

The Importance of Soft Skills in Technical Oriented Education

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ABSTRACT

In general, academic graduates of technical oriented course programs are well trained in technical skills. In addition, graduates should be well prepared for industrial work where, beside technical skills, soft skills become more and more important. In Austria, universities of applied sciences educate students to become graduates highly needed in industry. To ensure high quality education, needs of industry are evaluated to be included into academic teaching. In 2010, two research groups tried to answer the question of importance of soft skills for technicians. Therefore, one group interviewed CEOs of IT and telecommunication companies, and the other group developed an online survey for evaluation. The paper illustrates the word of the survey group and discusses the analyzed results.

Keywords: soft skills; IT course programs; professional needs; curriculum design

INTRODUCTION

In Austria, Universities of Applied Sciences (UAS) focus on industry related education. They teach students to become academic graduates who are well prepared for industrial life. The University of Applied Sciences Technikum Wien mainly focuses on technical oriented course programs. Thus, all graduates are well trained in specific technological fields. Furthermore, all course program curricula at the UAS Technikum Wien are designed in that way that education must include technical content as well as non-technical content and soft skills. For sure, the needs for technical and non-technical content are evident. However, the importance of soft skills should not be underestimated.

For getting a feeling of the importance of soft skills in technical oriented education, it is important to know the needs and requirements of companies in this context. The

paper tries to answer the question of the relevance of soft skills for academic graduates, especially in the field of Information Technologies (IT) related course programs. Additionally, knowledge of which types of soft skills are concrete asked for is useful to improve quality of education.

To understand the importance and to identify the types of soft skills that are wanted, from March to September 2010, two research teams have been working on that purpose. On the one hand, the first group analyzed work profiles coming from job offers in Austrian newspapers and online job platforms. The first group did statistical analysis on appearance of certain keywords to get significant information about their relevance (details and results can be found in [1]). On the other hand, the second research team interviewed several managers of human resource departments in Austrian companies following a prepared survey. Both teams concentrate on IT jobs, be it for graduates from course programs like computer science, business informatics, or information management. They merge the managers' personal opinions with the statistical results provided by the first research team. The paper presents the evaluation results of the survey team and discusses them to be able to find possible implications on improvement of academic curriculum design.

THE ONLINE SURVEY

The creation of the survey took place in several stages. The first step consisted of the compilation of the questions and the definition of the target group (which was defined as CEOs and heads of Human Resources departments). It is helpful to deal with the assumed result and the hypothesis to find the right questions, and the right method of questioning. It is also beneficial to think about the analysis of results (for finding which cross joins will be used). Additionally, keep in mind which analyzing issues are already offered by the tool, and

which application will be used to further process the survey data.

The second step was the selection of a suitable online survey tool. After the comparison of some tools, the decision was accounted for LimeSurvey¹. It is important to make the survey available at an official web domain and to find a professional wording to ensure that the target group can be addressed.

After successful installation and configuration of the environment, the invitation including information about the topic, the target group, and data security was sent to the possible participants. Because of the relevance of the topic, a major part of participants comes from the IT, telecommunications and services to which the evaluation was particularly taken into consideration.

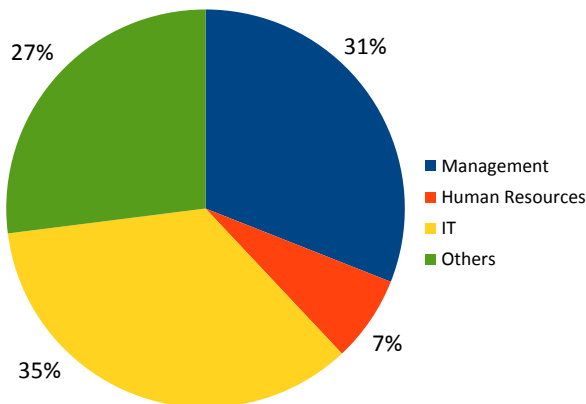
The survey has been available online for six weeks. Relevant and complete survey data could be gained from an amount of 113 participants.

ONLINE SURVEY RESULTS

The analysis of the results was done by two different methods. In the first step, the results were evaluated by the existing analysis capabilities of LimeSurvey. Because of the rudimentary analysis options of the tool (no cross joins), the raw data was downloaded and processed in Microsoft Excel to carry out further queries and reports.

The data were divided into the different positions of the participants in the company. In the survey, 31 % had management positions, 7% were from Human Resources, 35% from IT and 27% from other departments (see Figure 1).

