

Hard skills or soft skills? Findings about importance of various skills in work

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Metatiedot

Nimeke: Hard skills or soft skills? Findings about importance of various skills in work

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Tiivistelmä: Getting a job requires many things: hard skills, soft skills, the right attitude and motivation. To develop the degree programme in Business Information Systems in Oulu university of Applied Sciences (Oulu UAS), three surveys were conducted, to study importance of skills and knowledge in professional life: a graduate career survey in 2013, an employer survey in 2014, and a student survey in 2015. According to the results, readiness for change, learning skills and basic ICT skills seem to be the most important skills. To succeed at work, an adequate basis of hard skills, soft interpersonal and communication skills are needed. Also problem solving and pressure endurance seem to be very important.

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Oikeudet: Julkaisu on tekijänoikeussäännösten alainen. Teosta voi lukea ja tulostaa henkilökohtaista käyttöä varten. Käyttö kaupallisiin tarkoituksiin on kielletty.

Näin viittaat tähän julkaisuun

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Getting a job requires many things: hard skills, soft skills, the right attitude and motivation. Broad-based education in the field may form a basis for the future, but in addition to an adequate basis of hard skills, soft interpersonal and communication skills are important. Learning skills, problem solving and pressure endurance seem to be very important.

The degree programme in Business Information Systems (tietojenkäsittelyn koulutusohjelma in Finnish) in Oulun University of Applied Sciences (Oulu UAS) educates experts for the rapidly developing environment of information technology. The degree programme aims at Bachelor of Business Administration in three and a half years (210 ECTS), offering the options of web application development, internet services and digital media, and computer systems expertise. [\[1\] \(#cite-text-0-0\)](#)

Oulu UAS educates professionals for the needs and development of trade and industry in the region, providing the skills and knowledge needed [\[2\] \(#cite-text-0-1\)](#). The graduates from the degree programme in Business Information Systems are typically employed by companies operating in the field of information technology or business. To gain professional expertise, various skills — hard skills and soft skills — are required. The importance of skills and knowledge in professional life have been studied in three Bachelor's theses commissioned by Oulu UAS: a graduate career survey in 2013 [\[3\] \(#cite-text-0-2\)](#), an employer survey in 2014 [\[4\] \(#cite-text-0-3\)](#), and a student survey in 2015 [\[5\] \(#cite-text-0-4\)](#).

Graduate survey 2013

The first of these studies was the graduate survey. It was conducted in 2013 and it targeted the graduates of the years 2000–2012. The letter was sent to all the 620 graduates, resulting in 186 responses. According to the survey, 26 % of graduates work in the field of software development as programmers, software designers, software testers and other software professionals (figure 1). 14 % of graduates work as computer system specialists or IT helpdesk officers. As much as 39 % of graduates work in the sector of business and management: 14 % as human resource managers or entrepreneurs, or in other positions in accounting, taxation, insurance, marketing and communication, 14 % as secretaries, project and product managers and designers, 10 % in sales and customer service.

According to the survey results, getting a job has become more difficult during the 2000s. At the beginning of this millennium, 83 % of graduates were employed at latest three months after graduation. In 2009–2012 the same figure was 55 %. The survey studied also what factors had an effect on getting a job. The own activity affected employment by 72 % of respondents, as well as working during the studies (45 %) and the own practice (34 %). The importance of work experience emerged also in open responses.

