



Satisfaction with acquired transferable competences among university students in Cambodia

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Abstract

Improving the quality of higher education is one of the priority areas worldwide. Transferable competences acquired during studies play a key role in student employment in the labor market. This study aims to compare, through transversal research, the eight transferable competences required by the labor market across occupational sectors, with the degree of satisfaction with their acquisition by university students in agricultural fields of study in Cambodia. This aim makes it possible, in particular, to identify the educational gap in university preparation for the profession. The data were collected from 439 respondents using a self-evaluation questionnaire. The Kruskal–Wallis test was used to test the significant difference of each transferable competence associated with respondents' sociodemographic characteristics (gender, field of study, and year of study). The results showed that the highest levels of student satisfaction with sense of responsibility and teamwork and least recognized working with digital technologies and communicating in foreign languages as competences. Additionally, the degree of satisfaction with transferable competences increases among students of later years. This is the first study of transferable competences in Cambodia, allowing a clearer view of education in an Asian environment. Implementing transferable competences in curricula will increase graduates' employability and strengthen the country's economic growth.

Keywords Higher education · Skills and competences · Agricultural education · Asia

Introduction

There has been considerable progress on access and participation in recent years, reflecting education is crucial for development and one of the Sustainable Development Goals (United Nations, 2015). Theoretical knowledge alone is not enough for students' successful entry into the workplace. Previous researchers have confirmed that graduates should acquire, in addition to sufficient knowledge, the relevant competences and soft skills for employability in today's labor market (Hossain et al., 2020; Poon, 2014). Students need to be ready to apply their competences in real jobs to and strengthen their skills and abilities in specific fields. Higher education plays an essential role in delivering competence-based skill development in light of this need. Training in the core competences, including communication skills, numeracy, information and communication technology, ways of learning, problem solving, and learning to work with others (Hadiyanto, 2009), is becoming increasingly popular in higher education institutions worldwide.

Competences and skill development in higher education are also essential tools in measuring the quality of education.

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For instance, a study on the competences of undergraduate business students in Massachusetts found correlations between students' characteristics, their backgrounds, and their work-related competences (Berman & Ritchie, 2006). Lindner and Baker (2003), in a study at Texas Tech and Texas A&M universities focusing on agricultural education, showed that master's students had fewer practical skills related to materials and systems of agrarian development and more theoretical knowledge, such as of the classroom teaching–learning process and common skills in communication and information sharing. Higher education in Europe addresses this disparity by assessing not only students' qualifications but also the teachers' skills in the use of competence-based teaching methods (Kuijpers & Meijers, 2012; Schaeper, 2009).

Curriculum changes are widespread in Asia in ongoing attempts to meet global challenges (Hadiyanto, 2009). The Ministry of Higher Education of Malaysia set eight specific competences that students should possess when they graduate from university, including knowledge in particular fields, knowledge-seeking, the use of technology, intellectual skills in critical thinking, problem solving and creative decision making, practical skills, and the ability to communicate (MoHE of Malaysia, 2006). To enhance competence building capacity, the higher education curricula in Malaysia have also begun to incorporate soft skills development including communication; critical thinking and problem solving; teamwork; lifelong learning and information management; entrepreneurship; ethics; and professional, moral and leadership skills (Shakir, 2009). In Asia, students have developed competences through internships, practical training, studying abroad, e-learning, and exchange programs, but Trung and Swierczek (2009) showed that skill delivery and graduate competences are generally below standard in Vietnam. The authors proposed that study plans and curricula mandate students' involvement in more practical work such as part-time practice and case studies (Trung & Swierczek, 2009). Comparing management competences between students from Thai and Hong Kong universities showed significantly greater work competence among students from universities in Hong Kong (Sudsakorn & Swierczek, 2009).

Of the neighboring countries of Southeast Asia, Cambodia has one of the lowest rates of productivity due to the mismatch between market demand and human resources (Chaloupkova et al., 2015; Chandararot & Liv, 2013; Tunon & Rim, 2013). The number of higher education institutions (HEIs) in Cambodia increased from 8 to 118 from 1997 to 2016 (Reinsch et al., 2018). However, currently, higher education does not match education with market demand; rather, the main areas of enrollment for bachelor's and master's degrees are business-related studies, foreign languages, and information technology, whereas in comparison with all other education sectors, agricultural education plays the

most significant role in advancing economic growth in Cambodia given that agriculture employs 31% of the labor force (World Bank, 2020).

