

HIGER EDUCATION IN TIMES OF COVID: IMPACT ON THE QUALITY OF INTERNSHIP PROGRAM

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Abstract

Internship is an integral part of a professional course at higher education institutions, which is directed to the application of knowledge and skills in the business world (work-based learning). Internships contribute to a number of positive changes in the development of the economy and innovation and in strengthening the cooperation between universities and the economy. Recent scientific studies show that the internship experience is important for students to see the application of acquired knowledge in practice as well as for potential future employers who gain insight into knowledge and skills of students - future employees. The work in the conditions of the COVID 19 pandemic during the past two years has affected the development and the quality of internship.

This paper presents the results of the analysis of the attitudes, knowledge and experiences of students acquired through internship as well as the impressions of employers at the level of students' knowledge organized by the Faculty of Geotechnical Engineering of the University of Zagreb, Croatia. The research was conducted on four occasions in the time period 2017-2021 using the same survey method with a total of 121 students just before their entering the labour market and 130 employers who are partners of the Faculty for many years. Special analysis in the fourth analysed year was dedicated to the conduct of internship programs in the conditions of COVID 19 pandemic.

Research results contain a description of internship in the observed period with special reference to the manner of implementation and working conditions in the pandemic year. In all observed years, employers are most satisfied with the work of students in the team, students' motivation and the desire for further training. What employers are least satisfied with is the practical knowledge and skills needed to perform the internship. Through all four academic years, students are most satisfied with the adequacy of internship with regard to the study program and internship's mentors. They were least satisfied with the role of the Faculty in the organization of internship, the adequacy of communication with them and the possibility of independent work in the scope of internship. In the last pandemic year, the satisfaction of students with internships in most of the analysed segments significantly decreased. Nevertheless, satisfaction with the role of the Faculty in the organization of internship has increased. Employers expressed the burden of organizing internships in pandemic conditions and the little time they could devote to students in those conditions. The recommendations indicate the continuing need for better communication between the Faculty and the employers and the provision of additional information about students in order to prepare assignments in a timely manner and in accordance with the interests of students. Also, the COVID 19 pandemic has shown that it is very easy to perform administrative tasks online and through e-services, and it is recommended to introduce an e-form internship diary and questionnaire in order to reduce the administrative burden of internship and thus leave more time for better implementation of internships.

Keywords: internship, higher education, employers, student, COVID 19 pandemic

1. INTRODUCTION

Internship is an integral part of a professional course at higher education institutions, which is directed to the application of knowledge and skills in the business world (work-based learning). Internships contribute to a number of positive changes in the development of the economy and innovation and in strengthening the cooperation between universities and the economy. Recent scientific studies show that the internship experience is important for students to see the application of acquired knowledge in practice as well as for potential future employers who gain insight into knowledge and skills of students - future employees (Tišma et.al.2021). These studies have been confirmed by recent studies related to the impact of the Corona virus pandemic over the past two years. Namely, today the education system around the world is facing online, hybrid, partial, assisted and similar forms of teaching, for the challenges of which some countries were less and some more ready. Education is one of the sectors hardest hit by the negative effects of the Covid-19 pandemic. Countries strive to support their pupils and students with education through a variety of distance learning techniques and tools and to avoid interruption of education (Özer M., 2020). In the past two years, the consequences of distance learning have shown less activity of students in performing tasks, poor understanding of the content, but also inconsistencies of professors and teachers who had to transfer their work to the Internet in a short time, often without prior education. Furthermore, it was noticed that the students began to understand the importance of professors, teachers and mentors in the learning and teaching process and how difficult it is to replace the living word and work in practice with any form of online participation (Aladrović Slovaček K., 2020). The closure of schools and faculties has raised a number of questions and concerns among all where a certain part of the fund of teaching hours relates to practical teaching and professional practice with employers, which form the basis of education for certain occupations. Exercises were also stopped, so it was no longer possible to hold consultations, while the internship mostly tried to be held in the premises of employers in compliance with all epidemiological conditions (Pešut, 2021). For example, a study conducted at the Faculty of Health Studies, International University of Rijeka, Republic of Croatia, examined the experience and attitudes of 2nd and 3rd year nursing students on e-learning during the COVID-19 pandemic in the 2019-2020 academic year. The results obtained by the research showed that e-learning reduces social contact among students, that conducting e-teaching and the inability to maintain professional practice has a demotivating effect on students and that the experience of e-learning has improved students' digital skills (Ratković K., 2020). Universities were tasked with implementing technology grants and training faculty to use such tools. This process made it possible to visualize the shortcomings of the public university system that warn of potential problems in the implementation period, and may lead to future questioning of the quality of vocational training due to the fact that evaluation competencies have not been discussed or defined (Jacinto Joaquín Vértiz Osoreo et al., 2020). Olmedo-Moreno et al. have also conducted a study of motivation to learn among students in the context of COVID-19. One of the main findings was that there are significant differences in student motivation to work and study before and during the epidemic period. It has proven to be more difficult to encourage them to take further steps, mastering major efforts, additional work and volunteering (Olmedo-Moreno et al., 2021). It has been shown that as much as online teaching provides a range of work opportunities, the fact is that it will never be able to replace conversation and practical work (Kučan I. et al., 2021).

