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Research Note

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THE IMPORTANCE OF TEACHING EQUIPMENT IN GEOGRAPHY CLASSROOMS

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Abstract: The main aim of the research was to determine teachers' opinion on the importance of teaching equipment in geography classroom. The research was conducted during the school year 2020/2021. A total of 134 geography teachers from different districts in Serbia took part in the survey. In general, 57.5% of the participants stated that their school buildings have a specialized and separate geography classroom, while in other schools a classroom is shared between related subjects. It is interesting that 84.3% of the participants stated that in their classrooms they have internet at their disposal. Further, it was concluded that there is no statistically significant correlation between the availability of internet connection and the location of school (rural and urban). On the other hand, one of the biggest problems that 38.8% of the participants highlighted is that maps, which are essential for geography teaching, are approximately 20 years old. On average, the best grade for equipment is awarded to schools in the City of Belgrade (3.47) while the lowest grade is awarded to geography classrooms in Kosovo and Metohija province (2.00). On average, participants graded that their classroom equipment is "good" (3.02) while the importance of classroom equipment was graded with "very good" (4.49).

Keywords: geography; classroom; teaching; education; Serbia

Introduction

The first classrooms in Serbia were part of the institutions whose main purpose was not learning or teaching. These were mostly special parts of the monasteries and churches, where future clergymen were preparing for their calling. Gradually, monasteries and churches became schools for all the children. The monasteries became the centers of Serbian literacy, culture, and education (Potkonjak, 1999). By the end of the 18th century, the first official schools were opened in Serbia. Geography as a school subject has been taught since 1833, and the first official teachers' guidelines were published in 1848 where it was suggested that the main principle of geography teaching should be moving from the known to the unknown (Ćunković, 1971). The teaching materials that should be used are a

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globe, a map, pictures, as well as practical outdoor classes. This indicates that teaching materials have been of great importance in geography teaching for a long time (Ćunković, 1971). In the Principality of Serbia in 1857 there was a total of 298 primary schools, and in every school, geography was one of the main subjects (Đuričković, 1990). During the 1870s a classroom consisted of a chair for the teacher, a blackboard, chalk, a sponge, and benches for the students. For geography classes, the blank map, the map of the Principality of Serbia, and a globe were used (Vasiljević, 2010).

According to the curriculum from 1891, the largest teaching funds of classes per week were planned for the Serbian language with 30, mathematics with 16, and geography with nine classes a week (Ćunković, 1971). Since 1976, the geography teaching fund was changed to once a week in the fifth grade and twice a week in the sixth, seventh, and eighth grades (Rudić, 2007). This weekly fund of classes has not been changed until today.

The importance and the impact of the teaching equipment in the classroom on the teaching process are widely recognized (classroom furniture, spatial organization, and learning tools) (Carnell, 2007; Tondeur, De Bruyne, Van Den Driessche, McKenney, & Zandvliet, 2015). That is why as a living space and an active contributor to the educational process, the school environment and equipment have gained the label of "the third teacher" (Strong-Wilson & Ellis, 2007). If the teaching facilities are complex and if they are adapted to the specifics of a particular teaching area, their impact on the fulfillment of the set tasks will be greater (De Bruyckere, Kirschner, & Hulshof, 2015; Lukić et al., 2019). This research aims to assess the availability of teaching aids in geography classrooms in Serbia.

Materials and methods

The main aim of the research was to determine geography teachers' opinions on the importance of teaching equipment in a geography classroom. Also, it was necessary to examine the number of schools in Serbia which have a geography classroom, the scope of their teaching aids, the age of the equipment, and whether it meets the needs of modern teaching. It was assumed that more modern teaching aids were used in schools – whiteboards, computers, new maps, and that most of the schools had access to the Internet. This was the initial hypothesis. Furthermore, the second hypothesis was that there were still some differences between the schools located in the urban and rural areas. The respondents were asked to list the equipment in their classrooms and discuss the importance of the equipment for successful mastering of the planned curriculum. The third hypothesis was that the attitudes of teachers with different work experience are different.

In this study, the online survey research method was used. The research was conducted during the school year 2020/2021. The sample was random. After the survey was completed, there were 134 correctly completed questionnaires. The respondents were of different gender and work experience, they were not employed at the same schools or lived in the same place, and they all were geography teachers. The research was conducted on the whole territory of Serbia in both urban and rural environments. The participants voluntarily agreed to participate in the study.

