional Intelligence	Empathy	.681	< 0.01

Note: $p = 0.01$.

Table 5. Differences in skills by gender, education, and age

Source: Own table.

Skills	Gender	Age	Work experience
Cooperation skills (teamwork)	No significant difference	No significant difference	No significant difference
Empathy	Stronger for women	No significant difference	No significant difference
Emotional intelligence	Stronger for women	No significant difference	Those who are not career starters, stronger than those
Time management skills	Stronger for women	Strongest for over 40s	Those not starting out, stronger than those
Strategic thinking	Stronger for men	No significant difference	Those who are not career starters, stronger than those
Leadership skills	Stronger for men	Strongest for over 40s	No significant difference
Ethical and moral skills	No significant difference	Strongest for over 40s	Those who are not career starters, stronger than those
Communication skills	No significant difference	Strongest for over 40s	Those who are not career starters, stronger than those
Critical thinking	Stronger for women	Strongest for over 40s	Those who are not career starters, stronger than those
Presentation skills	No significant difference	Strongest for over 40s	Those who are not career starters, stronger than those
Planning and organizational skills	No significant difference	Strongest for people over 40	Those who are not career starters, stronger than those
Entrepreneurial skills	No significant difference	No significant difference	No significant difference

Note: $p = 0.05$.

skills with life experience. The study also shows that work experience can strengthen soft skills.

Women over 41 who have not yet started their careers stand out in terms of emotional soft skills. In leadership, qualities are strong in non-career men over 41. Graduates over 45 years old are good communicators. Critical thinking is primarily characteristic of female graduates 45.

However, the sample did not differ in a number of qualities, such as entrepreneurship and collaboration.

The extent to which work experience influences respondents' judgements of the employer suitability of a particular soft skill was investigated. ANOVA tests for emotional intelligence ($F: 7.621, p: .006, p < .05$) and leadership skills ($F: 6.217, p: .013, p < .05$) revealed significant differences: those with no work experience rated their employer's perception of these skills stronger for both.

Thus, the above analysis shows that the university citizens surveyed perceive differences in soft skills based on gender, age, and work experience, thus, the authors' first hypothesis is accepted.

For the purpose of further analysis, the variables were grouped related to the responses to the question "How well do you think it fits?" into factors from the skills summarized in Table 3. All variables were suitable for factor construction. The KMO Barlett's test: .839 with the around, Khi-square: 2333.183, df: 66, sig.: .000. The explained coefficient of variance: 69.592%. Factors are Varimax-rotated. Four factors were constructed, and the factors, factor weights and Cronbach's Alpha values are presented in Table 6.

Factor 1: Abilities to ensure organizational emotional functioning and cooperation between employees (Cronbach's alpha: .820).

1) Factor 2: Abilities to support organizational leadership (Cronbach's alpha: .767).

2) Factor 3: Abilities to support communication processes within the organization (Cronbach's alpha: .720).

3) Factor 4: Capabilities to enhance operational knowledge within the organization (Cronbach's alpha: .732).

Table 6. Soft skill compliance factors

Source: Own table.

Features	Component			
	Emotional	Leader	Communication	Operative
Empathy	0.890	–	–	–
Ethical and moral skills	0.822	–	–	–
Emotional intelligence	0.804	–	–	–
Cooperation skills (teamwork)	0.561	–	–	–
Cronbach Alpha	0.820	–	–	–
Leadership skills	–	0.787	–	–
Entrepreneurial skills	–	0.769	–	–
Critical thinking	–	0.684	–	–
Strategic thinking	–	0.595	–	–
Cronbach Alpha	–	0.767	–	–
Presentation skills	–	–	0.851	–
Communication skills	–	–	0.739	–
Cronbach Alpha	–	–	0.720	–
Time management skills	–	–	–	0.872
Planning and organization skills	–	–	–	0.699
Cronbach Alpha	–	–	–	0.732

The study examined if respondents differed in terms of gender, work experience and age in relation to the factors.

When examining gender, the independent samples T-test identified that there were significant differences between men and women in their views on the first two factors. Compliance with emotional attitudes was stronger for women, while leadership support skills were stronger for men.

