

STUDENTS' BELIEFS REGARDING THE USE OF VIRTUAL FIELD TRIPS IN HIGHER EDUCATION GEOGRAPHY COURSES

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Abstract: The literature argues that field trips and fieldwork activities are crucial parts of geography higher education since specific characteristics of places/spaces can be completely grasped only in realistic environments. In the past few years, due to the COVID-19 pandemic and the massive cancellation of actual field trips, many higher education institutions started looking for alternatives for field-related activities and practical place-related courses. Virtual field trips are not a complete novelty in geography higher education, but up until now, they were mostly underutilized (both as a substitution for actual fieldwork and as a supplement) because of various reasons. We should be mindful that the use of virtual field trips comes with specific advantages and disadvantages as well as technical requirements. Additionally, the effectiveness of utilizing virtual field trips is influenced by beliefs held by both students and teachers. The goal of this paper is to present the beliefs and opinions of final-year geography students regarding the use of virtual field trips in their courses. The results of the content analyses illustrated common advantages and disadvantages, as well as factors that according to the students would facilitate or complicate the use of virtual fieldwork in geography courses.

Key Words: virtual field trips, geography, students' beliefs, higher education, technology-enhanced learning

1. INTRODUCTION

Some higher education programs include field trips and fieldwork activities as a mandatory requirement, especially in disciplines such as geography [1, 2]. Fieldwork is often indicated in the literature as a crucial part of geography learning at all levels of education since specific characteristics of places/spaces as well as orientation and research skills can be completely grasped only in realistic environments [1, 3, 4]. In other words, by participating in fieldwork activities students can acquire knowledge through inquiry-based learning and understand geographical phenomena beyond simple meaning or just naming places/spaces and processes [5]. However, despite clear benefits, the prevalence of fieldwork in higher education geography programs is declining due to the lack of financial resources, logistical problems, safety concerns, and other issues [1, 3, 6, 7]. The COVID-19 pandemic made the situation even worse since numerous higher education institutions limited, postponed, or completely cancelled field trips [2]. A lot of field courses (and other geography courses that include field-related activities) are still not returned to pre-pandemic scenarios as the duration is shorted (reduced number of hours/days) and the place (the site where field activities were usually performed) is often changed.

Since the 1990s, virtual field trips have been promoted in the literature as an alternative to actual fieldwork [3]. Still, up until now, they were mostly underutilized in geography education because of specific disadvantages (e.g., can be difficult to create, limitations of the technology used to develop virtual fieldwork, lack of standardization, etc.) and technical requirements [8]. Virtual field trips can be defined as remote (not physical) visits to sites or areas in which students (in the classroom or from their home) can experience and explore the environment through the use of computers and other gadgets together with related software [4]. According to Çalışkan [3], there are two types of virtual field trips. In the first type, the student just observes, listens, and watches pictures, maps, 3D models, videos, and similar materials. In the second type, the student participates more actively since fieldwork simulation allows collecting and analyzing data as well. Virtual field trips that are based on the virtual reality technology (usually with the use of head-mounted displays) are called immersive [1]. There is a growing body of research about geographical and environmental immersive virtual field trips with promising results [1, 9-11].

Although it is not questionable that virtual field trips provide learning opportunities and have practical applications (especially during emergencies such as the COVID-19 pandemic), researchers like Evelpidou et al. [12] pointed out that virtual fieldwork should not and cannot substitute real geographical fieldwork (under no circumstances), but should be used as a supplement when preparing for an actual field trip or for sites that cannot be visited. In a study done by Spicer and Stratford [13], higher education biology students had similar perceptions. They

stated that virtual field trips provide valuable learning experiences but they should not replace real field trips. According to Friess et al. [7], higher education geography programs should adopt an integrated approach of combining lectures with both virtual and real field trips to enhance students' learning by creating more fieldwork-type opportunities. However, we should be mindful that students' beliefs can influence the effectiveness of utilizing virtual field trips (both as a substitution for actual field trips and as a supplement to fieldwork preparation) in geography courses since their beliefs are often shaped by the level of development of their digital competencies, perceived affordances of digital tools used for creating virtual field trips, availability of technical resources, and other factors.

2. METHOD

In this pilot study, we analyzed the opinions and beliefs of final-year geography students ($N = 10$) about the use of virtual field trips for educational purposes. Six female and four male geography students from the University of Novi Sad, Faculty of Sciences (Novi Sad, Serbia) took part in this research. The mean age of students was 23.50 years ($SD = 1.51$), and the mean self-reported level of development of digital competencies (measured on a 10-point scale) was 8.30 ($SD = 1.06$).

Before completing the questionnaire, the students were informed about the concept of virtual field trips and had the opportunity to try several examples. Among other things, the questionnaire included four open-ended questions based on Ajzen's theory of planned behavior [14] regarding advantages and disadvantages, as well as factors that would facilitate or complicate the use of virtual field trips in higher education geography courses.

Students' answers to open-ended questions were analyzed using inductive content analysis. The first three authors conducted the coding process and made lists of categories.

3. RESULTS

The results of the content analysis of the students' responses to the question, "What do you see as the advantages of using virtual field trips in geography courses?" are presented in Table 1.

