

## VYUČOVANIE ZIMNÝCH ŠPORTOV NA ZÁKLADNÝCH ŠKOLÁCH CEZ INOVATÍVNE UČEBNÉ MATERIÁLY

### TEACHING WINTER SPORTS IN PRIMARY SCHOOLS THROUGH INNOVATIVE TEACHING MATERIALS

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#### Abstract

The aim of the study is to provide information on how primary school teachers perceive the quality, conditions and possibilities of professional education in the field of winter sports teaching. We focused our findings on a sample of 229 respondents in order to obtain an answer to the questions, in particular, whether the opinions of men and women differ regarding the need for professional education for teaching winter sports and what is their demand for a possible innovation of teaching materials for teaching winter sports. Through statistical analysis (Chi-square), we found that there is a significant difference in the approach to this field between male and female teachers, especially from the point of view of interest in further education, in the way of obtaining new information and knowledge, and also in the demand for the format of study material. From the point of view of teachers' requests for a possible innovation of teaching materials for teaching winter sports, we found that there was a significant group of respondents (22.94 %) who have a negative attitude towards this area (the answer is "I don't need"). Of course, the remaining part of the teachers want innovation to take place in this area as well and they present the demand that the teaching formats in particular be adapted to the current modern information and communication age, and they request that the transfer of information from the content of the curriculum be transformed into a mobile environment.

**Keywords:** winter sports teachers; requirements for format and content of teaching materials

#### Souhrn

Cieľom štúdie je poskytnúť informácie o tom, ako vnímajú učitelia a učiteľky základných škôl kvalitu, podmienky a možnosti odborného vzdelávania sa v oblasti výučby zimných športov. Svoje zistenia na vzorke 229 respondentov sme smerovali k tomu, aby sme získali odpoveď najmä na otázky, či sa odlišujú názory mužov a žien k potrebe odbornej vzdelanosti pre vyučovanie zimných športov a aká je ich požiadavka na možnú inováciu učebných materiálov pre vyučovanie zimných športov. Cez štatistickú analýzu (Chí-kvadrát) sme zistili, že sa objavuje významná odlišnosť v prístupe k tejto oblasti medzi učiteľmi a učiteľkami najmä z pohľadu záujmu o ďalšie vzdelávanie, v spôsobe získavania nových informácií a poznatkov a taktiež pri požiadavke na formát študijného materiálu. Z pohľadu požiadavky učiteľov a učiteľiek na možnú inováciu učebných materiálov pre vyučovanie zimných športov sme zistili, že sa tu objavila výrazná skupina respondentov (22,94 %), ktorá sa k tejto oblasti stavia negatívne (odpoveď „nepotrebujem“). Samozrejme zvyšná časť učiteľov a učiteľiek chcú aby aj v tejto oblasti došlo k inovácií a prezentujú požiadavku aby sa najmä učebné formáty prispôbili súčasnej modernej informačno-komunikačnej dobe a žiadajú aby sa prenos informácií z obsahu učiva transformoval aj do mobilného prostredia.