In terms of work experience and age, only one factor did not differ between respondents – the emotional dimension. For the other factors, work history and advancing age already strengthened the respondent's characteristics.

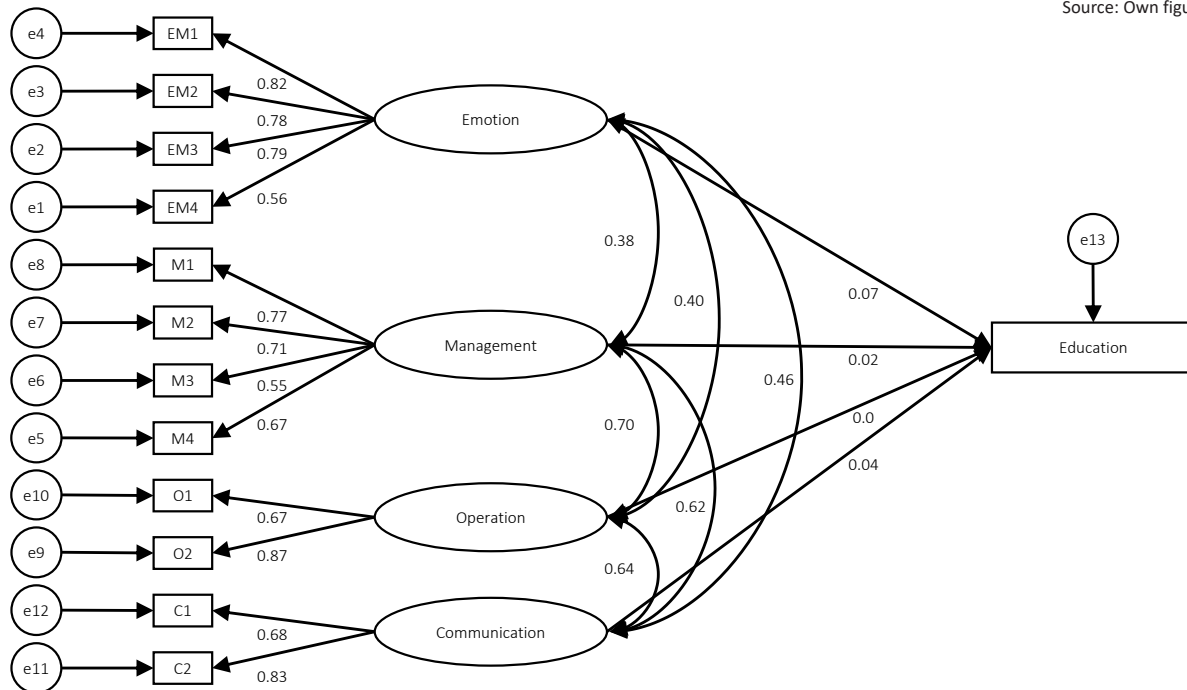
To test the model further, the SPSS AMOS 27 program was used. The core of the model was how respondents felt that soft skills could be acquired in the context of school education, in the light of the factors given. The essence of SEM (Structural Equation Modelling) is that the relationship is examined between one or more exogenous variables (independent) and one or more endogenous (dependent) variables. Endogenous variables are directly and indirectly affected by exogenous variables. EFA (Exploratory Factor Analysis) and CFA (Confirmatory Factor Analysis) studies aim to analyze the relationships between the variables

under investigation and the latent variables. The EFA is used when the relationship between the investigated and the latent variables is not known. The CFA is used when the researcher has some knowledge about the structure of the latent variable. Path model analysis is the visual representation of relationships between variables.

The model of the factors and variables under study was created using SPSS AMOS version 27. In Figure 1, next to the latent and test variables, each arrow shows the effect of one variable on the other, and the back and forth arrows symbolize the covariance or correlation between the variables. Error variables are indicated by circles in the figure. These are the factors that were ignored in the analysis but have an effect on the variables.