Agricultural education is mainly supported by the Ministry of Agriculture, Forestry and Fisheries. However, there are only three educational institutions under this Ministry and four comprehensive universities under the Ministry of Education, Youth and Sport (MoEYS), each having a faculty of agriculture and related life sciences (MoEYS, 2014). Despite the low HEI enrollment, stakeholders often blame the skills and knowledge taught in these institutions for their irrelevance to local labor market needs. In recent years, MoEYS has set out an educational strategic plan that links education to national economic planning. This plan focuses on expanding early childhood education and increasing access to quality secondary, postsecondary, nonformal, technical, and vocational education (Reinsch et al., 2018). Clear accreditation and quality assurance systems, which should link the education system to the labor market, are very limited (MoEYS, 2019).

The main aim of this pilot study was to compare, through transversal research, eight transferable competences required by the Cambodian labor market across occupational sectors with students' satisfaction with their competence acquisition after they completed the agricultural course of study at one university in Cambodia. The results of the research show: (a) the levels of vocational training provided in curricula and education, (b) the potential employment of graduates in the labor market, and (c) the relationships between school policies and the economic sector in Cambodia. A specific description of the conceptual approach is provided in the research design chapter.

Theoretical background

Significance of transferable competences

Not only knowledge and skills but also competences, mostly transferable ones, are essential in labor markets. Competences have become the “global currency of the twenty-first century” (OECD, 2012). The European Union's New Skills and Jobs in Europe initiative states that improving competences and optimal use can be a win–win strategy for individuals, society, employers, and the economy (European Commission, 2012). In short, university graduates must acquire transferable competences, and universities should enable their acquisition so that graduates can find employment in the labor market. As reported by Foley (1999) and Chanock (2004), in recent years, universities have been under increasing pressure to make themselves accountable, among other things in terms of preparing their students for the rapidly changing world of employment.

Yorke (2006) defined transferable competences as attributes acquired in education and training that are not specific to the subject studied, but are skills and abilities that can assist students in entering the world of work or other activities. Therefore, they are applicable in both academic and professional situations (Blagg et al., 1993; Bridges, 1993; Chadha, 2006; Gibbs et al., 1994). In other words, “transferable skills are important for individuals to enhance their employability, for employers to find qualified and able employees and for the economy that needs a highly skilled workforce for economic growth and competitiveness” (Ylonen, 2012, p. 4). To become sustainably competent and function in the continuously changing labor market, a student must develop meta-skills and transferable competences (Kuijpers & Meijers, 2012).

As for university graduates, in the face of rapidly changing environments, internationalization, and globalization, employers expect them to be fully equipped with various professional skills and knowledge to deal with complex situations effectively and solve problems quickly (Murakami et al., 2009), so-called accountability.

The document *Key Competences for Lifelong Learning—A European Reference Framework* has become the basic theoretical framework for determining transferable competences and is understood by the EU member states as a reference tool for developing employability in knowledge-based societies (European Commission, 2006). The Commission arrived at a total of eight competences, i.e.: communication in the mother tongue, communication in foreign languages, work with digital technologies, learning to learn, sense of initiative and entrepreneurship, problem solving, teamwork, and sense of responsibility. The Commission selected the latter three based on earlier documents (in particular, European Commission, 2012, as well as, e.g., Andrews & Higson, 2008; Atlay & Harris, 2000; Carvalho, 2016; Farrington et al., 2012; Gisbert & Bullen, 2015; Savitz-Romer et al., 2015; Smékalová & Němejc, 2019; and Stevens & Miretzky, 2014).

Transferable competences (also referred to as transversal or cross-sector skills or capabilities or competences for employability) are considered the most valued in industrial, commercial, and professional life as well as in public and social administration. As they are essential to societies and individuals, they should figure prominently in curricula (Assiter, 2016). Mistina et al. (2018) and Rocha (2014) discuss the significance of transferable competences acquired during studies concerning professional development and in support of an individual’s employability.