**Klíčová slova:** učitelia a učiteľky zimných športov; požiadavky na formát a obsah učebných materiálov

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## Introduction

The teaching of skills and the development of knowledge in the field of winter sports have long been embedded in the educational process at primary schools in Slovakia. In general, it primarily focuses on traditional winter sports and physical activities such as downhill (alpine) and cross-country skiing, snowboarding, and ice skating. All these activities are, of course, conditioned by the resources and conditions of each individual school. The teaching itself is aimed not only at acquiring new skills and abilities but also at strengthening health, due to the specific conditions of teaching in the winter environment. The importance of this type of education is also evident in the context of creating lifelong movement habits for the younger generation. The teacher's (instructor's) expertise and skill quality play a primary role in this (Pighetti, Mateer, Allison, 2022). Investigations and research that dealt with the field of training of experts (teachers, instructors, coaches) of winter sports are wide-ranging and present several interesting trends. There are topics dealing with personality and attitudes, whether of participants or teachers, where e.g. Bridgwater (1982) focused on teaching effectiveness in relation to personality type. Plastoi (2017) points out that teaching winter sports imposes high demands on educators not only in terms of their social characteristics but also in terms of their ability to accept the specifics of a student's personality. Cigrovski, Radman et al. (2014) studied the attitudes of participants (beginners) toward skiing and found that a suitable teaching structure (methodology) positively influences their attitude toward skiing sports. A significant factor influencing a student's attitude toward skiing is primarily their fear of injury (Nagel, Reuleaux, 1985). According to Khong Chiu, Kayat (2010), positive motivation from the teacher can significantly influence students' interest in physical activities. Several studies indicate that there are differences between men and women in their approach to sports activities, often to the detriment of women (Kumar Tyagi, Kumar, 2013; Lindstrom, Hanson, Ostergren, 2001; Cigrovski et al., 2014, etc.). Understanding these variables, which positively or negatively influence students' attitudes toward acquiring new skills, is an essential need for improving the teaching of various winter sports.

Through our study, we aim to summarize current information on the level of professional preparedness of teachers – instructors of winter sports at primary schools, with the goal of identifying their requirements for possible innovation of teaching materials. This study addresses two main questions:

- Do the opinions of men and women differ regarding the need for professional education in winter sports teaching?
- What are their demands for possible innovation of teaching materials for winter sports instruction?

## Methodology

### Sample

As part of our grant project KEGA 032UMB-4/2022 *Innovative Teaching Materials for Physical Education Teachers in Primary Schools with a Focus on Winter Seasonal Physical Activities*, we contacted the management of 89 public primary schools in the Banská Bystrica region via official email addresses at the beginning of February 2023, informing them that we were sending an online questionnaire focused on the teaching of winter sports in the second grade of primary schools. The questionnaire was made available from March 15, 2023, to April 14, 2023. We requested that this information be passed on to all teachers involved in the teaching of winter sports at their school. During this period, we received relevant feedback from 229 respondents (Table 1), which represents 13.74 % of the total number of 1,667 second-stage teachers in public primary schools in the Banská Bystrica region (Statistical Yearbook - Primary Schools - CVTI SR).

Tabuľka 1./ Table 1.

*Charakteristiky skúmaného súboru./ Characteristics of the studied sample.*

Gender	Respondents' Age					Total
	Under 30 years	31 – 40 years	41 – 50 years	51 – 60 years	Over 60 years	
Male	23	30	25	22	9	109
Female	22	30	35	30	3	120
Total	45	60	60	52	12	229

## Methods

In January 2023, we created an online questionnaire as part of the grant project KEGA 032UMB-4/2022. We conducted a so-called *non-exhaustive survey* (a sample of the target population). After 30 days of its availability, we closed the access to the online questionnaire and exported the collected data into an XLS format for subsequent evaluation using statistical software. In total, we received 277 questionnaire, of which 48 erroneous or incomplete responses were excluded from the final evaluation. The questionnaire was anonymous. We processed the data using basic statistical methods and analysed it through percentage and comparative analysis.

## Statistical Analysis

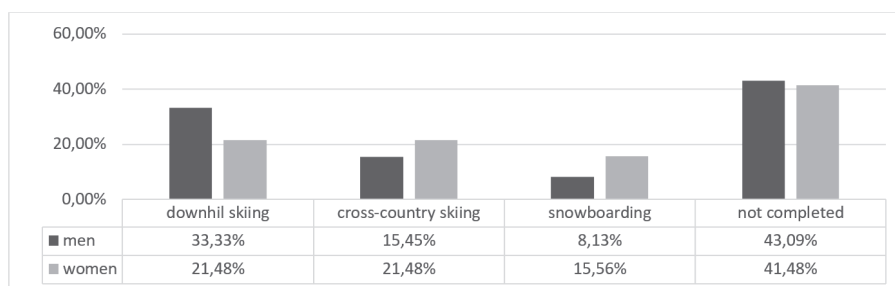
For the statistical evaluation of the collected data, we used the non-parametric Chi-square test, which we applied to assess the statistical significance of differences in the selected intersexual criterion (men vs. women). Statistical significance was evaluated at the 1 % and 5 % probability levels.