2. METHODOLOGY

During the period of the COVID 19 pandemic graduate students of the Faculty of Geotechnical Engineering of the University of Zagreb regularly performed the required internship of 160 working hours (20 working days) with one or more employers with whom the Faculty has signed a cooperation agreement. As in previous years, the students kept a Diary of Professional Practice, of which the Questionnaire on Satisfaction with Students in Professional Practice is an integral part. Employers also filled out a survey on student job satisfaction in professional practice. The work in the conditions of the COVID 19 pandemic during the past two years has affected the development and the quality of internships.

The results of the research of the attitudes of students and employers on the importance of internship in higher education institutions in engineering presented in this article are based on the desk analysis and data analysis further backed up with qualitative methods. Desk analysis included an in-depth review of relevant policy documents and scientific literature (books, articles) as well as available Internet sources. Data analysed in the article are collected through questionnaires filled in by employers and students.

The analysis of questionnaires on the satisfaction with internship students was conducted on a sample of 130 employers - 19 in the academic year 2017/2018, 37 in the academic year 2018/2019, 35 in 2019/2020, and 39 in the academic year 2020 / 2021. At the same time, analyses of questionnaires on student satisfaction with

internship were conducted on a sample of 121 students - 19 in the academic year 2017/2018, 35 in the academic year 2018/2019, 35 in 2019/2020, and 32 in the academic year 2020/2021.

The questionnaires filled in by employers was divided into two parts. In the first part, the employers were asked to rate from 1-5 the following elements regarding the satisfaction with internship students: qualification of the student for internship; student's motivation for work; theoretical knowledge of the student required to perform the internship; practical knowledge and skills required to perform the internship; student's independence in work; student's work in a team; student's desire for further training; and satisfaction with the role of the Faculty of Geotechnical Engineering in the organization of internship. The second part of the questionnaire was made of open-ended questions where employers were asked what they liked and/or disliked about students' work. Also, in the second part of the questionnaire, employers were asked for suggestions for improving the internship.

The questionnaire on students' satisfaction with internship was also divided into two parts. In the first part, the students were asked to rate from 1-5 the following elements of the internship: the quality of the organization of the internship by the employer; conditions for work and performance of student internship; appropriateness of student internship with regard to the study program; adequacy of communication with the student; possibility of independent work within internship; participation in teamwork; satisfaction with a mentor in the internship; and satisfaction with the role of the Faculty of Geotechnical Engineering in the organization of internship. The second part of the questionnaire was also made of open-ended questions that asked students what are the good and bad sides of the internship and how to improve it.