To sum up, transferable competences can be defined as a set of competences related to attitudes and values (knowing how to be), and procedures (knowing how) that can be transferred from one specific professional field to another. Therefore, there was no need to specify or narrow the choice

of transferable competences for either the agricultural sector or the Cambodian context for this study. The nature of transferable competences refers to applications in different professional sectors.

As the above-mentioned transferable competences are very important for employment and for economic development, it is appropriate to establish whether they are being developed in higher education. Because there is no professional diagnostic tool for measuring the selected eight transferable competences, this research focuses on the subjective assessment of students’ satisfaction with their skills acquisition. Subjective assessments encompass not only self-reflection but also the scope and quality of a curriculum across individual years of study. The political context of education in Cambodia and its quality are also important.

Quality of education in Cambodia

Education plays an important role in a country’s strategic development plans, integrating into regional and international economies, and in reducing poverty through the development of human capital in terms of technical knowledge, skills, values, and attitudes toward sustainable economic growth, social development, and reducing poverty (Chen et al., 2007; Dy & Ninomiya, 2003; Jin, 2011; Njura et al., 2020). The quality of education and literacy rates in Cambodia are relatively low compared with other countries (Sokhom, 2004; Stark et al., 2017), owing in large to low teacher pay that leads to poor-quality education for children (Tan & Tee Ng, 2012) and the overall lack of available teachers following 30 years of civil war (including the devastation of the Khmer Rouge regime) that eroded the skill base of the country, which is only gradually being reconstructed (Grinfeld & Ng, 2013). Another negative factor, according to the International Labour Office (2006), is that more than 50% of Cambodian children under 14 years of age are forced to drop out of school and go to work.

The child labor rate has been decreasing in other countries with comparable economic conditions but not in Cambodia, resulting in frequent school absenteeism. Furthermore, the country faces significant gender differences in education, as girls are less likely to be allowed by their families to continue through to high school (Eng et al., 2009). Unemployment and poverty are other limiting factors in achieving an educated society in Cambodia (Jin, 2011).

Cambodian strategies to reverse the current situation and improve the quality of education include provisions for improved school readiness and attendance, better-quality curricula and instructional materials, quality teacher training and services, access to textbooks, instructional aids and other learning materials, improved instructional times in quality learning environments, improved school management, and community participation (Velasco, 2004). The

Cambodian government aims to develop teachers to become autonomous professionals in curriculum and pedagogical improvements (Tan & Tee Ng, 2012). However, it is essential that redesigning the current educational system incorporate developing transferable competences, which to date have been marginalized in Cambodia's educational system.

One example is a study focusing on competences related to communication in the mother tongue and communication in foreign languages, especially English, as nearly all students study English as their second language (Vuth et al., 2007). The second competence concerned is work with digital technologies: Cambodia has a deep need for distance education but few ICT opportunities across the country. Most computer users, especially in rural areas, do not have their own computers to support distance education, and online education teachers' capacity is generally low (Peou & Lwin, 2011; Vuth et al., 2007).

The described political context of education defines the potential for developing transferable competences in students, modifying curricula, and better understanding the research on sociodemographic characteristics. Given that the Cambodian economy is based primarily on agriculture, it is more than necessary to examine transferable competences specifically in the context of agricultural education. Previous studies have only partial applicability to agricultural competences, and therefore, it was not possible to compare the results of this research survey with earlier findings. The present study provides a novel insight into the issue.

Research design

The specific aims of this research are: (a) to determine university students' satisfaction with their acquisition of selected transferable competences in one agricultural course of study in Cambodia; (b) identify the order of transferable competences based on the degree of satisfaction; (c) statistically verify whether there are significant relationships between transferable competences and sociodemographic parameters (e.g., gender), primarily with a focus on years of study. The aims of the research are reflected in the following research questions:

Q1: To what degree are the students satisfied with their acquisition of eight transferable competences?

Q2: What is the order of transferable competences in terms of their acquisition from highest to lowest?

Q3: Are there significant differences between acquired transferable competences and individual years of study?