The fit of the constructed model was checked using a number of criteria. The first test metrics confirm "absolute model fit": the Khi-square was significant ((500)261.058, df: 56, p: 0.00). However, this is not enough for the researchers to reject the fit of the model, as the significance of the Khi-square is stronger after a sample size above 200. Further measures need to be tested. For example, the RMSEA (Root Mean Square Error Approximation) value of .086, which should typically be below 0.08, is close to the threshold. The third such indicator is the GFI (Goodness of Fit

Source: Own figure.



Note: EM1: Empathy. EM2: Ethical and moral skills. EM3: Emotional intelligence. EM4: Cooperative skills. M1: Leadership. M2: Entrepreneurship skills. M3: Critical thinking skills. M4: Strategic thinking. C1: Presentation skills. C2: Communication skills. O1: Time management. O2: Planning and organization skills.

Figure 1. Possibility of learning soft skills in school education

Index), which is acceptable for values above 0.9. In the authors' model, the value is .927, i.e. adequate. In the context of Incremental Model Fit, four indices were checked, AGFI, CFI, NFI, and TLI, which are all good above 0.9. In the model, AGFI: .881, CFI: .911, NFI: .890, TLI: .876, i.e., these indices are appropriate or close to the fit value. For Parsimonious Fit, the Khi squared/df value is 4.662, which is less than the threshold value of 5, so it also indicates that the model is appropriate. Figure 1 shows the model.

Figure 1 shows the four factors: emotion, operational skills, leadership, communication, education in the relational system, and the error variables. The letter names of the variables that make up each factor are given in the note to Figure 1, i.e. which variable is denoted by which letter. Table 7 summarizes the standardized and non-standardized regression weights.

Table 7 shows that the development of soft skills is not yet really seen by students as being within the current educational framework. At the same time, the results also show that the development of emotional intelligence is more prominent in the edu-

cation of students than the strengthening of leadership, operational or communication skills. This may also confirm that respondents believe that more emphasis should be placed on practice-oriented training in educational institutions. This is not only a need on the part of employees and students, but also on the part of the recruiter. Indeed, since HR has relatively few opportunities to get to know the candidates, they can only narrowly assess the suitability of the candidates' operational skills at the job interview. Leadership and operational skills are more likely to emerge in later practice, which is why it is important for training institutions to pay more attention to this, since the aim is to lay the foundations for the students' long-term employment. Figure 1 also shows the correlation values between the latent variables, which were significant in all cases. The effect was particularly strong between leadership and operational skills (0.699), between operational and communication (0.642) and between leadership and communication skills (0.615).

Overall, it can therefore be concluded that, in the light of the above results, the second hypothesis is rejected, since students consider that these skills are not really acquired in education.

Table 7. Regression results

Source: Own table.

Features, Factors			Non-standardized				Standardized
			Estimate	S.E.	C.R.	P	Estimate
Education	←	Emotion	0.155	0.128	1.216	0.224	.071
Education	←	Management	-0.034	0.168	-.203	0.839	-.018
Education	←	Operation	-0.005	0.130	-.038	0.970	-.003
Education	←	Communication	.049	0.108	0.452	0.651	.038
EM4	←	Emotion	1	-	-	-	.561
EM3	←	Emotion	1.413	0.117	12.068	***	.789
EM2	←	Emotion	1.275	0.106	12.018	***	.782
EM1	←	Emotion	1.451	0.118	12.277	***	.821
M4	←	Management	1	-	-	-	.667
M3	←	Management	0.851	0.081	10.456	***	.552
M2	←	Management	1.367	0.106	12.869	***	.714
M1	←	Management	1.394	0.103	13.474	***	.768
O2	←	Operation	1	-	-	-	.869
O1	←	Operation	0.859	0.069	12.474	***	.668
C2	←	Communication	1	-	-	-	.828
C1	←	Communication	0.855	0.073	11.735	***	.679

Note: $p = 0.05$; *** – $p = 0.00$.

3. DISCUSSION

This study examined the demand for certain soft skills in the labor market and how agricultural students are prepared for them.

