Perceptions and Attitudes of Supervisors Toward Students' Internship in the Virtual Environment at Faculty of Humanities and Social Sciences in Osijek

Papić Anita [1], Vesna Bjedov [1]

[1] *Faculty of Humanities and Social Sciences, Lorenza Jägera 9, Osijek, Croatia*

Abstract – The purpose of this paper is to conduct a research regarding perceptions and attitudes of supervisors toward students' internship in the virtual environment at Faculty of Humanities and Social Sciences in Osijek. An instrument for gathering data from supervisors of students' internships was an online survey sent to a suitable sample of supervisors of students' internships. The four categories of supervisors were created by cluster analysis K-means regarding the usage of virtual environment in the teaching process. The simple analysis of variance was conducted to describe the clusters, where the cluster represented an independent variable. The results of descriptive and inferential statistics are presented in the paper and the Bonferroni post-hoc test was conducted. Regarding a comparison of students' internships in virtual environment and the traditional students' internship in physical space, the supervisors of students' internships perceived a great advantage of conducting students' internship live. In fact, supervisors of students' internships from different clusters do not differ in their answers which are in favour of the advantages of students' traditional internships. It can be concluded that all participants in the research pointed out the advantage of a traditional students' internships in real space and in the immediate contact to students.

1. Introduction

The traditional students' internship is sometimes not a good choice, especially for computer science or information technology students, which has been particularly evident in the crisis situation of the COVID-19 virus pandemic [3], but also due to the major impact of the development of the gig market [5].

In connection with the concept of internship in a virtual environment, we find the following English terms in the literature: remote internship, virtual internship, online internship, and e-internships which boil down to the definition that an internship that takes place in a virtual environment is a partially or fully computer-assisted internship provided by the employer or institution for the participant [8]. NACE – Department of Education and the National Association of Colleges and Employers defines virtual internship as legitimate and useful internship experience of students [5]. Furthermore, according to NACE – Department of Education and the National Association of Colleges and Employers, the following criteria must be met for the internship to be considered a legitimate and beneficial experience for students: (1) the learning experience must be an extension of the traditional classroom, i.e. a learning experience that ensures the application of knowledge gained in the classroom, (2) the skills or knowledge gained must be transferable to other business settings, (3) the learning experience has its beginning and end as well as the job description and desired qualifications, (4) it has clearly defined learning objectives related to the professional goals of the field of study, (5) it is supervised by a professional supervisor, (6) there is feedback from an experienced professional supervisor, and (7) resources and equipment are provided.

Following the trend towards internationalization [9], they emphasize the importance of virtual

mobility in the context of student exchanges at university level. Furthermore, the same authors state that the ideal internship would be a hybrid of virtual and live internship.

They point out that the internship of students in a virtual environment has been insufficiently researched [7].

According to [10], the advantages of internships in a virtual environment are e.g. mobility, flexibility, different countries and economies, lower costs, creativity in choosing the location of internship, use of English language, networking with the professional community, etc., and the disadvantages of internships in a virtual environment are e.g. self-organization, lack of physical access to equipment, lack of social interaction, different time zones, communication problems, possible misunderstandings, etc.

According to [6], the following sectors are closely related to internships in a virtual environment: software /IT/ websites; marketing/advertising/PR; Media; publishing: business services/entrepreneurship; sales/customer services; Research; consultation; education and charity work. Moreover, switching to a virtual internship can result in considerable financial savings, which is of course not a negligible advantage of conducting student internships in a virtual environment. Virtual student internships are very suitable for tasks that can be performed remotely, such as creating websites and applications, digital marketing, user experience design (UX – user experience), analytics of large amounts of data (big data) etc.

Bayerlein and Jeske [2] conducted one of the first systematic studies aimed at comparing students' learning outcomes in traditional internships and computer-assisted internships, including simulated internships. Despite the numerous limitations of the aforementioned research, the authors highlight the great potential of computer-assisted simulated internship.

By introducing students to an internship in a virtual environment, students are actually prepared to work in real virtual business environments where interdisciplinarity and teamwork are essential. Virtual internship is suggested by [13] for project learning in smaller teams as a very effective way of learning.

In Australia, [12] has developed a simulation game TPACK (teachers' technological pedagogical content knowledge) aimed at trainee teachers who, through this simulation game, are given real roles, work on real tasks, and participate in expert discussions, which has proven to be an excellent example of methodological internship in a virtual environment.