3. RESULTS

Although the past academic year was the year of online lectures and lock downs in most European countries, professional practice at the Faculty of Geotechnical Engineering at the University of Zagreb took place according to the regular program of the employer code, but with special pandemic prerequisites. This year as well as in previous years after the internship, both employers and students filled out a questionnaire on satisfaction with the internship. This chapter presents the results of the survey on satisfaction with the internship in the academic year 2020/2021 compared with the satisfaction with the internship in the previous academic years in order to analyse the effects of COVID-19 pandemic on the quality of internship.

3.1. Employers

Questionnaire on the satisfaction with internship students in the academic year 2020/2021 was completed by a total of 39 employers. The results indicate that, overall, employers are mostly satisfied with internship students. The average grade of the qualification of students for internship is 4.66, with 66.7% of employers rating it as excellent, 28.2% as very good, one as good, and one could not assess. The motivation of students to work by the majority of employers (92.3%) was assessed as excellent, two employers considered it very good, while one could not assess it, which gives the average grade of 4.95. Average grade of the theoretical knowledge of students required to perform the internship is 4.58, with 64.1% of employers rating it excellent, 25.6% as very good and one employer as good.

The element of the student internship the employers are least satisfied with is the practical knowledge and skills required to perform the internship, with an average grade of 4.55. This element was rated as excellent by 22 employers (56.4%), as very good by 15 employers (38.5%), while one of the employers rated it as good and one could not assess. On the other hand, with an average grade of 4.87, employers are very satisfied with student's independence, with 87.2% of employers rating it as excellent. Student's work in a team was rated as excellent by 37 employers (94.9%), which gives an average grade of 4.97, while the student's desire for further training by 38 employers (97.4%) was assessed as excellent. The majority of employers, 71.8% rated excellent satisfaction with the role of the Faculty of Geotechnical Engineering in the organization of professional practice, 17.9% rated them very good, which gives the average grade of 4.7.

The results of the questionnaires for the academic year 2017/2018 showed that employers are most satisfied with the motivation of students for work and the independence of students in their work, while they are least satisfied with the theoretical knowledge of students needed to perform internship.

In the academic year 2018/2019 employers were most satisfied with the work of students in the team, the motivation of students to work and the desire of students for further training. As in the previous academic year, employers were the least satisfied with the theoretical knowledge of students needed to perform internship.

As in previous years, in the academic year 2019/2020 employers were most satisfied with the work of students in the team, student motivation and the desire for further training. What employers are least satisfied with is the practical knowledge and skills needed to perform the internship and the ability of students for professional internship.

Compared to the previous three academic years, the results of the survey in the time of the COVID-19 pandemic are quite similar. However, it is important to emphasize that in the academic year 2020/2021 satisfaction with all segments individually is significantly lower than in previous years, especially in the elements regarding the theoretical and practical knowledge and skills required to perform the internship. Additionally, satisfaction with the role of the Faculty of Geotechnical Engineering is significantly lower than in previous years. On the other hand, student's work in team in 2020/2021 was rated higher than in the previous three years (Figure 1).