The research was conceived as a transversal pilot study. Transversal research makes it possible to view a target group of respondents cross-sectionally, i.e., in all years of study (for this study, the first year of study was not included because

students are adapting to university life. Transversality reflected the curriculum and made it possible to obtain conclusions about shifts in the degree of acquisition of transferable competences within individual years. The pilot study, in turn, provided insights into the issue and revealed the possible limits of research in Asian environments.

The respondents were selected through convenience sampling on a voluntary basis. Respondents do not form a basic set but only a sample that provides data important for the pilot study. The results relate only to the sample and do not represent a generalization of the findings. The protection of human subjects was ensured by the instructions in the questionnaire as follows: participation is voluntary and completely anonymous (ensuring data confidentiality); the aim of the research was communicated.

The survey measured the eight transferable competences, highlighting the paradigm shift in education and the needed shifts in curriculum structures to better emphasize key competences for lifelong learning (European Commission, 2012; Smékalová & Němejc, 2019). The literature search laid the foundation for the content validity of the questionnaire; the performed research (Smékalová et al., 2016, 2018; Smékalová & Němejc, 2019) verified the reliability in understanding the items of the questionnaire. The respondents' subjective evaluations of their skills acquisition was a study limitation, but there were no available objective tools for measuring the real acquisition of all the mentioned competences.

For this research, transferable competences were studied in the context of agricultural in a predominantly rural Southeast Asian country where the agricultural sector is very important for the economy; it was then possible to compare survey results from this study with findings from the European environment. It is clear that transferable competences are as relevant and valuable within the agriculture sector as across other occupational sectors.

The advantage of this research was that the respondents did not assess whether they needed transferable competences for the labor market but only to what degree they have acquired them. Studying respondents in different years of study allowed for tracking the competence acquisition rate as it changes from year to year (excluding the first year). In this way, the research makes it possible to identify gaps and opportunities in the development of the necessary transferable competences for the labor market. This pilot study shows which competences should be strengthened in the agriculture curriculum of one Cambodian university to adequately prepare future graduates for the labor market.

Materials and methods

Data collection

The data were collected through a questionnaire survey administered at the Royal University of Agriculture (RUA) in Phnom Penh, which was purposefully selected as the leading agricultural university in Cambodia. The target population of this study was students in their second, third, or fourth year of study; first-year students were intentionally not included because they are still undergoing adaptation to a university environment, and the research results could have been skewed. At the time of data collection, the selected university was only providing in-person instruction for bachelor's degree program, and master's coursework was conducted entirely in distance form; therefore, only undergraduate students were selected. Convenience sampling was used to include respondents from six selected faculties (focused on agro-industry, agriculture economics and rural development, agronomy science, fisheries, land management and land administration, and veterinary medicine). Data were collected in November 2017.

Instrument

Quantitative data were collected via a paper-and-pencil questionnaire survey with items that represented the following eight transferable competences: communication in the mother tongue, communication in foreign languages, work with digital technologies, learning to learn, sense of initiative and entrepreneurship, problem solving, teamwork, and sense of responsibility. Table 1 presents definitions of each competence. The respondents were acquainted with the characteristics of the eight competences and rated their degree of satisfaction with their acquisition of each competence from 1 (0%–20%) to 5 (81%–100%). The questionnaires were translated into the Cambodian language, Khmer, by a professional translator. Participation was on a voluntary basis. In total, 439 questionnaires were valid for further analysis.

Data analysis

The collected data were processed using IBM Statistical Product and Service Solution software (SPSS), version 20, with a significance level of 0.05. A Levene test was used to test the homogeneity of variance. The normality of the data was tested using the Shapiro–Wilk test, and the mean (M),