## Results

The basic descriptive parameters and results of the comparison of opinions of the surveyed respondents (teachers) implementing winter sports in the teaching of physical education for second-stage primary school students are presented in Figures 1-5. From the perspective of statistical significance, we found that in the area of professional preparation (Figure 1) and in the area of the most frequently used formats of teaching materials (Figure 4), there are no significant differences between men and women. Significant differences ( $p < 0.01$ ) were recorded in the area of interest in further education (Figure 2), in the way of acquiring new information (Figure 3), and in the demand for a specific (innovative) format of teaching materials (Figure 5).

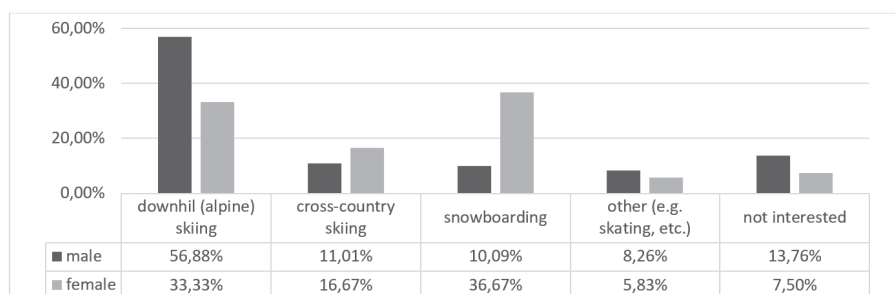
Obrázok 1./ Figure 1.

*Absolvovanie kurzu zameraného na vyučovanie zimných športov po ukončení vysokoškolského štúdia; chi - štatisticky nevýznamné ( $\chi^2_{(3)} = 7,584$ ;  $p = 0,055$ )/ Completion of a course focused on teaching winter sports after completing university studies; Chi-square - statistically insignificant ( $\chi^2 (3) = 7.584$ ;  $p = 0.055$ ).*



Obrázok 2./ Figure 2.

*Záujem učiteľov o ďalšie vzdelávanie z oblasti vyučovania zimných športov; chi - štatisticky významné  $p < 0,01$  ( $\chi^2_{(4)} = 27,830$ ;  $p = 1,349 E-05$ )/ Interest of teachers in further education in the field of teaching winter sports; Chi-square - statistically significant  $p < 0.01$  ( $\chi^2 (4) = 27.830$ ;  $p = 1.349 E-05$ ).*

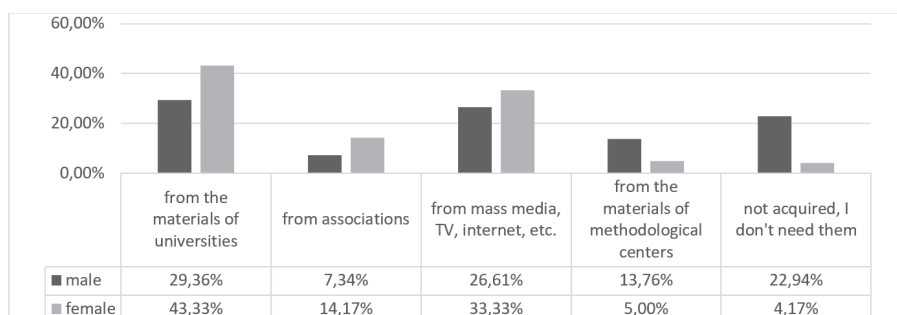


From the perspective of respondents' interest in further education (Figure 1) in the winter sports types we investigated (alpine skiing, cross-country skiing, and snowboarding), we found that alpine skiing were preferred the most (27.41 %). As many as 42.29 % of respondents have not participated in any activity to further develop their knowledge in the field of winter sports since completing their university studies.

The interest of respondents in further education (Figure 2) is highest in alpine skiing (45.11 %) and snowboarding (23.38 %), with significantly higher interest from female teachers (36.67 %). Only 10.63 % of respondents indicated that they are not interested in further education.

Obrázok 3./ Figure 3.