It can be said that the results of this study are in line with previous research (Patacsil & Tablatin, 2017; Scheerens et al., 2020), which shows that some soft skills are as important or even more important than hard skills, according to employees who are active in the labor market, and that employees perceive employers to value soft skills as non-systemic, closely related skills. This is also reflected in the results of this survey, i.e. not only is professional knowledge now expected of agricultural workers, but teamwork, problem-solving and communication skills are increasingly demanded by employers.

As Lepeley wrote in his 2021 study, interpersonal skills are needed by all employees who work with others, as they need to be able to work effectively in a team. The studies have also confirmed that both employers and employees consider it important to have and develop effective interpersonal relationships between labor market players, since soft skills are considered essential for working in a team.

This study has also been able to show that there are differences by gender, age and previous work experience for young people in terms of soft skills.

At the same time, the results also show that the development of emotional intelligence is more important than the strengthening of leadership and operational skills in the education of students. This also suggests that practice-oriented training should be given much more emphasis by educational institutions according to the respondents (Jaafar et al., 2021). A more coordinated cooperation between education and practice would be needed to ensure that workers with competences that match current market needs appear on the labor market (Czeglédi & Juhász, 2014).

According to Hrehová's (2010) research with graduate students at the Technical University of Košice, students have the theoretical background and skills needed for successful communication, because they have learned them, but they are not able to apply them in practice (Hrehová, 2010). The present study confirms the need to make more room in the education of agrarians for situations where students can practice their soft skills, thus, teamwork should be preferred to individual task solving, creating opportunities for the manifestation of both communication and presentation skills. It is therefore no coincidence that the research points to the need for higher education institutions to play an even stronger role in training on soft skills.

This is why soft skills courses, which are integrated into university education, play an impor-

tant role in developing the soft skills of students entering the labor market. To this end, a course has been launched at the Hungarian University of Agricultural and Life Sciences to introduce and develop the soft skills required in the current labor market. The lectures and exercises are in English. Both foreign and Hungarian students can take the course, which will give them the opportunity to practice the skills of teamwork, thinking together, acceptance, tolerance and empathy.

This result also confirms the findings of Miller et al.'s (2015) study, which found that practice-oriented training should be given more emphasis by educational institutions in order to allow prospective employees to enter the labor market who are also at their best in the area of soft skills, whether it is presentation skills, time management or empathy.

From Haddon's (1999) study, it is well-known that EQ and CQ play a major role in leadership skills. From the present study, it emerged that management skills (strategic and operational) are closely related, while a significant correlation between emotional and interpersonal traits was also demonstrated. According to the results of this study, the most perceived deficits by the students surveyed were in the areas of entrepreneurial skills, time management, presentation and leadership skills, while their strengths were in ethical and moral skills, emotional intelligence and empathy.

The findings of the present study are in line with those of Haddon, who found that women tend to feel stronger in soft skills related to emotions, while men feel more comfortable in leadership-related qualities.

CONCLUSION

The purpose of this study was to examine the demand for certain soft skills in the labor market, how students are prepared for them, and what role education can and does play in the development of these skills, within the framework of agricultural education.

The results of the study showed that some soft skills are as important or even more important than hard skills, according to employees who are active in the labor market, and that employees perceive employers to value soft skills as non-systemic, closely related skills. Furthermore, the results suggested that it is not only the professional knowledge that is expected from agricultural workers, but teamwork, problem-solving and communication skills are increasingly demanded from them by their employers, and that there are differences by gender, age and previous work experience for young people in terms of soft skills. The results also showed that the development of emotional intelligence is more important than the strengthening of leadership and operational skills in the education of students, and that that young people expect more opportunities for improvement in this area from higher education institutions.

The following conclusions can be drawn from the results: It is necessary to make more room in the education of agrarians for situations where students can practice their soft skills, thus teamwork should be preferred to individual task solving, creating opportunities for the manifestation of both communication and presentation skills. It is therefore no coincidence that the study points to the need for higher education institutions to play an even stronger role in soft skills training, which means that more coordinated cooperation between education and practice would be needed to ensure that workers with competences that match current market needs appear on the labor market. This also suggests that, according to the respondents, educational institutions should pay more attention to practice-oriented training.