A recent study conducted by [11] in the Philippines during the COVID-19 pandemic among future English as a second language teachers on students' internship in a virtual environment found that the future teachers faced the following challenges: (1) interaction in a virtual environment, (2) lack of confidence due to teaching, and (3) technical difficulties. Despite the challenges mentioned, the same research found that internships in a virtual environment offer students the following opportunities: (1) developing autonomy, (2) collaborating with a supervisor, and (3) developing teaching strategies in a virtual environment.

Referring to the University of Florida's experience of conducting internships in a virtual environment, especially during to the COVID-19 pandemic [4], it is believed that this form of internship should be supported due to the issue of availability and equal access for students from geographically distant places, students with poorer financial status and students with difficulties.

A research conducted at universities in Vietnam revealed the following three areas to improve students' internship in a virtual environment: learning outcomes of the internship, support in carrying out internships in a virtual environment, and assessment of internships in a virtual environment [14].

Online internships have a number of benefits such as: improved organizational access to diverse talent, flexibility in time and space, autonomy and independence in problem solving and self-management, and preparation for the "digital nomad" market [1]. According to the same authors, the online internship of students poses numerous challenges, such as: insufficient familiarity of those involved with this type of internship, difficulties in establishing social contacts and the inappropriateness of this type of internship for certain professions [1]. However, according to [3], forecasts indicate that this type of internship will continue in the future, even after the COVID-19 pandemic.

The research questions posed in this study are as follows:

RQ1: How do the supervisors see the internship of the students of the Faculty of Humanities and Social Sciences in Osijek in the virtual environment compared to the traditional internship of the students and what is their attitude towards it?

RQ2: How do the supervisors see the internship of the students of the Faculty of Humanities and Social Sciences in Osijek in a virtual environment in terms of their digital competences and what is their attitude towards it?

RQ3: How do the supervisors see the internship of the students of the Faculty of Humanities and Social Sciences in Osijek in a virtual environment

with regard to the communication between supervisors and students and what are their attitudes towards it?

2. Methodology

The aim of this paper is to investigate the perception and attitude of supervisors towards the internship of students of the Faculty of Humanities and Social Sciences in Osijek in a virtual environment in order to gain relevant insights that are important for the organisation and implementation of internship in (non-)teaching studies in a virtual environment for their improvement not only at the Faculty of Humanities and Social Sciences in Osijek, but also beyond.

The instrument for data collection from the supervisors of internships of students at the Faculty of Humanities and Social Sciences in Osijek was an online questionnaire, which was sent by e-mail to a suitable sample of supervisors of internships of students at the Faculty of Humanities and Social Sciences in Osijek in May and June 2023.

Using the k-means cluster analysis, four categories of supervisors were formed depending on how the virtual environment is used in the teaching process. In order to describe the clusters, a simple analysis of variance was performed in which the cluster represented the independent variable. The results of the descriptive and inferential statistics are shown in Tables 1-3. The Bonferroni post-hoc test was performed.

3. Results and Discussion

Using an online questionnaire sent by e-mail in May and June 2023, to a suitable sample of supervisors at internships at the Faculty of Humanities and Social Sciences in Osijek from the internal database of the Faculty of Humanities and Social Sciences in Osijek in two iterations, a total of 80 completed questionnaires were collected.

The demographic data of the study participants were as follows: by gender, 6 (7.5%) were male supervisors and 74 (92.5%) were female supervisors; by age, supervisors were on average 45 years old (M=44.89, SD = 9.05); by seniority, supervisors had an average seniority of 20 years (M=19.5, SD= 9.04).

The following professions were represented according to the profession of the supervisors who took part in the survey: Library and Information science; Croatian Studies; English Studies; Psychology; Pedagogy; History; and Other Professions (Table 1).

Table 1. Profession of supervisors at the students' internships

Profession	Frequency	Percentage
Library and Information science	25	31.3
Croatian Studies	13	16.3
English Studies	12	15.0
Psychology	7	8.8
Pedagogy	5	6.3
History	3	3.8
Other	15	18.8
Total	80	100.0

Using a simple k-means cluster analysis, four categories of supervisors were formed depending on how the virtual environment is used in the teaching process. To form clusters, the values of the variables were used: "*As a supervisor, I am fully qualified to supervise internships in a virtual environment*", "*I have all the necessary digital competencies to work in a virtual environment*", "*I have all the necessary digital tools to work in a virtual environment*" and "*I normally use digital platforms at work*".