The research was conducted through an online survey. A three-part questionnaire was used in data collection. The first part collected mostly demographic data. Besides gender and years of service, respondents were asked to enter the school they worked in and the district they were located. In the second part of the survey, respondents were asked to indicate whether their school had a geography classroom and school's own teaching resources. Also, the age of the teaching equipment was examined. Finally, geography teachers had to rate the equipment of their geography classroom with

grades from 1 to 5, as well as the importance of adequate equipment for successful teaching and mastering the subject of geography.

The obtained data have been analyzed using the statistical program SPSS, version 20. The most common statistical analysis that has been applied in this research includes a basic statistical analysis.

Results and discussion

A total of 134 geography teachers participated in the survey. Detailed information regarding the structure of the participants is presented in Table 1.

Table 1
Basic data on the respondents (in %)

Gender	
Male	19.1
Female	80.9
Length of service	
0 to 5 years	11.9
6 to 10 years	25.4
11 to 15 years	11.9
16 to 20 years	28.4
21 to 25 years	11.2
More than 26	11.2
The environment in which the school is located	
Rural	33.6
Urban	66.4
Educational characteristics of geography teachers	
Bachelor studies	53
Master's degree	41
PhD degree	6
School	
Primary	82.1
Secondary	17.9

As part of the preparation of the new generation for life in modern times, it is necessary, besides the reform and modernization of the school system, to invest in adequate teachers' education. Teachers are the second main carrier of these top-down changes and the intermediaries between the legislatures, on one side, and the students, on the other. Teachers' skills, education, and their way of teaching both in primary schools and in secondary schools, directly mark the extent to which students will be prepared for the demands of the modern society. Because of this, the development of the teachers' education system that places equal importance on the expertise of teachers in terms of academic discipline, but also on their expertise in the field of psychological, pedagogical, and methodological knowledge should be the focus of future teacher training. Present-day analyses of the tendencies in the field of education point out that a teacher is the key carrier of global changes (Ivić, Pešikan, & Janković, 2001). Since 2006, in the Serbian educational system (primary and secondary school), the minimum degree to work as a teacher in a school has been a master's degree, while before 2006 the necessary level was a bachelor's degree.

The importance of special classrooms is pronounced because teachers were in situations to carry various teaching devices and aids from one classroom to another. If teachers have to move teaching devices and materials for every class, they often avoid using these devices because their setup and installation often take a lot of time, and not all technical equipment is portable (Vasiljević, 2010). The main advantage of a separate geography classroom is that it is didactically, methodically, spatially, and organizationally adapted to the teaching of geography (Johnson, 2002).

Regarding classroom availability, in 57.5% of school buildings there is a specialized and separate geography classroom, while in 26.9% there is no separate geography classroom, so the teacher has to move to different available classrooms. As it was previously stated by Tondeur et al. (2015), classroom equipment such as furniture, spatial organization, and learning tools have great importance and the impact on the learning process.

There are numerous advantages of specialized geographical classrooms such as functionality and expediency of use of space, technical equipment, and teaching aids. Teaching is based on

obviousness, discovery, problem-solving, and the possibility of applying various teaching methods that subsequently lead to greater students' interest in work, greater intellectual engagement, activity, durability, and functionality of knowledge (Tikunov, 1996).

Interestingly, 75.4% of geography classrooms do not have a preparation room where the teacher can prepare for the next class or store student papers, maps, or any additional teaching aids. Students appreciate the validation of their work, which is why it is necessary to have a place, board, or something similar where students' works can be displayed. It is encouraging that 72.4% of geography classrooms have that kind of space. Besides student work validation, this contributes to classroom decoration as well.

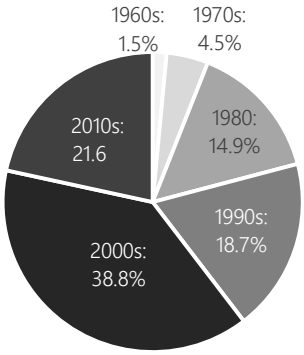

Figure 1. Year of the publication of maps.

The traditional and most essential teaching aid that has been used for geography classes for centuries is a map. Of 134 geography teachers, 79.9% have all the necessary maps at their disposal. The problem with this teaching aid is that 38.8% of maps are approximately 20 years old while 10 or fewer years old are only 21.6% of them (Figure 1).

An interesting fact is that 45.5% of participants declared that a map of Europe is mostly used. This is not surprising because, by the old geography curriculum, Europe was taught for most part of the sixth grade. That is why most of the maps are worn down by usage. It is surprising that 26.1% declared that they need a new map of Serbia, as national geography is the main focus of the geography curriculum during the whole eighth grade.