Table 1 Components of transferable competences

No.	Competence	Items of competence
1	Communication in the mother tongue	I am able to express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing) and to interact creatively, interact linguistically in an appropriate and creative way in a full range of societal and cultural contexts; in education and training, work, home and leisure
2	Communication in foreign languages	I am able to understand, express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing) in an appropriate range of societal and cultural contexts (in education and training, work, home and leisure) according to one's wants or needs
3	Work with digital technologies	I can use ICT to retrieve, assess, store, produce, present and exchange information, and communicate and participate in collaborative networks via the Internet
4	Learning to learn	I am able to organise my own learning, including through effective management of time and information, both individually and in groups. I am aware of my learning process and needs; I am able to identify available opportunities and to overcome obstacles in order to learn successfully. I am able to gain, process and assimilate new knowledge and skills as well as seeking and making use of guidance
5	Sense of initiative and entrepreneurship	I am able to be initiative, active and innovative. It means that I am able to turn ideas into action based on creativity, ability to implement novelties, risk-taking, as well as ability to plan and manage projects in order to achieve objectives
6	Problem solving	I am able to identify and analyse the problem according to selected criteria, I am also able to produce a variety of alternative solutions to the problem, evaluate and choose the best possible solution, which I realize in practice
7	Teamwork	I am able to express my opinion, while respecting the views of the other members of the team, I can take others into account and create a compromise, I am able to adapt and do not enforce myself at the expense of others, I can share the experience and I am capable to constructive criticism
8	Sense of responsibility	I am able to behave so that I can be relied on. When deciding I am able to consider possible consequences of my actions. I can answer possible questions about my decision, i.e. I understand the causality of my behaviour and possible consequences

Table 2 Sociodemographic characteristics of the respondents

Variables	Values	Frequency	%
Gender	Male	247	56.26
	Female	192	43.74
Age	18	18	4.10
	19	78	17.77
	20	107	24.37
	21	92	20.96
	22	68	15.49
	23	35	7.97
	24	22	5.01
	25	11	2.51
Field of study (Faculty)	26+	8	1.82
	Agriculture Economics and Rural Development	85	19.36
	Agro-Industry	74	16.86
	Agronomy Science	109	24.83
	Fisheries	22	5.01
	Land Management and Land Administration	33	7.52
	Veterinary Medicine	116	26.42
Year of study	2st	231	52.62
	3rd	116	26.42
	4th	92	20.96

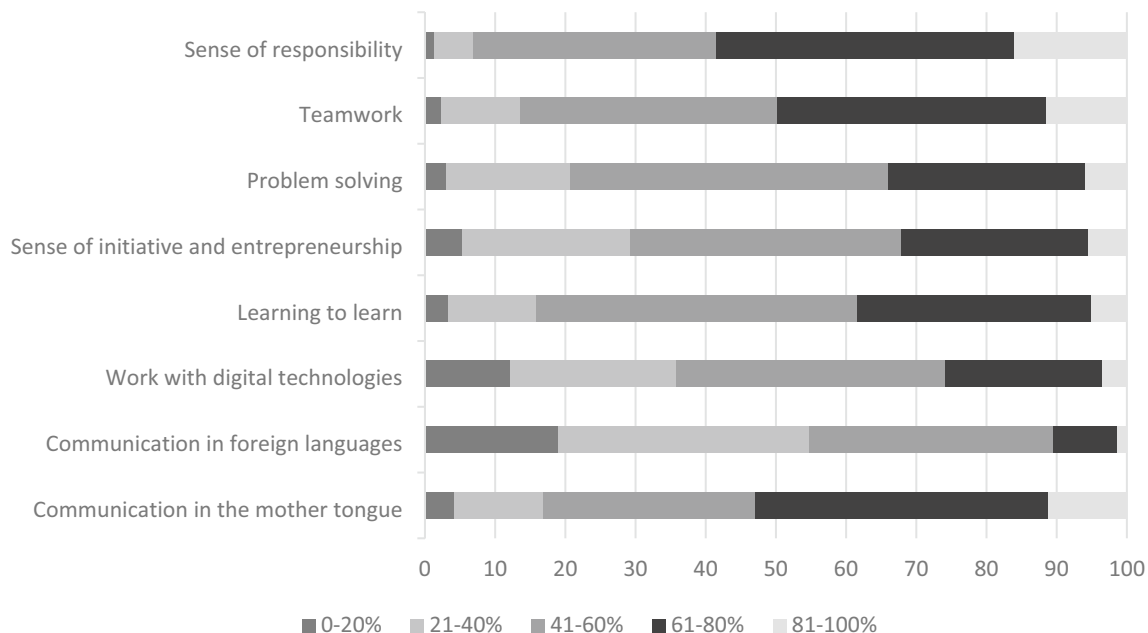
standard deviation, rank, and Skewness were calculated as well. The Kruskal–Wallis test was used to test the significant differences among the competences associated with the respondents' sociodemographic characteristics (gender, field of study, and year of study).