In order to describe the clusters, a simple analysis of variance was carried out in which the clusters represented the independent variable and the above-mentioned questions the dependent variable. The results of the descriptive and inferential statistics are shown in Table 2. As the clusters differ from each other in most cases, only those differences between the clusters are shown for individual questions where there are no differences. According to the Bonferroni post-hoc test, we see that the untrained supervisors for supervising students' internship in a virtual environment do not differ from the opponents of supervising students' internship in a virtual environment in terms of training for supervising internship in a virtual environment. Next, those opposed to supervising students' internship in a virtual environment do not differ from those in favour of supervising students' internship in a virtual environment in terms of the level of possession of digital competencies and tools for working in a virtual environment, and they do not differ from the unfamiliar supervisors in terms of the use of digital platforms. All other comparisons are statistically significant.

Table 2. Descriptive statistics and F-ratios of analysis of variance

	Cluster	M (SD)	F (3, 74)	Post-hoc test
As a supervisor, I am fully qualified to supervise professional internships in a virtual environment	Untrained	3.16 (0.850)		
	Opponents	3.43 (0.976)	42.80**	Untrained = Opponents
	Advocates	4.51 (0.562)		
	Unfamiliar	1.73 (0.905)		
	Total	3.59 (1.221)		
I have all the necessary digital competencies to work in a virtual environment	Untrained	3.52 (0.770)		
	Opponents	4.57 (0.535)	73.30**	Opponents = Advocates
	Advocates	4.60 (0.497)		
	Unfamiliar	1.64 (0.505)		
	Total	3.83 (1.178)		
I have all the necessary digital tools to work in a virtual environment	Untrained	3.00 (0.577)		
	Opponents	4.14 (0.690)	80.80**	Opponents = Advocates
	Advocates	4.69 (0.471)		
	Unfamiliar	1.91 (0.831)		
	Total	3.71 (1.186)		
I normally use digital platforms at work	Untrained	3.72 (0.678)		
	Opponents	2.57 (1.134)	56.38**	Opponents = Unfamiliar
	Advocates	4.69 (0.471)		
	Unfamiliar	2.00 (0.775)		
	Total	3.81 (1.174)		

** - $p < .01$; The post-hoc test shows the relationships between the arithmetic means of the responses on which the groups of participants do not differ according to the cluster analysis. All other comparisons are statistically significant at the $p < .05$ level.

In order to better describe the individual clusters, the results of the arithmetic means (listed in Table 2) for all four questions are shown separately for each cluster in Figure 1. In addition to the arithmetic means, the intervals in which the estimate of the true arithmetic mean can be found with 95% confidence are also shown.

The last group or cluster is the unfamiliar supervisors, which includes participants who are not trained, do not have digital competences or digital tools, and therefore make insufficient use of digital platforms for supervising internship in a virtual environment.
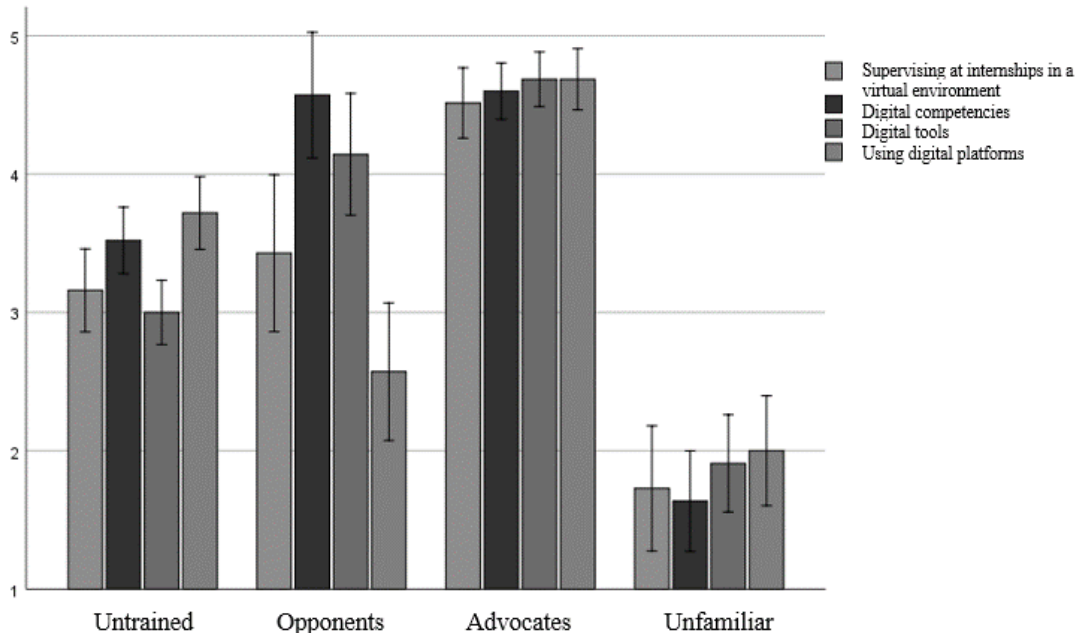