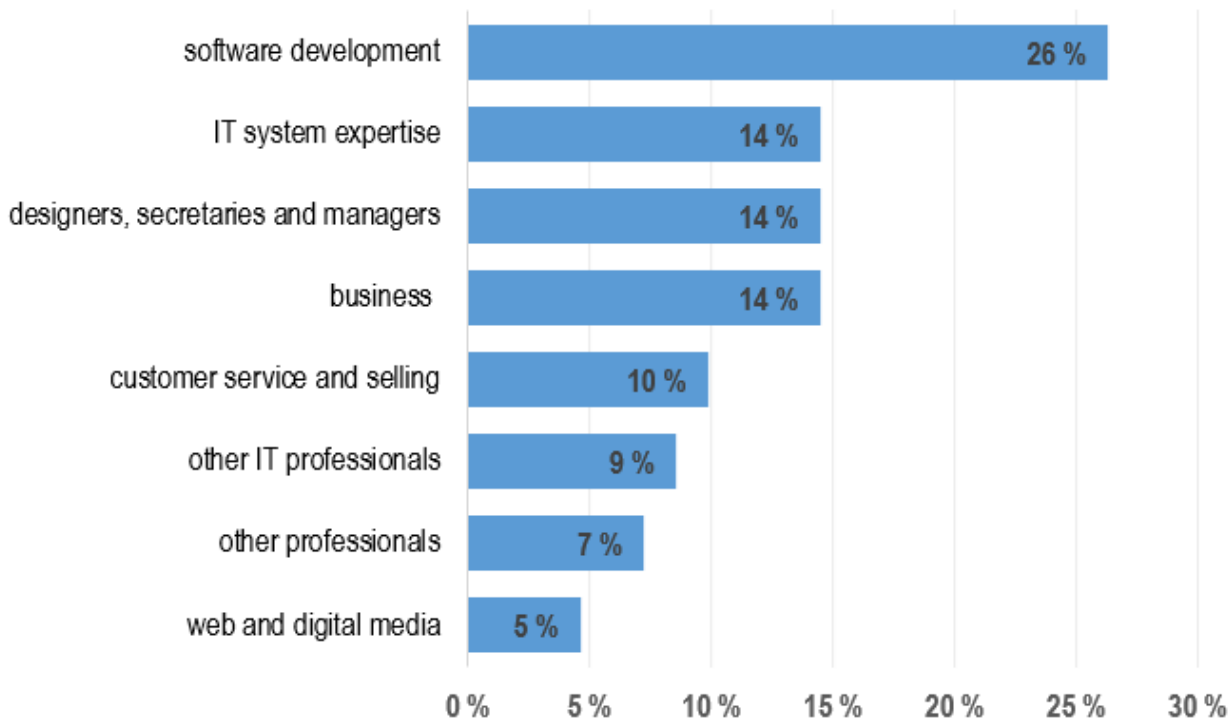


FIGURE 1. Graduates' professional field (n=152)

A 4-point scale (ranging from 1 for "not at all high/important" to 4 for "very important/high") was used to study the importance of thirty-seven hard and soft skills for working, as well as how well the degree programme prepared graduates for work. As figure 2 represents, in the graduates' opinion, the most important skills in work are basic ICT skills such as email, web and office programs (mean 3.5), readiness for change and learning skills (3.4), pressure endurance (3.3), organizational skills (3.3) and information retrieval skills (3.2). Moreover, negotiation and customer service skills (3.0), communication and presentation skills (2.9) and networking and cooperative skills (2.6) were given significant importance. Hard IT skills were not so important in general. Means of data security (2.6), user interfaces and usability (2.2), programming skills (1.8) and web technologies (1.7) were lower. The least important skill of all was the game development (1.1).