A globe is one of the main teaching aids for geography. It was listed as such in the official teachers' guidelines for geography in 1848 (Ćunković, 1971). Today, most geography classrooms have a physical-geography globe (76.9%). The situation is worse regarding political and induction globe, which are represented with only 26.9% and 27.6% respectively.

Classroom equipment is the base needed for teachers to educate students. One of the main requirements of any classroom is the board. Most of the geography classrooms possess whiteboards (50.7%), whereas black or green board can still be found in 36.6% of the classrooms. One of the biggest deficiencies is the lack of smart boards that are only present with 12.7%. According to the presented study, a computer can be found in 76.9% of geography classrooms. For displaying a picture from the computer to students, in 68.7% of the classrooms a projector is used, while only 14.9% of classrooms have a TV for projections.

The Internet is one of the greatest tools that a teacher can have, especially for geography, as it provides the possibility to present different and faraway places to students. According to the results, this essential tool is available in 84.3% of geography classrooms in Serbia. No statistically significant correlation between the availability of internet connection and location of school (rural or urban) was detected. During classes, internet connection was mostly used for Google Earth projections (38.8%) and for playing YouTube videos (37%). The results of numerous research (e.g., Barzegar, Farjad, & Hosseini, 2012; Lam & Tou, 2014; Maričić, Ivkov-Džigurski, Stojšić, Cvjetićanin, & Ivanović Bibić, 2020; Stojšić, Ivkov-Džigurski, Maričić, Ivanović Bibić, & Đukičin Vučković, 2016; Županec, Radulović, Pribićević, & Miljanović, 2017) have shown that, if multimedia is used properly in teaching, it achieves a better learning effect. Total results of the Internet application during geography class are presented in Figure 2.

If we look at the results of the respondents according to the years of work experience, it is noticeable that geography teachers with up to 15 years of work experience have more opportunities to use the Internet. Older teachers, especially those with more than 21 years of experience, use the Internet only for YouTube, Google Earth, and electronic grade entry.

In Figure 2 it is noticeable that only 8.4% of the teachers use the internet for digital textbooks while 56.7% of the participants stated that they use this teaching material in their classes. This can be explained by the fact that the new generation of digital textbooks can be used without an internet connection. An occasional internet connection is needed only for updating the software.

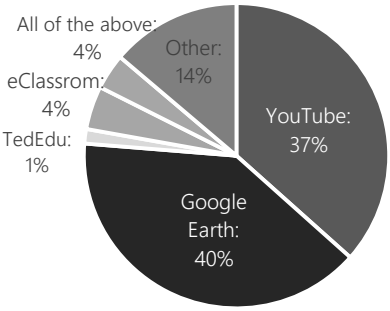

Figure 2. The Internet application during geography class.

The teachers were asked to grade equipment of their classrooms on a scale from 1 to 5 (1–*insufficient*; 2–*sufficient*; 3–*good*; 4–*very good*; 5–*excellent*). Classroom equipment grades and their importance are presented in Figure 3. On average, primary school geography teachers graded their classrooms equipment with higher grade (3.32) than their colleagues that work in secondary schools (2.50). Similarly, the grades on the importance of classroom equipment are higher for the primary school teachers (4.63) than for the secondary school teachers (4.29).

If the grades given to classrooms are analyzed according to the years of work experience, it is noticeable that younger teachers gave lower grades. This is understandable, given that the younger generations use new teaching technology more, and therefore expect their classroom to be enriched with more modern teaching aids. The lowest grade was given by teachers with experience between 6 and 10 years (2.88) and the highest by teachers with work experience from 21 to 25 years (3.80).

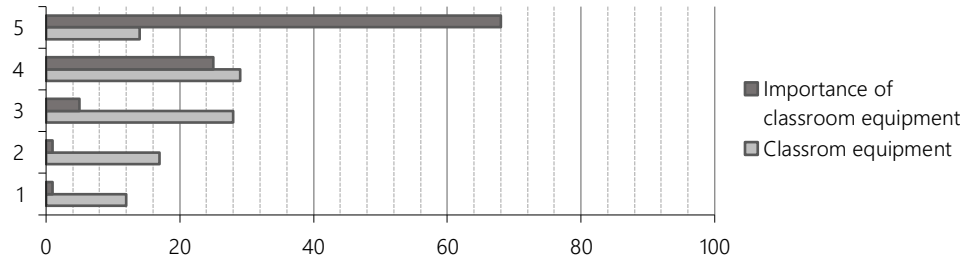

Figure 3. Grade for the geography classroom equipment and importance of classroom equipment (in %).