Figure 1. Display of arithmetic means according to cluster membership

Figure 2 shows the distribution of participants according to four clusters (N = 80): (1) advocates, 45%; (2) untrained, 32%; (3) unfamiliar, 14% and (4) opponents, 9%.
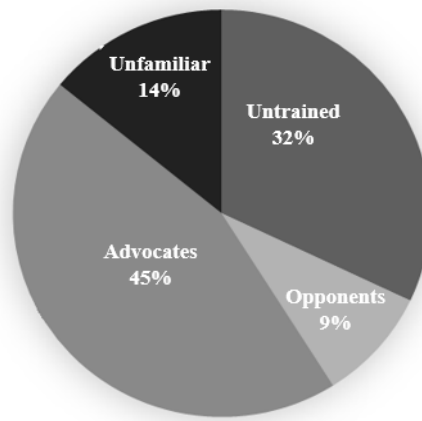
Figure 2. The distribution of participants according to four clusters (N = 80)

When we look at the benefits of supervising student internships in a virtual environment compared to traditional supervising of student internships in a physical space, participants highly valued the benefit of supervising student internship in a real space.

The response scale consisted of a semantic differential in which the advantages of traditional supervision of student internship in direct contact were marked with negative numbers and the advantages of training in a virtual environment were marked with positive numbers.

In Table 3, we see that all arithmetic mean values are negative, which means that the participants prefer face-to-face communication in the classroom to the virtual environment for all the characteristics analysed.

Table 3. Descriptive statistics and F-ratios

	M	SD	F (3, 74)
Interaction with participants	-2.72	.811	0.99
Knowledge transfer	-2.20	1.141	0.07
Transfer of skills and experience	-2.42	1.111	0.29
Internship dynamism	-2.27	1.331	0.43
Quality of conducting the internship	-2.27	1.180	0.62
Participants' satisfaction with the internship	-2.04	1.335	0.19
Simplicity of internship organisation	-1.16	1.945	1.45
Internship evaluation	-1.48	1.887	0.93
Availability of the teacher	-.060	2.185	1.22
Adapting the internship to personal learning styles	-1.39	1.790	0.26
Collaborative learning	-1.65	1.773	0.28
Methodological diversity	-1.68	1.598	0.19
Flexibility in internship monitoring	-0.91	2.082	0.28

* the stated F-ratios refer to the results of the analysis of variance in which the variables listed in the table served as the dependent variable and cluster membership as the independent variable. The degrees of freedom in all cases were df1= 3, df2= 74.

These advantages of supervising student internships in real space are even more visible in Figure 3, which shows a graphic representation of arithmetic environments by characteristics: interaction with participants; knowledge transfer; transfer of skills and experience; internship dynamism; quality of conducting the internship; participants' satisfaction with the internship; simplicity of internship organisation; internship evaluation; availability of the teacher; adapting the internship to personal learning styles; collaborative learning; methodological diversity and flexibility in internship monitoring.
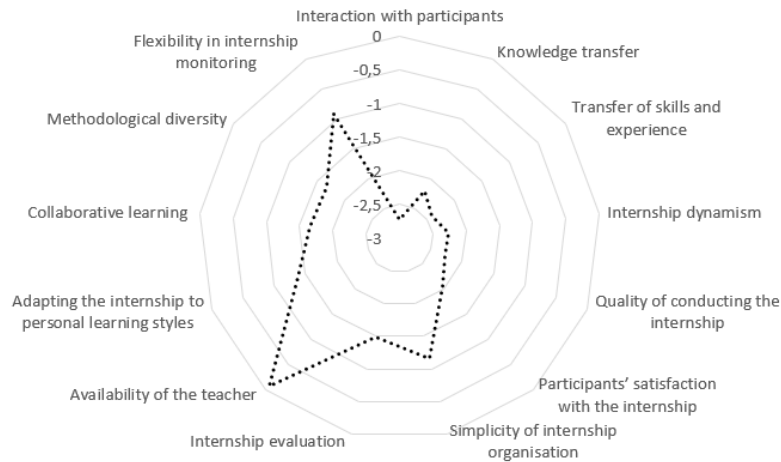