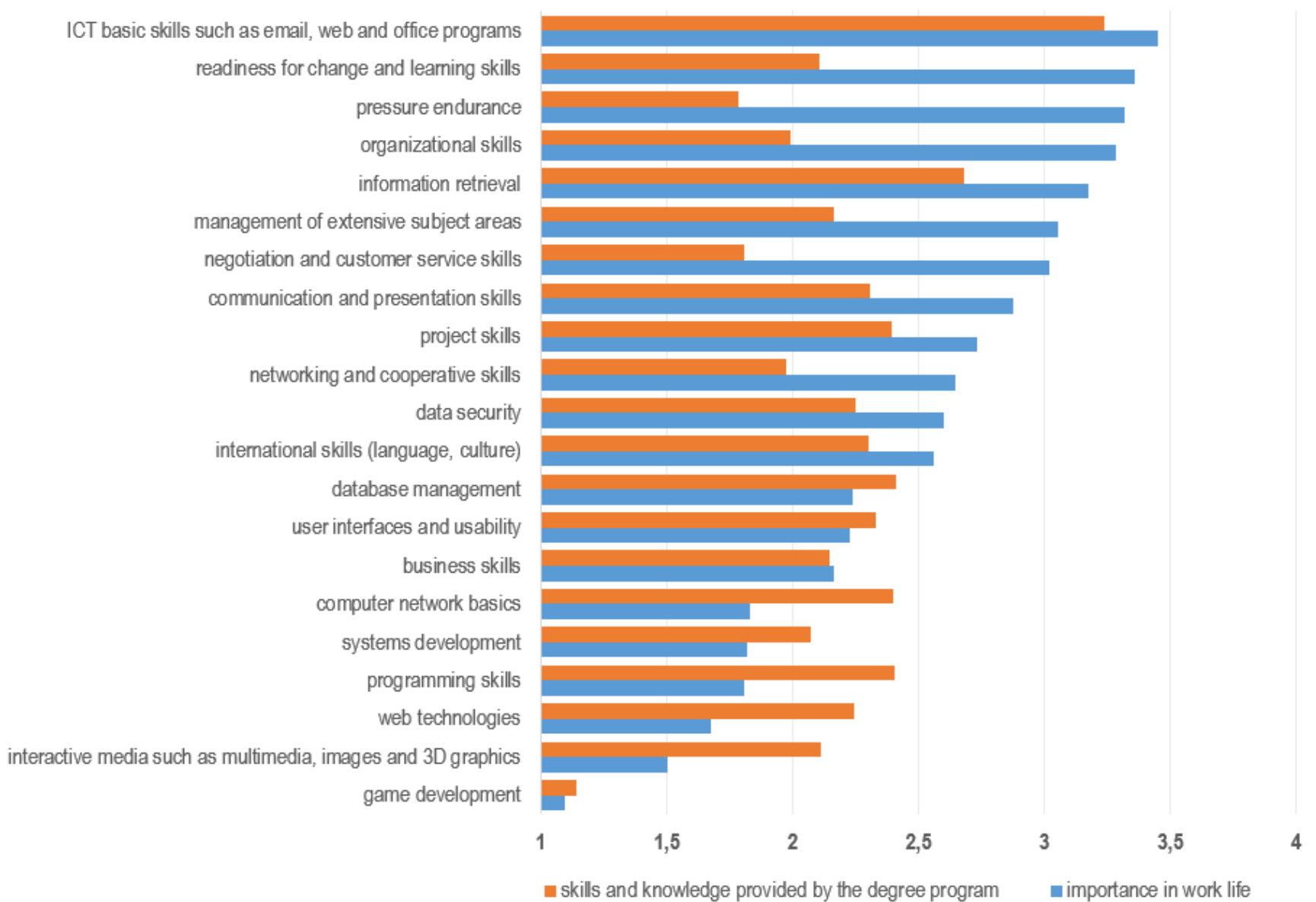


FIGURE 2. Importance of skills and preparedness for work, from 1 (not at all high/important) to 4 (very important/high) (n=186) [\[1\]](#) (#cite-text-0-0)

According to the study, the degree programme prepared graduates best in the basic ICT skills (3.2), information retrieval (2.7), database management (2.4), programming skills (2.4), computer network basics (2.4) and project work skills (2.4). The degree programme's ability to prepare graduates in several skills rated most important was quite low: readiness for change and learning skills (2.1), pressure

endurance (1.8), organizational skills (2.0) and negotiation and customer service skills (1.8). Fundamentally, the degree programme focused more on hard skills (computer network, systems development, web technologies and programming skills) than on the soft skills, which the graduates thought were important.

Student survey 2014

The student survey was conducted in the autumn 2014. Fifty-five students, mainly first-year students, answered the questions during a lesson. The students' opinion about the most important skills in work is very close to the graduates' opinion. In the students' opinion (figure 3), the five most important skills in work are basic ICT skills (3.3), readiness for change and learning skills (3.3), data security (3.2), information retrieval (3.2) and pressure endurance (3.2). Hard skills such as programming (3.1) and web technologies (3.0) were also considered quite important, as well as communication and presentation skills (3.0), negotiation and customer service skills (3.1), and networking and cooperative skills (3.1).