AUTHOR CONTRIBUTIONS

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REFERENCES

1. Agricolleges Internationl. (2019). *Skills for agricultural success*. Retrieved from <https://agricolleges.com/skills-for-agricultural-success/>
2. Barakonyi, K. (1999). *Stratégiai tervezés. Stratégiaalkotás [Strategic planning. Strategy making]*. Tudása Tankönyvkiadó Zrt. (volt Nemzeti Tankönyvkiadó Zrt.). Budapest. (In Hungarian). Retrieved from <https://docplayer.hu/3059466-Strategiai-tervezes-strategiaalkotas-i-barakonyi-karoly.html>
3. Czeglédi, Cs., & Juhász, T. (2014). A pályakezdők munkaerő-piaci megfelelése a pályakezdők szemszögéből [Labor-Market Preparedness from The Point of View of Fresh Entrants]. *Taylor*, 6(3-4), 91-97. (In Hungarian). Retrieved from http://acta.bibl.u-szeged.hu/39765/1/vikek_016_017.pdf
4. Davenport, T. H., & Prusak, L. (2013). *Working Knowledge: How Organizations Manage What They Know* (pp. 30-224). Harvard Business Press. Retrieved from <https://dl.acm.org/doi/10.5555/601533>
5. Davidson, K. (2016). Employers Find 'Soft Skills' Like Critical Thinking in Short Supply. *The Wall Street Journal*. Retrieved from <https://www.wsj.com/articles/employers-find-soft-skills-like-critical-thinking-in-short-supply-1472549400>
6. Fredriksson, R., Barner-Rasmussen, W., & Piekari, R. (2006). The multinational corporation as a multilingual organization: The notion of a common corporate language. *Corporate Communications*, 11(4), 406-423. <https://doi.org/10.1108/13563280610713879>
7. Galilee International Management Institute. (2021). Official site. Retrieved from <https://www.galicol.ac.il/>
8. Greene, J. O., & Burleson, R. B. (2003). *Handbook of Communication and Social Interactions Skills*. Purdue University. Lawrence Erlbaum Associates, Mahwah, New Jersey. Retrieved from <https://ismailsunny.files.wordpress.com/2017/07/handbook-of-communication-and-social-interaction-skills.pdf>
9. Gyuricza. (2021). *Agrárkutatási újdonságok gazdasági gyakorlatba építését segíti a NAK és a MATE*. (In Hungarian). Retrieved from <http://nak.hu/kamara/kamarai-hirek/orszagoshirek/103466-agrarkutatasi-ujdonsagok-gazdasagi-gyakorlatba-epiteset-segiti-a-nak-es-a-mate>
10. Haddon, P. F. (1999). *Mastering Personal and Interpersonal Skills*. London: Thorogood Ltd. Retrieved from <https://pdfroom.com/books/mastering-personal-and-interpersonal-skills-key-techniques-for-effective-decision-making-and-personal-success/e1j5K6XG2Kr>
11. Hrehová, D. (2010). The Significance of Communication and Language Competences for Employment and Career Development. *Human Resource Management Ergonomics*, 4(2), 1-13. Retrieved from https://frcatel.fri.uniza.sk/hrme/files/2010/2010_2_05.pdf
12. Jaafar, S., Fathil, N. F., & Zamb, N. M. (2021). Classroom activities improve soft skills. *SSRN Electronic Journal*. <http://doi.org/10.2139/ssrn.3803707>
13. Kirubhakaran, J. (2021). *Emerging Trends in Soft Skills Training*. <http://doi.org/10.13140/RG.2.2.28721.71521>
14. KSH. (2020). *Helyzetkép a mezőgazdaságról [Situation of Agriculture]*. Retrieved from http://www.ksh.hu/docs/hun/xftp/idoszaki/mezo/2020/helyzetkep_mezogazdasag_2020.pdf
15. Lepeley, M. (2021). Soft skills. In M.-T. Lepeley, N. J. Beutell, N. Abarca, & N. Majluf (Eds.), *Soft Skills for Human Centered Management and Global Sustainability* (pp. 3-22). <https://doi.org/10.4324/9781003094463>
16. McGaha, S. T. (2000). *Career choices and factors influencing career change among Oklahoma State University agricultural communications graduates* (Master's Thesis). Oklahoma State University-Stillwater. Retrieved from <https://shareok.org/handle/11244/8767>
17. McLaren, S. (2019). *Candidates' Soft Skills are Notoriously Hard to Assess, But Following These 6 Steps Will Help*. LinkedIn. Retrieved from <https://www.linkedin.com/business/talent/blog/talent-acquisition/soft-skills-are-hard-to-assess-but-these-steps-can-help>
18. Miller, J. D., Large, M. M., Rucker, K. J., Shoulders, K., & Buck, E. B. (2015). Characteristics of U.S. agricultural communications undergraduate programs. *Journal of Applied Communications*, 99(4), 76-90. <https://doi.org/10.4148/1051-0834.1063>
19. National Soft Skills Association. (2015). *The Soft Skills Disconnect*. Retrieved from <https://www.nationalsoftskills.org/the-soft-skills-disconnect/>
20. Patacsil, E., & Tablatin, C. (2017). Exploring the importance of soft and hard skills as perceived by IT internship students and industry: a gap analysis. *Journal of Technology and Science Education*, 7(3), 347-368. <http://dx.doi.org/10.3926/jotse.271>
21. Rasli, M., Ghani, F. A., Razali, N. H. A., Razak, S. F. F. A., Razak, M. Z. A., Embong, F., Salleh, N. S. A., Idris, R. S. N. R., & Rani, S. M. (2020). Do Soft Skills Really Matter? At the 9th International Economics and Business Management Conference (IEBMC 2019). <https://doi.org/10.15405/epsbs.2020.12.05.46>