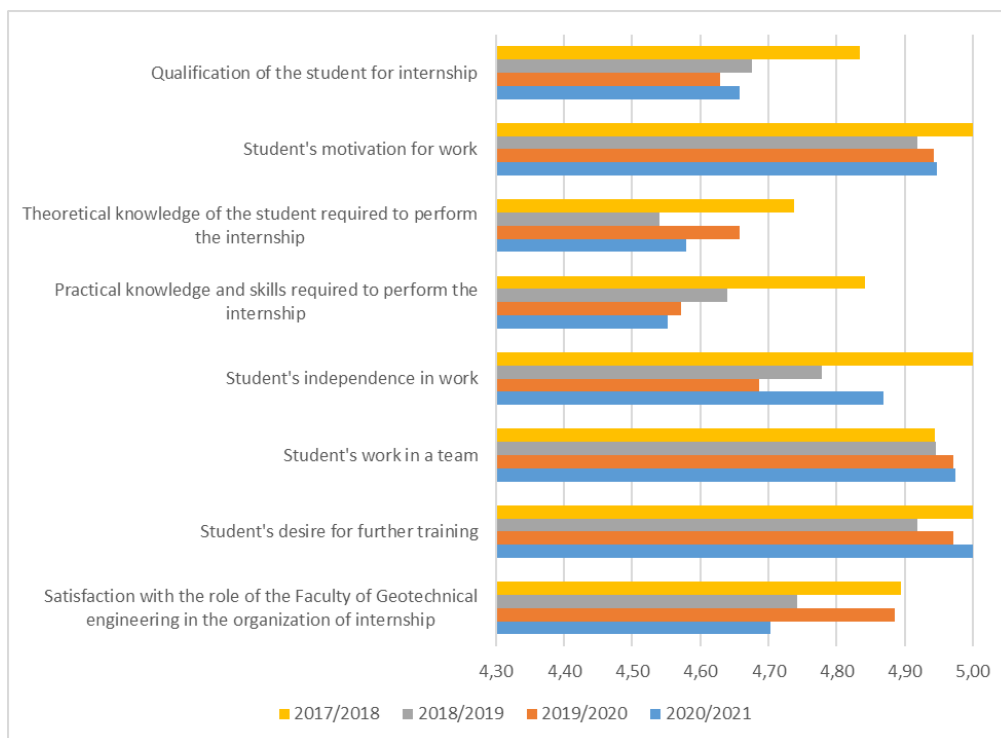


Figure 1. Results of the survey on satisfaction with internship students in academic years 2017/2018, 2018/2019, 2019/2020 and 2020/2021

When asked what they liked most about the work of students, most employers answered motivation (28.2%), interest (23.1%), desire to learn (10.3%) and willingness to work (10.3%). In addition, employers mentioned diligence, linking theory with practice, effort and commitment, previously acquired knowledge, resourcefulness, adaptability to teamwork, participation in all work processes, communication, rapid acquisition of new knowledge and skills, coping in field work, independence, commitment, orderliness, accuracy, curiosity, organization and visible progress of students.

In order for the professional practice to be better performed, it was proposed to emphasize in advance the areas of interest of students in order to supplement the practical part of the acquired theoretical knowledge and to be able to direct them to specific areas. Also, two employers stated that there is too much administrative work around professional practice and that it would be more practical to introduce online documentation or e-forms of diaries and questionnaires. Other suggestions for improving professional practice include more frequent exchange of students in order to acquaint as many students as possible with the application of theory in practice and conducting practice at a time when it is most suitable for certain jobs so that students make the best opportunity to supplement theoretical knowledge with practical ones.

3.2. Students

A questionnaire on student satisfaction with internship in the academic year 2020/2021 was completed by 32 students. The average grade of the quality of the organization of internship by the employer was 4.77, with 81.3% of students rating it as excellent, 5 as very good and one as good. Conditions for work and performance of student internship was rated as excellent by 29 students (90.6%) and as very good by the rest of them, which gives the average grade of 4.91. Appropriateness of student internship with regard to the study program was given the average grade of 4.81, with 84.4% of students rating it excellent, 4 considering it very good and one finding it good.

The students were the most satisfied with the adequacy of communication with the student where 96.9% rated it excellent, which gives the average grade 4.97. The same average grade was given to mentors the students had in the internship. On the other hand, with an average grade of 4.47, students were least satisfied with the possibility of independent work within the internship - 21 students consider it excellent, 6 very good, 4 good and one sufficient. Participation in team work was rated excellent by 26 students (81.3%) and very good by four students. One student considered participation in teamwork good, while one could not evaluate, which gives the average grade 4.81. Finally, satisfaction with the role of the Faculty of Geotechnical Engineering is given the average grade 4.77 with 25 students rating it excellent, 5 very good and the rest rating it as good.