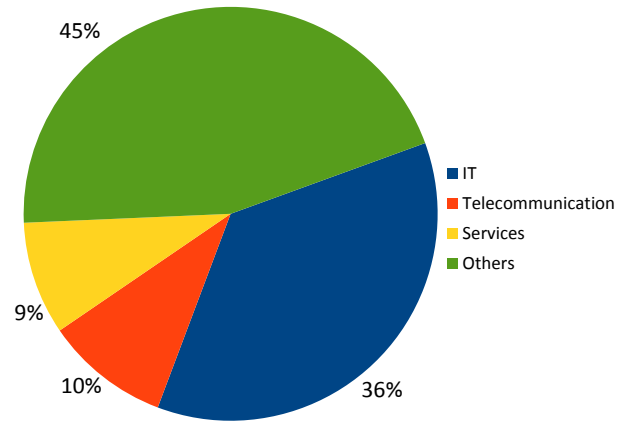
Figure 1: Participants divided by job positions



The participation of different sectors is shown in Figure 2. The top three business sectors were in the fields of IT, and internet, telecommunications and services. Thus the

analysis of survey results heavily depends on that business sectors.

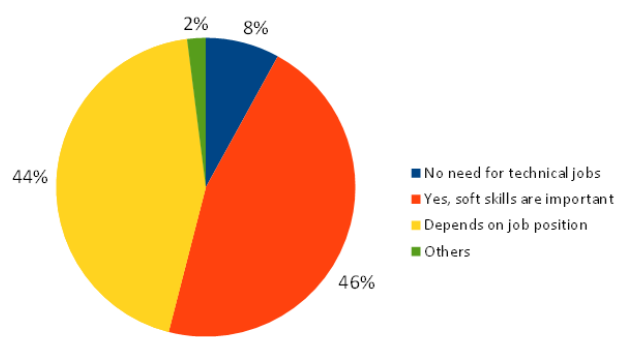
Figure 2: Participants divided by branches



One of the first professional issues was “How important are soft skills in the job description?” As shown in Figure 3, 46% of all respondents believe that soft skills play an essential role in the job description and should be promoted. 44% believe that it depends on the job and the position of the job description. Only 8% think that there are no requirements on soft skills for technical jobs.

When asked about the definition of soft skill requirements, 66% of respondents said that the demand carrier itself provides the requirement of soft skills in the advertised post. The staff-administering point came only to 16% followed by setting the company’s policy of 12%.

Figure 3: Soft skill relevance



In Figure 4, Figure 5, and Figure 6 different soft skills have been categorized by the respondents in order of priority. On the basis of the categories “very important”, “important”, “less important”, and “are not expected by us”, the participants took the vote. The figures illustrate the answers donated by “very important” and “important”.

More than 80% of respondents in the IT industry voted “self-management” to be “very important”, followed by the properties “Analytical capabilities” with 56%. Third

¹ LimeSurvey Web site: <http://www.limesurvey.org>

place ended up “learning and training willingness” with 51%. 75% of those surveyed IT staff assessed “stress resistance” to number one in the category “important”, followed by the “teamwork” of more than 58%.

In the telecommunications industry the result was similar. With more than 91% “self-management” was again number one in the category “very important”. On the difference with IT, “analytical ability” reached number two with more than 64%, followed by “learning and continuing training”, “teamwork” and “goal orientation and achievement” with 45%.

Figure 4: IT soft skill demand

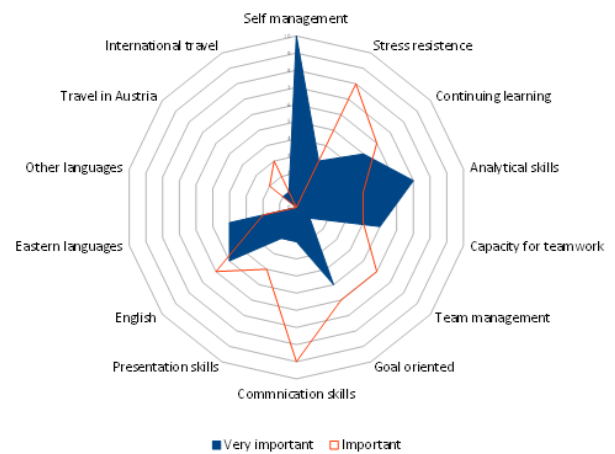


In the rest of the branches, there is also a clear tendency for “self-management” apparent. More than 72% of respondents from the rest of the industry graded this with “very important”, followed by “learning and continuing training” with 62%. “Stress resistance” is on third place, and well over 52% elected “analytical skills”.

“Knowledge in English” is seen as “very important” from almost 22% in the IT. In telecommunications, however, 32% had the opinion that this is relevant to the industry. Surprisingly, other industries rated this with more than 37%.

“Eastern languages” are no requirements in the IT industry; they are not seen as “very important” in any industry. In IT as well as in telecommunications or in other industries, they are “less important” or “not required”. Other languages are also not being provided in any industry.

Figure 5: Telecommunication soft skill demand



As mentioned, the “analytical skills” turned out very strongly in IT and telecommunications (more than 50% “very important”).