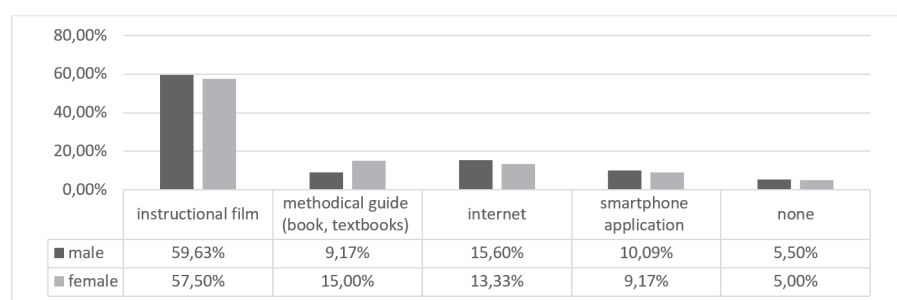
*Spôsob získavania nových informácií z oblasti vyučovania zimných športov; chi - štatisticky významné  $p < 0,01$  ( $\chi^2_{(4)} = 26,478$ ;  $p = 2,533 E-05$ ).* / *Method of acquiring new information in the field of teaching winter sports; Chi-square - statistically significant  $p < 0.01$  ( $\chi^2 (4) = 26.478$ ;  $p = 2.533 E-05$ ).*



The largest percentage of respondents (36.35 %) relies on the initiative and teaching materials from universities when acquiring new information in the field of teaching winter sports (Figure 3). The least (10.76 %) draw knowledge from materials provided by national sports federations (associations). The internet and other multimedia sources are also frequently used (29.97 %). A significantly higher percentage of male teachers than female teachers indicated that they do not need such information (22.94 % vs. 4.17 %).

Obrázok 4./ Figure 4.

*Najčastejšie využívaný formát študijného materiálu na vyučovanie zimných športov; chi - štatisticky nevýznamné ( $\chi^2_{(4)} = 1,911$ ;  $p = 0,752$ ).* / *The most frequently used format of study materials for teaching winter sports; Chi-square - statistically insignificant ( $\chi^2 (4) = 1.911$ ;  $p = 0.752$ ).*

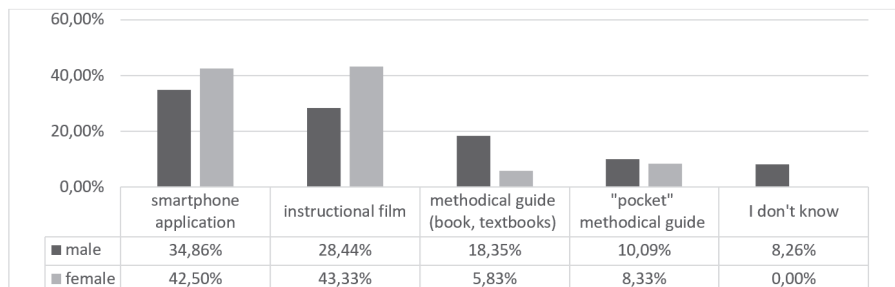


In the question investigating which format of study material respondents most frequently use to acquire knowledge about teaching winter sports (Figure 4), we found that respondents prefer to use instructional films (58.57 %). All other formats were presented in practically the same proportion.

The question aimed at clarifying current information about which format respondents would currently prefer revealed that the greatest interest is in a smartphone application (38.68 %) and an instructional film (35.89 %). Other formats included a methodical guide (book, scripts) at 12.09 % and a "pocket" methodical guide at 9.21 %. The opinions of female respondents were defined more clearly, as none of them selected the "I don't know" option.

Obrázok 5./ Figure 5.