Analysis of questionnaires on student satisfaction with internship in the academic year 2017/2018 showed that students were most satisfied with the adequacy of communication with them and mentors they had in the internship, while they were least satisfied with the appropriateness of student internship with regard to the study program, organization of internship by employers and the role of the Faculty of Geotechnical Engineering.

Unlike the previous one, in the academic year 2018/2019 students were most satisfied with the appropriateness of student internship with regard to the study program and mentors in internship. They were the least satisfied with the role of the Faculty of Geotechnical Engineering in the organization of internship, the adequacy of communication with them and the possibility of independent work within the internship.

In the academic year 2019/2020 students were most satisfied with the conditions for work and performance of student internship and mentors they had in internship, while they were least satisfied with the possibility of independent work within the internship, participation in teamwork and the role of the Faculty of Geotechnical Engineering in the organization of internship.

Compared to the previous three academic years, the results of the survey in time of the COVID-19 pandemic the satisfaction of students with the conditions for work and performance of student internships, participation in team work and mentors they had on student internships significantly increased. Also, the satisfaction with the role of the Faculty of Geotechnical Engineering in the organization of professional practice has increased. On the other hand, the satisfaction with the possibility of independent work within the student internship has significantly declined compared to previous years.

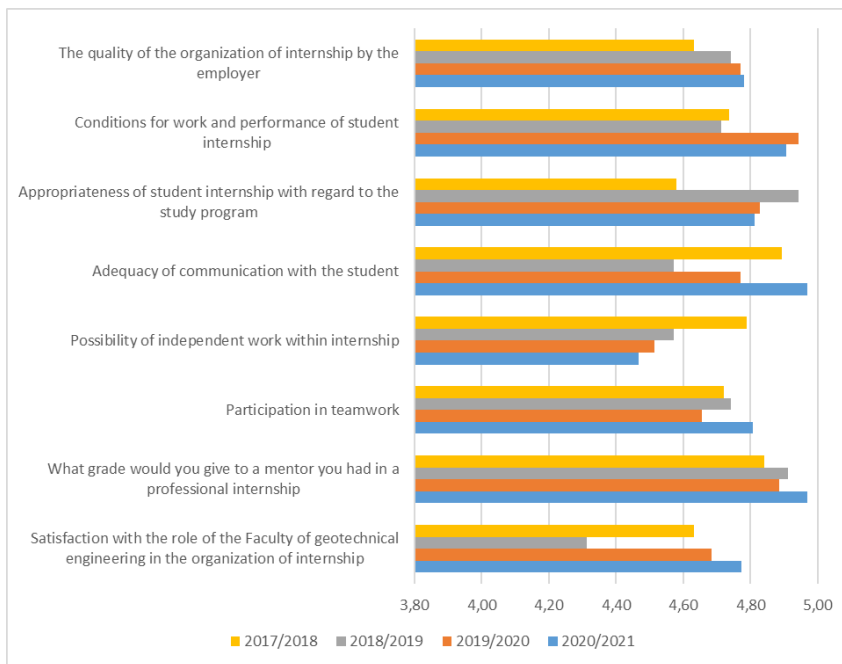


Figure 2. Results of the survey on student satisfaction with internship in academic years 2017/2018, 2018/2019, 2019/2020 and 2020/2021

When asked what they liked most about the student internship, the majority of students (21.9%) answered the pleasant working atmosphere and the attitude of employers and mentors towards students (18.8%). In addition, students praised the expertise of mentors and employers, the ability to participate in fieldwork, friendliness, cooperation, teamwork, the ability to apply theoretical knowledge in practice, work organization, accessibility, commitment and patience of mentors and employers, diversity of work, communication, professionalism, the possibility of independent work, gaining new knowledge and experience, but also easy work, few obligations and a guaranteed lunch. Suggestions for improving student internships include extending the duration of student internships, the possibility of doing student internships more than once, doing student internships during the summer, and abolishing the internship diary.