Results

A total of 439 respondents from six faculties in their second through fourth years of study took part in the research. The students' demographic makeup included male (56%) and female students aged 18 to 25, the typical age of students in bachelor's degree programs. Only eight respondents were between 26 and 30 years old. Table 2 presents the specific characteristics of the sample.

The answer to research question 1, "To what extent are the students satisfied with the acquisition of eight transferable competences expressed on a percentage scale?" is as follows. The detailed analysis of the results showed that students expressed the least satisfaction with their abilities to communicate in foreign languages. One fifth of students ranked their satisfaction in the 0%–20% range, and another one third ranked their satisfaction between 21 and 40% (Fig. 1).

On the contrary, the students were most satisfied with their acquisition of a sense of responsibility; one in six respondents ranked their satisfaction between 81 and 100%, and more than 40% were 61% to 80% satisfied with this competence. Nearly half of students said they had learned to

**Fig. 1** Agriculture students' satisfaction with their competence acquisition

learn and learned problem solving, and they reported moderate satisfaction of 41%–60% with their acquisition of these skills.

Using Fig. 1, the transferable competences can also be compared according to highest representation at a given degree of satisfaction. For instance, the highest percentage of respondents, 41%, reported that they were 61% to 80% satisfied with their acquired ability to communicate in their mother tongue. One third of students were only 21%–40% satisfied with their ability to communicate in foreign languages. The following competences were achieved by 38% and 45% of all respondents at the level of satisfaction of 41%–60%: work with digital technologies, learning to learn,

sense of initiative and entrepreneurship, and problem solving. The best acquired transferable competences included: (a) teamwork, with more than one third of all respondents reporting 61%–80% satisfaction, and (b) sense of responsibility as reported above.

Table 3 presents the responses to research question 2 regarding the students' highest to lowest levels of transferable competence acquisition. The table shows that students were most satisfied with their acquired sense of responsibility followed by their teamwork skills; the two are both interrelated and related with the cultural environment. The students ranked their satisfaction with having acquired the competences of communication in the mother tongue, learning to learn, and problem solving in third through fifth places respectively. Work with digital technologies (7th place) and communication in foreign languages (8th place) were the least developed competences.

Table 4 presents the findings for each transferable competence according to the students' gender, field of study, and year of study, which allowed for answering research question 3: "Are there significant differences between the degree of acquired transferable competences and individual years of study"? In fact, there were statistically significant differences for problem solving ($P < 0.05$), communication in foreign languages (0.01), and sense of responsibility (0.001), all in favor of the fourth year.

The above findings support an argument that the RUA is adequately training students in the aforementioned transferable competences and that students are largely satisfied

Table 3 Descriptive measures of the degree of satisfaction with transferable competences

Transferable competences	<i>M</i>	<i>SD</i>	Rank	Skewness
1. Communication in the mother tongue	3.43	0.99	3	− 0.50
2. Communication in foreign languages	2.38	0.94	8	0.24
3. Work with digital technologies	2.81	1.03	7	− 0.11
4. Learning to learn	3.24	0.86	4	− 0.31
5. Sense of initiative and entrepreneurship	3.03	0.97	6	− 0.05
6. Problem solving	3.16	0.89	5	− 0.07
7. Teamwork	3.46	0.92	2	− 0.31
8. Sense of responsibility	3.66	0.86	1	− 0.34

Table 4 Relationships between transferable competence and respondent characteristics

Competence	Gender	Field of study/faculty	Year of study
1. Communication in the mother tongue		$\chi^2 = 11.298$ df = 2 $P = 0.004^{**}$	
2. Communication in foreign languages		$\chi^2 = 9.415$ df = 2 $P = 0.009^{**}$	$\chi^2 = 16.667$ df = 5 $P = 0.005^{**}$
5. Sense of initiative and entrepreneurship	$\chi^2 = 7.439$ df = 1 $P = 0.006^{**}$		
6. Problem solving			$\chi^2 = 13.029$ df = 5 $P = 0.023^*$
7. Teamwork	$\chi^2 = 5.214$ df = 1 $P = 0.022^*$		
8. Sense of responsibility			$\chi^2 = 26.387$ df = 5 $P = 0.000^{***}$