*Záujem o formát študijného materiálu na vyučovanie zimných športov; chi - štatisticky významné  $p < 0,01$  ( $\chi^2_{(4)} = 22,041$ ;  $p = 0,0002$ ).* / *Interest in the format of study materials for teaching winter sports; Chi-square - statistically significant  $p < 0.01$  ( $\chi^2_{(4)} = 22.041$ ;  $p = 0.0002$ ).*



## Discussion

Through our study, we attempted to ascertain current information regarding the level of professional preparedness of teachers who are instructing winter sports in primary schools, with the aim to identify their needs for potential innovation of educational materials. It was confirmed that the majority of respondents expressed interest in further education focused on downhill (alpine) skiing (27.41 %). This preference corresponds with the findings of Hellebrandtová and Roučková (2011), Michal (2006), and others. What we view negatively is the fact that as many as 42.29 % of respondents have not engaged in any activities to enhance their knowledge of winter sports since completing their university studies. Šimonek (2006) states that we can only speak of a modern physical education teacher if they take part in lifelong learning. He emphasizes the importance of personal and social development for teachers, especially in terms of building their interest in changes in the teaching process and their attitude to self-improvement. We found that female teachers show significantly more interest (36.67 %) in further education than male teachers, and overall, only 10.63 % of respondents indicated no interest in further education. Considering Plastoia's (2017) findings, which highlight that teaching winter sports puts high demands on educators, we believe that the finding that only 10.63% of all surveyed teachers are uninterested in further education can be viewed positively. However, more concerning are our findings that a relatively large percentage of respondents (36.35 %) rely on the initiative and materials from universities, which we consider a positive finding itself, but we view negatively the fact that often-used sources include the internet and other multimedia sources (29.97 %), which may not always meet the required quality, especially if presented by unaccredited or unknown authors (sources). The finding that a significantly higher percentage of male teachers than female teachers stated that they do not need such information (22.94 % vs. 4.17 %) corresponds with existing research on gender differences in attitudes toward sports activities (Kumar Tyagi, Kumar, 2013; Lindstrom, Hanson, Ostergren, 2001; Cigrovski et al., 2014, and others). Questions regarding how teachers would prefer to acquire or format professional and methodological knowledge about winter sports revealed that respondents are motivated to align with current modern trends and express the need to shift from classic instructional films to smartphone applications. We are, of course, aware that this trend is influenced by the teacher's (instructor's) expertise and the quality of their skills (Pighetti, Mateer, Allison, 2022). Majzlík (2017) states that the higher the teacher's engagement in terms of enthusiasm, work ethic, and relationships, the better the students' results. These findings clearly confirm that for winter sports education to progress, teacher training faculties need to increase their engagement in this area. As Masaryková and Antala (2020) suggest, they should reflect challenges from practice and transform them not only into the preparation of future teachers but also into the training of teachers in schools. Similarly, Hardman (2008) states that meeting the needs of teachers requires high quality conceptually and contextually adapted educational programs and teaching materials that can contribute to the teacher being relevantly prepared, adequately and professionally competent. Naturally, this requires respecting the level, character, and stage of the teacher's involvement in the educational process. We believe that this is an opportunity (strategy) through which we can achieve not only the advancement of winter sports education but also the overall improvement of the quality and conditions

of the school physical education process. Our investigation was limited by the fact that we did not manage to get a wider (more representative) sample of respondents, which would more objectively present a view of the possibilities of innovation of the content and method of education of teachers teaching winter sports at the 2nd level of primary schools in Slovakia. The reason is the low interest on the part of male and female teachers to participate in similar surveys.

## Conclusion

Our study has the ambition to present the view of teachers teaching winter sports at the 2nd grade of elementary schools on the current problems of their teaching. Through our findings, we want to provide information about how they perceive the quality, conditions and possibilities of professional education in the field of teaching winter sports. We directed our findings to get an answer especially to the question of whether men's and women's opinions on the need for professional education for teaching winter sports differ. Through statistical analysis (Chi-square), we found that there is a significant difference in the approach to this field between male and female teachers, especially from the point of view of interest in further education, in the way of obtaining new information and knowledge, and also in the demand for the format of study material. We were also interested in what is the demand of teachers for a possible innovation of teaching materials for teaching winter sports. We found that there was a significant group of respondents (22.94%) who have a negative attitude towards this area (the answer is "I don't need it"). Of course, the remaining part of the teachers want to see innovation in this area as well and they present the demand that the teaching formats in particular be adapted to the current modern information and communication age and they want the transfer of information from the content of the curriculum to be transformed into a mobile environment. They expressed that they want, in addition to the classic and still quite popular formats of instructional films, to create modern educational applications that can be used in mobile phones.