4. CONCLUSIONS AND RECOMMENDATIONS

The COVID-19 pandemic has proven to be the most devastating, fastest and most unpredictable crisis in the world, which is difficult for adults to cope with and how much impact it has on the psychophysical development of children and youth and its results in the educational process will be determined in the future. Teaching and lecturing live in a classic classroom, practicum or other institution still has a great advantage over teaching in an online environment. A special problem was shown in the performance of professional internships required at most faculties in the Republic of Croatia as an indispensable part of preparing students for the inclusion in the labour market. Classical professional practice gives students a real insight into the issues that may arise in the process of work, enables social contacts, builds teams and strengthens collaborative values. On the other hand, teaching in an online environment requires students to know the various information technologies used in this form of teaching. In the future, changes are expected that will accelerate the digitalization of the educational process at all levels, and thus certainly in the preparation and development of professional practice. The results of the survey of employers and students on the example of the Faculty of Geotechnical Engineering, University of Zagreb, Republic of Croatia show that in the academic year 2020/ 2021 employers were most satisfied with the desire for further training and motivation of students to work, while they were least satisfied with the practical knowledge and skills needed to do the internship, theoretical knowledge and skills needed to do the internship and the ability to do internships.

The results of the analysis are quite similar to the previous three academic years, but it is important to emphasize that in the academic year 2020/ 2021 the satisfaction with all segments individually is significantly

lower than in previous years. Recommendations after the first analysis of students' professional practice were better communication between the Faculty and the company and the provision of additional information about students to employers in order to prepare assignments in time and in accordance with the interests of students. Since the satisfaction with the cooperation of the Faculty of Geotechnical Engineering received the lowest grade in the academic year 2020/ 2021 and that employers stated that in order to improve professional practice it would be desirable to know the area of interest of students, the recommendations after the last analysis have not been applied and should be implemented.

In the academic year 2020/2021 students were most satisfied with the mentors they had in professional practice, the adequacy of communication with them and the conditions for work and student practice, while they were least satisfied with the opportunities for independent work within student practice and the role of the Faculty of Geotechnics in professional practice.

Compared to the previous three academic years, in 2020/ 2021 the satisfaction of students with the conditions for work and performance of student internships, participation in team work and mentors they had on student internships significantly increased. Also, satisfaction with the role of the Faculty of Geotechnical Engineering in the organization of professional practice has increased. On the other hand, the satisfaction with the possibility of independent work within the student internship was significantly less than in previous years.

The results of the analysis of the satisfaction of students are quite similar to the previous three academic years, but it is important to emphasize that in the academic year 2020/ 2021 the satisfaction with all segments individually is significantly lower than in previous years. Recommendations after the first analysis of students' professional practice were to further increase the number of Cooperation Agreements as more companies obviously affect the better quality of student professional practice and greater student satisfaction with professional practice, and greater involvement of the Faculty in professional practice, better organization and greater engagement of mentors. Since the satisfaction with the role of the Faculty of Geotechnical Engineering in the organization of professional practice is significantly higher than in previous years, the recommendations were adopted. However, it is necessary to continue working on increasing the involvement of the Faculty.

The COVID-19 pandemic has shown that the uncertainty of internships has increased both among students and employers. The employers tried to prepare the professional practice according to all standards as in previous years in the same scope and according to the same curricula. They took responsibility for the health of students in their working environment and ensured the implementation of all legally prescribed epidemiological measures. Students had expressed uncertainty about the sustainability of the processes and procedures in which they had to participate according to the schedule and plan of employers. Although the satisfaction with the professional practice in the pandemic year is somewhat lower than in previous years when the professional practice was implemented, some progress and steps are still visible. For example, it has been shown that it is very easy to perform administrative tasks online and through e-services, and it is recommended to introduce an e-form of professional practice diary and questionnaire in order to reduce the administrative burden of professional practice to employers.

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