P value is significantly different at * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$. Blanks mean that the relationship between the two variables is not significant

with their acquisition of the important competences by their fourth year of study (Fig. 2). The most significant progress was observed with communication in foreign languages: Initially, 20% of students were only 0% to 20% satisfied with their acquisition of that skill, and by the fourth year, one in nine reported satisfaction in the range of 61% to 80%; more than one third of fourth-year students were satisfied at this level with their acquisition of problem solving skills. The top competence was sense of responsibility, presenting the highest degree of satisfaction, i.e., 81%–100% in more than 20% of fourth-year respondents.

Other sociodemographic characteristics in relation to transferable competences were also statistically examined but only to complement context and cultural conditionality rather than for the purpose of the research itself. These data are used to interpret the research in the study discussion and conclusion.

Discussion

The results of the research encourage reflection on two levels. Firstly, why do students differ in the transferable competences they acquire (research questions 1 and 2), and what explains the significantly different findings according to year of study (research question 3)? The reasons for the students' different degrees of acquisition of the eight transferable competences are: (1) cultural conditionality (sense of responsibility); (2) patterns of behavior (teamwork, learning to learn, problem solving); (3) insufficient curriculum and material resources (communication in foreign languages, working with digital technologies); and (4) insufficient

economic opportunities for labor market development (sense of initiative, entrepreneurship).

Employers in Europe demand a sense of responsibility in new employees and find it lacking among current graduates. The students in Cambodia placed high value on this competence because of the local living and working conditions and the cultural emphasis on social responsibility and belonging. A high proportion of students also participate in volunteer activities, another potential indicator of responsibility, for example, in terms of greater involvement in the community.

Students were likely only moderately satisfied with their acquisition of teamwork, learning to learn, and problem solving skills because these are in high demand for study and work activities at the same time that these activities are also themselves highly demanding. Students must often complete multiple tasks within the same time span, and the culture does not support individualism; students in Cambodia make intensive social contacts in their personal lives.

The research also confirmed previous findings that Cambodian students show poor skills in communication in foreign languages (Vuth et al., 2007) and working with digital technologies (Nguon, 2015; Peou & Lwin, 2011; Vuth et al., 2007). Students' inability to communicate in foreign languages is entirely understandable given that 95% of HEI programs are for bachelor's degrees and are intended to prepare students to immediately enter the labor market directly. There are few international companies in Cambodia, so new graduates do not need to learn a foreign language. Even if there were demand, there are minimal resources in Cambodia for learning foreign languages: few foreign language materials in libraries and little technological expertise on the ground, which limits the ability to pursue foreign language acquisition online.