Figure 3. Display of arithmetic averages according to different characteristics of the internships

4. Conclusion

The results of the research show that the supervisors of students' internships at the Faculty of Humanities and Social Sciences in Osijek, when considering the advantages of students' internships in a virtual environment compared to the traditional internship of students in a real space, rate the advantage of maintaining students' internship in a real space very highly. The k-means cluster analysis created the following four categories of supervisors according to how they use the virtual environment in the teaching process: (1) untrained, (2) opponents, (3) advocates, and (4) unfamiliar. According to the Bonferroni post-hoc test, the untrained do not differ from the opponents of supervising in internships in the virtual environment. Furthermore, the opponents do not differ from the advocates of internships in a virtual environment in terms of the degree of possession of digital competences and digital tools for working in a virtual environment, and they do not differ from the unfamiliar in relation with the use of digital platforms. Also, supervisors of students' internships from different clusters do not differ in terms of the responses in favour of the benefits of students' traditional internships. In other words, when comparing students' internships in a face-to-face and virtual environment, all research participants readily emphasise the advantage of internships in a real physical space in direct contact with internship participants.

References:

[1]. Zegwaard, K. E., & Pretti, T. J. (2023). *The Routledge International Handbook of Work-integrated Learning.* New York: Taylor & Francis.

[2]. Bayerlein, L., & Jeske, D. (2018). Student learning opportunities in traditional and computer-mediated internships. *Education + Training, 60 (1),* 27-38. Doi: 10.1108/ET-10-2016-0157

[3]. Dent, H., & White, B. J. (2020). Virtual internships: interdisciplinary remote work for undergraduates during a pandemic. *Issues in Information Systems, 21*(3), 11-19. Doi: 10.48009/3_iis_2020_11-19

[4]. Feldman, E. (2021). Virtual internships during the COVID–19 pandemic and beyond. *New Horizons in Adult Education and Human Resource Development, 33*(2), 46-51. Doi: 10.1002/nha3.20314

[5]. Hora, M. T., Lee, C., Chen, Z. & Hernandez, A. (2021). *Exploring Online Internships amidst the COVID-19 Pandemic in 2020-2021: Results from a Multi-Site Case Study* (Paper No. 2021-5). *Wisconsin Center for Education Research.*

[6]. Jeske, D., & Axtell, C. M. (2013). E-internship prevalence, characteristics, and research opportunities. *Proceedings of the IADIS International Conference on e-Society,* 201-208.

[7]. Jeske, D., & Axtell, C. (2014). e-Internships: Prevalence, characteristics and role of student perspectives. *Internet Research, 24*(4), 457-473. Doi: 10.1108/IntR-11-2012-0226

[8]. Jeske, D., & Linehan, C. (2020). Mentoring and skill development in e-internships. *Journal of Work-Applied Management, 12(2),* 245-258. Doi: 10.1108/JWAM-09-2019-0028

[9]. Vriens, M., De Beeck, I. O., De Gruyter, J. & Van Petegem, W. (2010). Virtual placements: Improving the international work experience of students. *EDULEARN10 Proceedings,* 1175-1183.

[10]. Medeiros, A. R., Ìcen, D., Morciano, E. A., & Cortesão, M. (2015). Using virtual internships as an innovative learning technique. *IEEE Global Engineering Education Conference (EDUCON),* 262-266. Doi: 10.1109/EDUCON.2015.7095980

[11]. Ugalingan, G., Edjan, D., & Valdez, P. N. (2021). Online Internship experiences among pre-service ESL teachers in the Philippines: Challenges and opportunities. *TESL-EJ*, *25*(3).

[12]. Oner, D. (2020). A virtual internship for developing technological pedagogical content knowledge. *Australasian Journal of Educational Technology, 36(2),* 27-42. Doi: 10.14742/ajet.5192.

[13]. Tawfik, A. A., Graesser, A., & Love, J. (2020). Supporting project-based learning through the Virtual Internship Author (VIA). *Technology, Knowledge and Learning, 25,* 433-442. Doi: 10.1007/s10758-018-9392-x.

[14]. Thi Ngoc Ha, N., & Dakich, E. (2022). Student internship experiences: areas for improvement and student choices of internship practices. *Education + Training, 64(4),* 516-532. Doi: 10.1108/ET-09-2021-0337