On the other hand, if we compare the assessments of the equipment of the geography classroom with the years of work experience, no major differences can be noticed. This certainly shows that for the smooth running of the teaching process it is very important that the space is well equipped with teaching aids. This is certainly not the only necessary criterion for successful teaching. Although the quality of geography teaching largely depends on innovations in teaching technology, it does not only include technical innovations, i.e., teaching aids, but it also includes the methodological and

organizational aspect of the innovation. It is an indisputable fact that even in schools that have outdated teaching technology for the needs of teaching geography, higher-level pedagogical results could be achieved if the teaching technology was applied following modern didactic requirements (Ivkov, Ivanović, & Pašić, 2009; Jovanović, Dragin, Ivkov-Džigurski, Ivanović Bibić, & Ristanović, 2018; Stojšić et al., 2016; Višnić, Ivanović Bibić, Đukičin Vučković, Ivkov-Džigurski, & Konečnik Kotnik, 2017).

Most of the respondents graded their classrooms as "very good" (29%) and "good" (28%), while most of the survey participants grade the importance of classroom equipment with 5 (68%). Grades for classroom equipment comparing five statistical districts are presented in Table 2.

Table 2
Grades for classroom equipment

Region	Classroom equipment grade	Importance of classroom equipment grade
Vojvodina	3.40	4.56
City of Belgrade	3.47	4.65
Western Serbia and Šumadija	3.06	4.67
Southern and Eastern Serbia	2.85	4.48
Kosovo and Metohija	2.00	4.00

The best grade for the equipment is awarded to schools in the City of Belgrade while the lowest grade is awarded to geography classrooms in Kosovo and Metohija province. The average grade for the whole of Serbia is "good" (3.02), while the importance of classroom equipment is graded with "very good" (4.49). Grades per districts are presented in Figure 4.

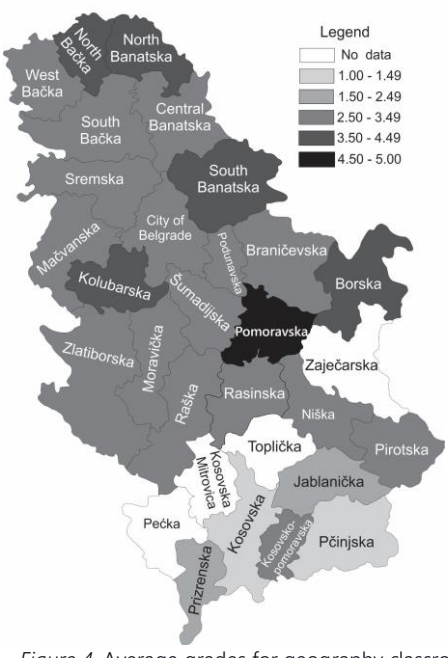

Figure 4. Average grades for geography classrooms per district.

It is important to highlight that a well-equipped classroom is not in itself a direct precondition for efficient teaching. In some cases, it is more rational to form combined specialized classrooms, especially if the curriculum foresees a small teaching fund for subject classes. Also, small rural schools are not able, for material, spatial, and organizational reasons, to equip specialized classrooms as they do not have enough available space, so usually combined classes are held. On the other hand, large city schools, besides the lack of space, often have a problem with a good organization of class schedules that would allow students to attend classes in equipped specialized classrooms. The financial factor is the most common obstacle in equipping schools, so it is difficult to provide specialized classrooms for all the subjects and even groups of similar subjects (Vasiljević, 2010). Even though classroom equipment is a great factor, the most important factor in geography teaching is competence, professionalism, and creativity of teachers.

Conclusion

This comprehensive study provides an interesting insight into the equipment of geography classrooms by the teachers who work in them. In general, classrooms equipment in Serbia is good (average grade 3.02) with no significant differences between rural and urban schools. Differences are noticeable between different parts of the country, especially between the north and the south part. Interestingly, teachers have graded the importance of the classroom equipment with, on average, a grade that is 1.5 higher than the grade provided for current classrooms equipment.

In summary, most of the classrooms have whiteboards, computers, internet connections, and projectors or TVs. One of the identified problems is that the maps are mostly outdated, with almost 40% of maps being approximately 20 years old. As maps are one of the traditional and most important aids for geography teaching, more attention should be paid toward updating them throughout Serbia.

However, it should be underlined that if the classroom is optimally equipped, under the latest educational standards, it is not a guarantee of the teaching quality. The teacher is an irreplaceable factor in the teaching process, whether it is in a modernly equipped classroom or not. No computer, smart board, or any other teaching aid can suppress or replace the role of a teacher, no matter what that modern technology may be.

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