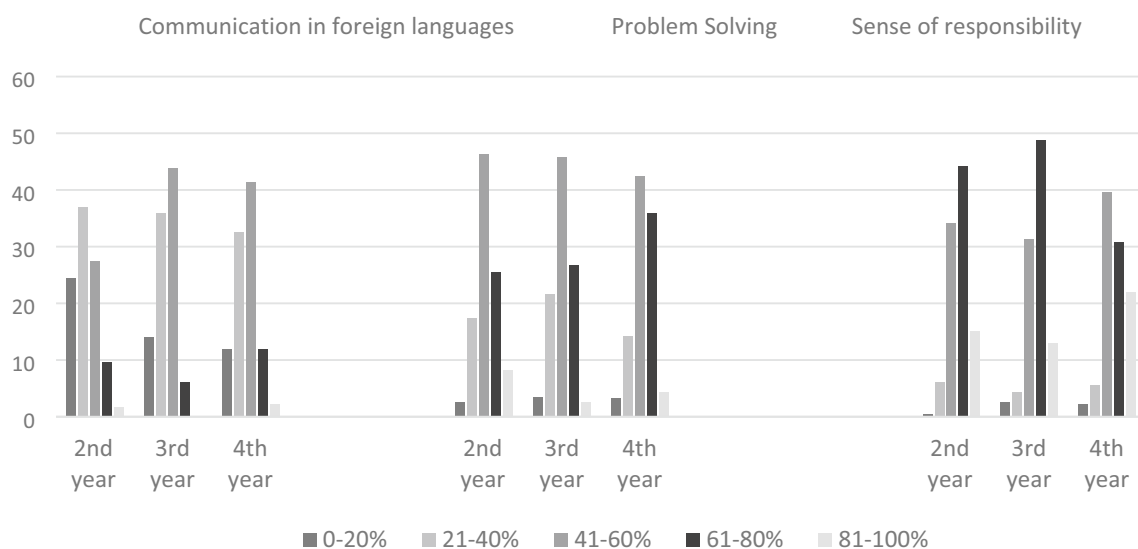


Fig. 2 Comparison of selected competences among different years of study

However, English is essential for employability in most organizations in Cambodia, both national and international, from lower-level positions to higher ones (Chaloupkova et al., 2015) and both orally and in writing. In one survey study concerning the matching of English needs between undergraduate students and employers in Cambodia, employers specifically wanted students also to be able to write appropriately in English for administrative and office communication (Seng, 2015). Unfortunately, English acquisition is a challenge for most graduates in agricultural and life sciences fields in Cambodia (Chaloupkova et al., 2015). The study ASK Asia indicated the limitations of good English knowledge when comparing local graduates to studying abroad, and a recent RUA report showed negative performance in English skills reported by employers of students who had attended internships in a real working environment (Chaloupková et al., 2019).

The statistical significance between the individual years of study confirmed that competences advance with time and that the curriculum has a positive impact on learning outcomes. There is evidence that other transferable competences can also be developed if they are given sufficient attention in the curriculum. The research results from Cambodia can be compared with the same research conducted in European countries such as the Netherlands and the Czech Republic (Smékalová et al., 2016). Among all three groups, the students reported the lowest skills in communication in foreign languages and sense of initiative and entrepreneurship. However, the other least achieved competences among the students differed internationally. For instance, students reported poor skills at working with digital technologies in Cambodia, at learning to learn in the Netherlands and problem solving in the Czech Republic. In comparison, Cambodian students reported moderate acquisition of the latter two competences.

Universities should therefore focus on increasing these competences among students and adjust curricula accordingly. Greater interactivity with students should also be encouraged, as traditional amphitheater lectures do not facilitate students' involvement in teaching and learning (Ahmed & Ain, 2013). At the same time, it would be appropriate to introduce innovative teaching methods, such as problem-based and scenario-based learning, combined with project training and real case studies that help students develop these competences (Nicolaidis, 2012).

Although this study presents a detailed analysis of one group of university students' satisfaction with their acquisition of transferable competences, it has the following limitations: (a) the respondent sample was only a subset of all agriculture students at the RUA, and (b) the respondents were selected via convenience rather than random sampling based on students' voluntary participation; (c) students could only assess their acquisition of transferable competences

based on their subjective perceptions because there were no tools for objective measurement; (d) the study's nature as pilot research means results cannot be generalized across the full university or even the full agriculture department, let alone the whole Cambodian university system; and (e) the research cannot be compared with previous related findings from Cambodia or other Asian countries because there have been no such studies.

Conclusion

Social and technological change requires a highly competent workforce; therefore, education and training should reflect employers' changing requirements. Employers expect university graduates to begin work equipped with the knowledge and skills to deal with complex situations and solve problems effectively in a rapidly changing environment of globalization and internationalization (Murakami et al., 2009). This research has shown the importance of developing a particular set of eight transferable competences among agriculture students in Cambodia, specifically, (a) communication in foreign languages, (b) working with digital technologies in the context of digital development, and (c) sense of initiative and entrepreneurship in terms of increasing competition in the labor market.

The recommendations resulting from the survey findings are: (a) the need to transform strategic policies to promote developing transferable competences among university graduates that increase their employment opportunities in the labor market (European Commission, 2006, 2012); (b) the need to allocate more time in curricula for foreign language and ICT teaching; (c) the need to expand community-based project teaching to enhance students' sense of initiative and entrepreneurship.

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Declarations

Conflict of interest The authors declare that the research was conducted in the absence of any financial or non-financial interests that are directly or indirectly related to the work submitted for publication.

The research was approved by the dean of the Graduate school of the Royal University of Agriculture in Cambodia prior to data collection at the university.

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