“Presentation skills” together with the “willingness to travel in Austria” are needs in IT (about 46% in the category “important”). However, the “willingness to travel on the international stage” is required from almost more than a third (34% “important”). “Goal orientation and achievement” are in IT as well as in telecommunications leader in the second-strongest category. These seemed to have no first priority, but in both sectors they are a very popular property.

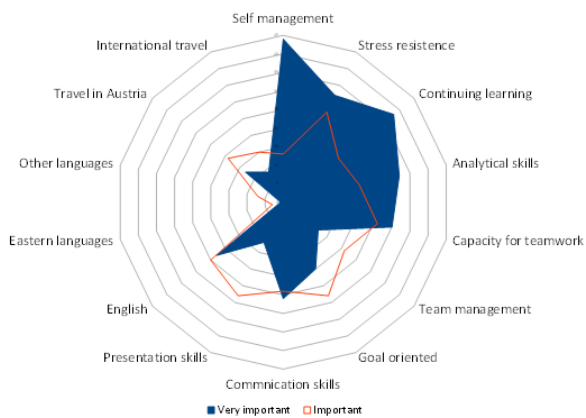
The participants were asked to assess the current relevance of soft skills in comparison to the last 5 years. The result of all respondents said that there has been no change and the soft skills were then as important as now. However, in the telecommunications sector and the remaining sectors more participants believe “they have become more important” than “it had not changed”.

Having regard to the future development of soft skills it can be said that there is a balanced view of all the branches which have the opinion that the skills remain constant or will move up in importance.

Another issue was the training of academic institutions and their current mix of social and professional trainings. More than 58% of all respondents think that the current mix is appropriate but almost 31% would increase the social training on soft skills.

The participants from the telecommunications industry have the opinion that the ratio of soft skills to the technical training should be between 20-40% on the academic trainings. In IT, however, only the proportion 11%-20% of soft skills training to professional is required.

Figure 6: Miscellaneous soft skill demand



If the soft skills were analyzed based on the position in the company, “self-management” is at the top of all participants. In management and IT positions “resistance to stress” is perceived as “important” and “willingness to travel internationally” as “less” to “not important”.

When asked about certificates, a distinction between IT technical training and soft skills was made. Almost the half of all respondents (48%) holds professional training certificates to be important. In the soft skills the majority (38%) think these certificates don’t care. Anyway, nearly 34% considered it as “important”.

When asked about the frequency of IT training in the sum of all respondents, over 50% named “sometimes” and 72% “in external training”. 71% of all respondents make self-training material available. Almost 77% of all respondents said that soft skills are just as trainable as technical skills. Although about 55% provide external trainings on soft skills, but only 33% have indicated “sometimes” and 36% “rare” to get soft skill trainings. Thus the ratio of technical to social trainings is definitely on the technical side.

81 % of all respondents rely on technical skills, however, only 19% emphasize on social skills. This should be clarified on a fictional example. The question was about a choice between two candidates for an advertised position. The participants should asses to what extent a “reclusive, silent specialist” obtains advantage against the “open, communicative all-rounder”. Almost 46% of all respondents said that it depends on the situation, but second place was the all-rounder with more than 42% of the responses.

CONCLUSION

The result shows that soft skills play an important role in technical fields. The most important skills are “self-management”, “teamwork”, “analytical skills” and the “learning and training readiness”. Communication,

language, and presentation skills remained broadly on track in this survey.

The requirement of the economy is present, but the soft skills are less promoted than technical skills. What are the reasons for that? It means that either the soft skills are assumed as prerequisites, or it is assumed that they are easy to be learned. For recent graduates or new entrants into a new area it can pose a challenge not “only” to be a technician. Here, the right awareness and the need to train them even with external institutions have to be turned out first.

The academic trainings in soft skills are highly needed. Respondents voted either for a stronger development in those areas or at least no reduction. In general the current relationship between technical and social training seems to be good.

The evaluation of the results in terms of position in the company stresses out the already existing requirements, except to “stress resistance”. Especially in technical areas, this is an essential requirement and should be promoted accordingly. In such situations, care and treatment decide on projects or in high-risk accounts.

The assessment of the respondents in terms of prognosis cannot be supported by the authors of this paper. In contrast to the result, it will come to an increased demand for teamwork, organization and communication in the future, especially in higher positions. The technical skills are indeed still on demand and also present, but nothing helps the best employee if he doesn’t understand the seriousness or the meaning behind a cause or a project. The classic programmer is getting closer to the customer and this creates a trust and shows new opportunities for solving problems or needs. It has been shown that direct communication is the best and quickest solution between these groups (e.g. customer and programmer). To e.g. prepare the programmer for direct customer contact, they should be trained. Every employee contributes inevitably to a company’s image and should leave the best possible impression and a satisfied customer. On the one hand this may promote the revenue and on the other hand it results in a customer loyalty.

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