22. Scheerens, J., van der Werf, G., & Boer, H. (Eds.). (2020). Measurement of Soft Skills in Education. In *Soft Skills in Education* (pp.141-189). https://doi.org/10.1007/978-3-030-54787-5_6
23. Siddiqui, M. N. (2014). Success of an Organization is a result of Employees Performance. *Advances in Social Sciences Research Journal*, 1(4), 179-201. <https://doi.org/10.14738/assrj.14.280>
24. Simon, L. A., Haygood, J. D., Akers, C. L., Doerfert, D. L., & Davis, C. S. (2005). Master's level agricultural communications curriculum: A national Delphi study. *Journal of Agricultural Education*, 46(3), 56-69. <http://dx.doi.org/10.5032/jae.2005.03056>
25. Sopa, A., Asbari, M., Purwanto, A., Santoso, P. B., Mustofa, Hutagalung, D., Maesaroh, S., Ramdan, M., & Primahendra, R. (2020). Hard Skills versus Soft Skills: Which are More Important for Indonesian Employees Innovation Capability. *International of Journal and Automation*, 13(2), 156-175. Retrieved from <http://sersc.org/journals/index.php/IJCA/article/view/7626>
26. Stolzoff, S. (2018). *Hard skills to learn*. Retrieved from <https://qz.com/work/1423267/linkedin-ceo-jeff-weiner-the-main-us-skills-gap-is-not-coding/>
27. Strickland, L. R. (2011). *Predicting leadership behaviors of participants in agricultural-based leadership development programs* (Doctoral Dissertation). University of Florida
28. Tribble, L. S. (2020). *The importance of soft skills in the workplace as perceived by community college instructors and industries* (Doctoral Thesis). Mississippi State University. Retrieved from <https://ir.library.msstate.edu/bitstream/handle/11668/17062/etd-11022009-172940.pdf>
29. Tripathy, M. (2021). Relevance of Soft Skills in Career Success. *MIER Journal of Educational Studies Trends & Practices*, 10(1), 91-102. Retrieved from <http://www.mierjs.in/index.php/mjestp/article/view/1354>
30. Tulgan, B. (2015). *Bridging the soft skills gap: How to teach the soft skills basics to Today's Young Talent*. Wiley <https://doi.org/10.1002/9781119171409>
31. Turchyn, I. (2021). The importance of soft skills in educational process. *Grail of Science*, 5, 291-292. <https://doi.org/10.36074/grail-of-science.04.06.2021.052>