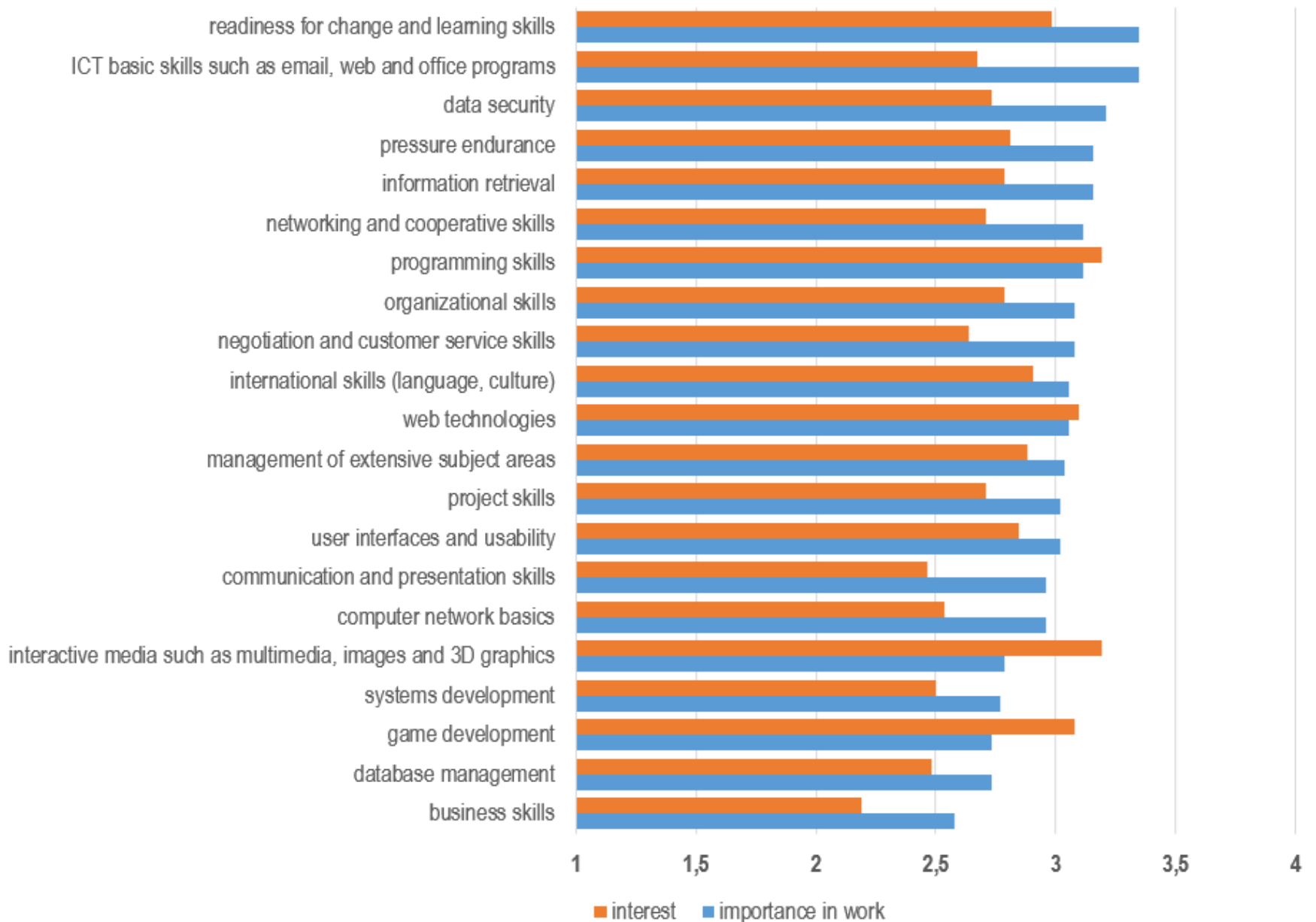


FIGURE 3. Importance of skills and students' interest, from 1 (not at all high/important) to 4 (very important/high) (n=52)

According to the student survey, students were most interested in studying hard skills such as programming (3.2), interactive media such as multimedia, image editing and 3D graphics (3.2), web technologies (3.1) and game development (3.1). Studying soft skills like communication and presentation skills (2.5) and negotiation and customer service skills (2.6), and basic ICT skills (2.7) was found less interesting.

Employer survey 2014

Also an employer survey was conducted in 2014 with low number of responses (n=34). Most of the respondents (82 %) represent small- and medium-sized companies. In the employers' opinion, graduates' theoretical knowledge is at a higher level than their practical skills (figure 4). The statistic used to describe the correspondence inbetween the requirements of work and skills provided by the education is the average.