Table 1. The advantages of using virtual field trips in geography courses according to the students

Advantages	Example quotes	Frequency n (%)
Visualization, better understanding and increased interest	"Everything we learn is easier to remember if it is presented visually." (S3)	4 (40)
Quick and easy access and time and money savings	"I think they are very accessible." (S7)	4 (40)
Less safety issues, reduced stress, and simplified organization process	"The use of virtual field trips is less burdensome due to less concerns about safety, and they are easier to organize than actual field trips and fieldwork." (S2)	3 (30)
Obviousness in teaching	"...an example of obviousness in teaching" (S4)	2 (20)
More opportunities for fieldwork-type activities	"...access to many places/spaces, virtual visits are like additional field classes" (S2)	2 (20)
Remote places/spaces are accessible	"Virtual field trips provide opportunities to visit distant locations." (S1)	1 (10)
Substitution for actual fieldwork	"Virtual field trips are a good substitute for actual fieldwork." (S4)	1 (10)

Note: The sum of the percentages is more than 100% because some students identified more than one advantage.

The content analysis of students' answers regarding the advantages of virtual field trips yielded seven categories. The students pointed out visualization, better understanding of learning content, increased interest, quick and easy access, time and money savings, less safety issues, reduced stress, simplified organization process, obviousness in teaching, and more opportunities for fieldwork-type activities as main advantages of using virtual field trips in higher education geography courses.

The results of the content analysis of the students' answers to the question, "What do you see as the disadvantages of using virtual field trips in geography courses?" are presented in Table 2.

Table 2. The disadvantages of using virtual field trips in geography courses according to the students

Disadvantages	Example quotes	Frequency n (%)
Not a completely adequate substitution	"It can't be compared to the actual field trip." (S9)	4 (40)

Mediated experience and absence of direct engagement and real-time	“What is shown over the Internet cannot convey the experience in person.” (S8)	3 (30)
Lack of physical experiences and not all senses included	“Geography is learned with the feet.” (S2)	2 (20)
Learning curve	“There is a long learning process involved in understanding how to utilize virtual field trips.” (S1)	1 (10)
Not as effective as real fieldwork	“You remember much better from actual visits and fieldwork.” (S6)	1 (10)

Note: The sum of the percentages is more than 100% because students could identify several disadvantages.

Five categories emerged from the content analysis of students’ answers to the question about the disadvantages of using virtual field trips in geography courses. The findings suggest that the students perceived virtual field trips as an incomplete substitution for actual fieldwork due to the lack of physical experiences and the absence of direct engagement with the environment.

The results of the content analysis of the students’ responses to the question, “Please list any factors (or circumstances) that would make it easy or enable the use of virtual field trips in geography courses.” are presented in Table 3.

Table 3. Factors that would facilitate the use of virtual field trips in geography courses according to the students

Factors (or circumstances)	Example quotes	Frequency n (%)
Dedicated time	“more time dedicated to fieldwork-type activities” (S4)	2 (20)
Students’ readiness and interest	“The readiness of students to use virtual field trips could be improved.” (S6)	2 (20)
Equipment	“Equipment necessary for virtual field trips should be available to all students.” (S4)	1 (10)
Internet connection	“good internet connection in the classrooms and students’ homes” (S8)	1 (10)
Technical support	“availability of adequate technical support” (S9)	1 (10)

Note: One student identified more than one factor. Also, five students didn’t answer this question because they thought that all factors were met for the use of virtual field trips in geography courses at their faculty.

The examination of students’ answers revealed the presence of five categories. According to the students, dedicating more time to fieldwork-type activities, improving students’ readiness and interest, and providing equipment, good Internet connection, and technical support could ease the use of virtual field trips in geography courses.

Results of the content analysis of the students’ answers to the question, “Please list any factors (or circumstances) that would make it difficult or prevent the use of virtual field trips in geography courses.” are presented in Table 4.

Table 4. Factors that would complicate the use of virtual field trips in geography courses according to the students

Factors (or circumstances)	Example quotes	Frequency n (%)
Lack of technical equipment	“insufficient equipment” (S6)	6 (60)
No or bad Internet connection	“bad internet connection” (S8)	2 (20)
Lack of motivation and interest	“lack of motivation” (S9)	2 (20)
No time for fieldwork-type activities	“no time available for fieldwork-type activities” (S4)	1 (10)
Lack of good content for virtual field trips	“if the content is not good enough” (S9)	1 (10)
Lack of financial resources	“lack of student finances and school’s financial resources” (S2)	1 (10)

Note: The sum of the percentages is more than 100% because some students identified more than one factor.

Based on the content analysis, six categories were identified. More than one student emphasized the lack of technical equipment, bad Internet connection, and lack of teachers’ and students’ motivation and interest as the main factors that would complicate or prevent the use of virtual field trips in geography courses.

4. CONCLUSION

The literature suggests that virtual field trips should be implemented in higher education geography programs and combined with real field trips to provide students with more fieldwork-type experiences. The results of the pilot study presented in this paper are mostly in line with the previous studies regarding this topic. Also, the results are encouraging since the students recognized the main advantages of the application of virtual fieldwork in geography courses as well as reported a high level of development of their digital competencies. Additionally, 50% of the students thought that all factors were met for using virtual field trips in their geography courses at the University of Novi Sad, Faculty of Sciences (Novi Sad, Serbia). Still, categories related to the disadvantages and factors that would complicate the implementation of virtual field trips indicate that it is necessary to allocate time, ensure access to equipment and Internet connection, provide technical support, and train students in order to ensure a meaningful and effective integration of virtual fieldwork in higher education geography courses.

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