In conclusion, we would like to express our belief that an important ambition of each advanced society should be the continuous improvement and modernization or innovation of the conditions and possibilities of education, whether for students of teaching faculties or teachers in practice. Every step that improves the teacher's qualities during their professional development is a path to a higher quality of teaching as well as to improving its results for students. It is precisely the subject of physical and sports education that, due to its specific position, aims to ensure that the teacher not only leads the student to master various forms of physical activity, but also provides him with up-to-date information through the format of modern information and communication technologies, which is enormously popular with today's youth. Such a method can to a significantly greater extent enable the student to understand the benefits of a healthy way of life related to physical activity, not only as a necessary, but also as a natural (desired) part of his life.

The presented results of our investigation are part of the research task KEGA 032UMB-4/2022: **"Innovative teaching materials for teachers of physical and sports education at primary schools with a focus on winter seasonal movement activities"**.

## Bibliography

- Bridgwater, C. A. (1982). Personality characteristics of ski instructors and predicting teacher effectiveness using the PRF. *Journal of Personality Assessment*, 46(2), 164–168. [https://www.doi.org/10.1207/s15327752jpa4602\\_11](https://www.doi.org/10.1207/s15327752jpa4602_11)
- Cigrovski, V., Prlenda, N., & Radman, I. (2014). Future of alpine skiing school-gender related programs. *Montenegro Journal of Sports Science and Medicine*, 3(1), 5–8.
- Cigrovski, V., Radman, I., Matković, J., Gurmmet, S., & Podnar, H. (2014). Effects of alpine ski course program on attitudes towards alpine skiing. *Kinesiology*, 46, 46–51.
- Hardman, K. (2008). The Situation of Physical Education in Schools: A European Perspective. *Human Movement*, 9(1), 5–18. doi: 10.2478/v10038-008-0001-z
- Hellebrandtová, D., & Roučková, M. (2011). *Základný zjazdový výcvik*. Metodicko-pedagogické centrum.
- Khong Chiu, L., & Kayat, K. (2010). Psychological determinants of leisure time physical activity participation among public university students in Malaysia. *ASEAN Journal of Teaching & Learning in Higher Education*, 2(2), 33–45.



- Kumar Tyagi, A., & Kumar, A. (2013). Students' attitude towards physical activity: A study of gender and caste differences. *Journal of Indian Research*, 1(2), 133–138.
- Lindstrom, M., Hanson, B.S., & Ostergren, P-O. (2001). Socioeconomic differences in leisure-time physical activity: The role of social participation and social capital in shaping health related behavior. *Social Science and Medicine*, 52, 441–451.
- Majzlík, M. (2017). *Pedagogické vedenie školy ako determinant jej kvality a úspešnosti* [Dizertačná práca, Univerzita Mateja Bela].
- Masaryková, D., & Antala, B. (2020). Význam vzdelávania pedagógov v telesnej a športovej výchove. *Výchova a vzdelávanie v športe a prostredníctvom športu*, 31–33.
- Michal, J. (2006). Analýza stavu lyžovania na základných školách. *Súčasnosť a perspektívy telovýchovného procesu na školách*, 186–196.
- Nagel, A., & Reuleaux, M. (1985). More safety in skiing through training the personnel of the sports shops. *R.J. Johnson & C.D. Mot (Eds.), Proceedings Book of 5 th International Symposium, Philadelphia*, 191–202.
- Pighetti, J., Mateer, T., J., & Allison, P. (2022). Dimensions of Snowsports Education: A Review of Literature. *Journal of Outdoor Recreation, Education, and Leadership* 14(3), 93–106. <https://doi.org/10.18666/JOREL-2022-11229>
- Šimonek, J. (2006). Osobnosť učiteľa Tv z pohľadu žiakov a pedagógov. *Tel. Vých. Šport*, 16(3), 2–4.

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