FIGURE 4. Employers' insights about work correspondence with studies (n=27, 1=disagree entirely to 4=agree entirely). [\[2\] \(#cite-text-0-1\)](#)

The survey studies also hiring motivations. Work experience was the most important factor when a new employee is being hired (table 1). The second most important factor was the education in the field. Surprisingly, success in studies and Bachelor's thesis did not seem to be important factors. The open responses provided more insight into the aspects considered when hiring new employees. Things such as interpersonal skills and social confidence, the right attitude, motivation, and technical skills specific for a job were mentioned. Even handshaking, good eye contact and honest opinions in an interview can be significant. "Anybody can study more, but attitude is intrinsic," an employer wrote. Education seems to form a good foundation for work, but ultimately, the truly relevant skills are learnt at work. According to the employers', the most important skills in work are basic ICT skills, learning skills and problem solving skills. Teamwork and communication skills were also regarded as very significant.

TABLE 1. Factors affecting employment (1=not at all important,... , 4=very important, n=27) [\[3\] \(#cite-text-0-2\)](#)

Factor	Mean
Work experience	3,3
Education in the field	3,2
Practical training	3,0
Success in studies	2,5
Bachelor's thesis	2,4

Similar researches abroad

The importance of soft skills has entered discussions on education and work in recent years. Hard skills are needed to perform the work, but there is a growing awareness that technical skills alone are insufficient for success in the field of IT. Managerial, intrapersonal, and interpersonal skills, i.e. managing tasks, managing one's career, managing one's self and others, are needed. [\[6\] \(#cite-text-0-5\)](#)

An Australian study [\[7\] \(#cite-text-0-6\)](#) showed that an ability to remain calm under pressure, an ability to contribute positively to team-based projects, effective written communication and speaking to groups of people, problem solving, management of extensive subject areas, and client cooperation were deemed very important. University, an educational institute, was nevertheless unable to prepare and develop students efficiently for work in these skills and the importance of technical expertise was undoubtedly regarded as high.

Another study [\[8\] \(#cite-text-0-7\)](#) focused on recent graduates' skills, abilities, and knowledge at the beginning of careers in the software industry. The study shows that especially a lack of project experience, difficulties in using tools, and problems in coding and testing limited the productivity of new graduates, or even prevented them from gaining employment. Communication problems were typical in both written and oral communication.

According to Begel & Simon's [\[9\] \(#cite-text-0-8\)](#) study, graduates in their first software development job, are typically facing problems rooted in poor communications skills and social naiveté. According to Koppi & al. [\[7\] \(#cite-text-0-6\)](#), graduates are underprepared in communication and in other soft skills, because students do not appreciate the importance of these skills for future work. This may explain why students may not develop those skills as fully as they could during their studies.

Final words

Developing a degree program and its curriculum is a challenging task. The primary aim is graduates' employment. Getting a job requires many things: hard skills, soft skills, the right attitude and motivation. According to these surveys, soft skills seem to be more important in general, but work experience, the education in the field or job-specific skills are needed to get a job.

Learning skills, problem solving and pressure endurance seem to be very important. Developing the right skills, and finding what these skills are, is challenging. Broad-based education in the field may form a basis for the future, but in addition to an adequate basis of hard skills, soft interpersonal and communication skills are important.

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Picture References

1. [^]FIGURE 2. Importance of skills and preparedness for work. Mukailen Teoksessa Kumpumäki, M. 2013. Tietojenkäsittelyn koulutusohjelman työelämävastaavuus ja eri osaamisalueiden merkitys työelämässä. Opinnäytetyö. Oulun ammattikorkeakoulu. Hakupäivä 17.11.2015. <https://www.theseus.fi/handle/10024/58514>
2. [^]FIGURE 4. Employers' insights about work correspondence with studies. Mukailen Teoksessa Pärkkä, H. 2014. Tietojenkäsittelyn koulutusohjelman työelämävastaavuus työelämän edustajien näkökulmasta. Opinnäytetyö. Oulun ammattikorkeakoulu. Hakupäivä 17.11.2015. <https://www.theseus.fi/handle/10024/77620>
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