

# IZOBRAŽEVANJE ZA TRAJNOSTNO SOBIVANJE Z VELIKIMI ZVERMI

Iztok Tomažič

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5. konferenca učiteljev/-ic naravoslovnih predmetov – NAK 2019

IZOBRAŽEVANJE ZA SEDANJOST IN PRIHODNOST



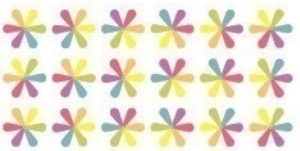
REPUBLIKA SLOVENIJA  
MINISTRSTVO ZA IZOBRAŽEVANJE,  
ZNANOST IN ŠPORT



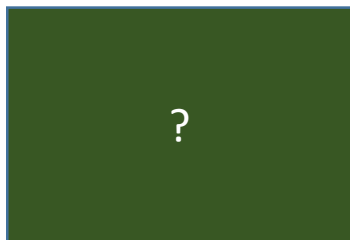
EVROPSKA UNIJA  
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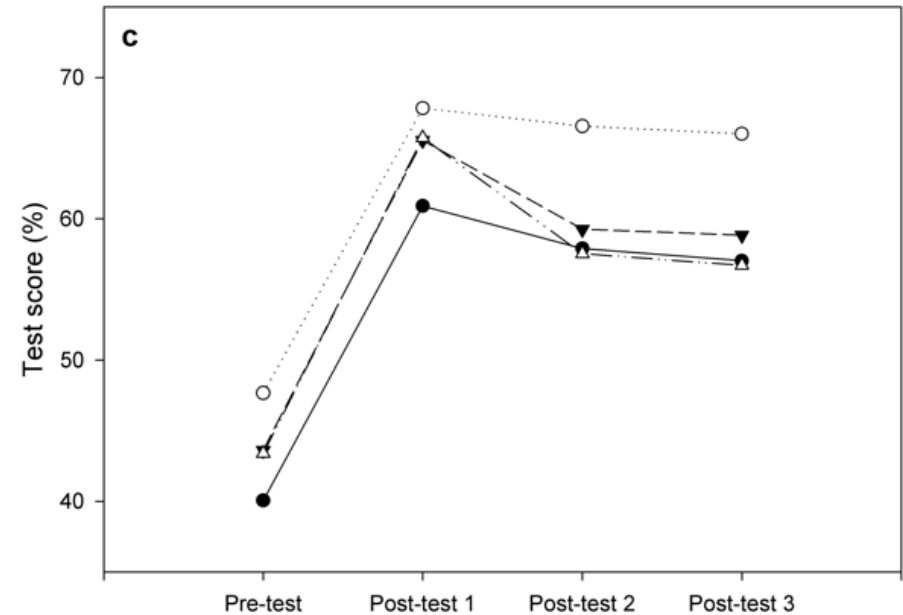
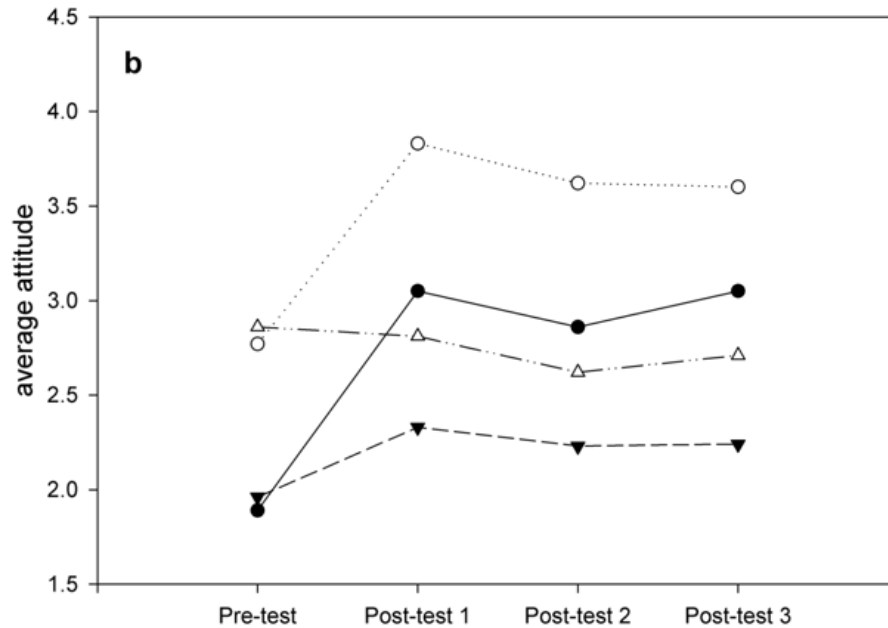
<https://www.masterfile.com/image/en/700-03403915/portrait-of-wolf-bavarian-forest-national-park>



## Projekti



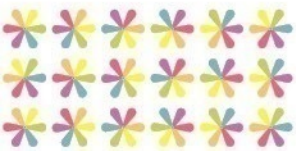
## Izkustveno učenje: kaj je znano?



**Stališča**, ki so osnovana na **neposredni izkušnji**, so:

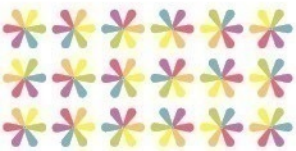
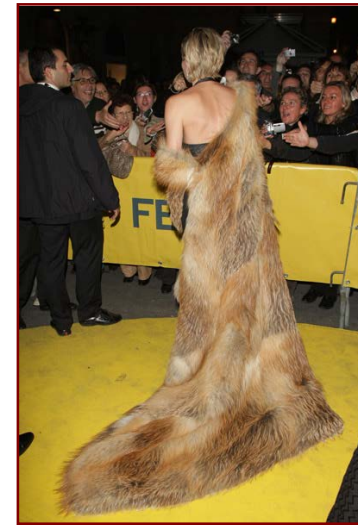
- trajna,
- močna,
- izražana z večjo gotovostjo,
- stabilna skozi čas in
- odporna na zunanje vplive (Fazio & Zanna, 1981).

**Znanje?**

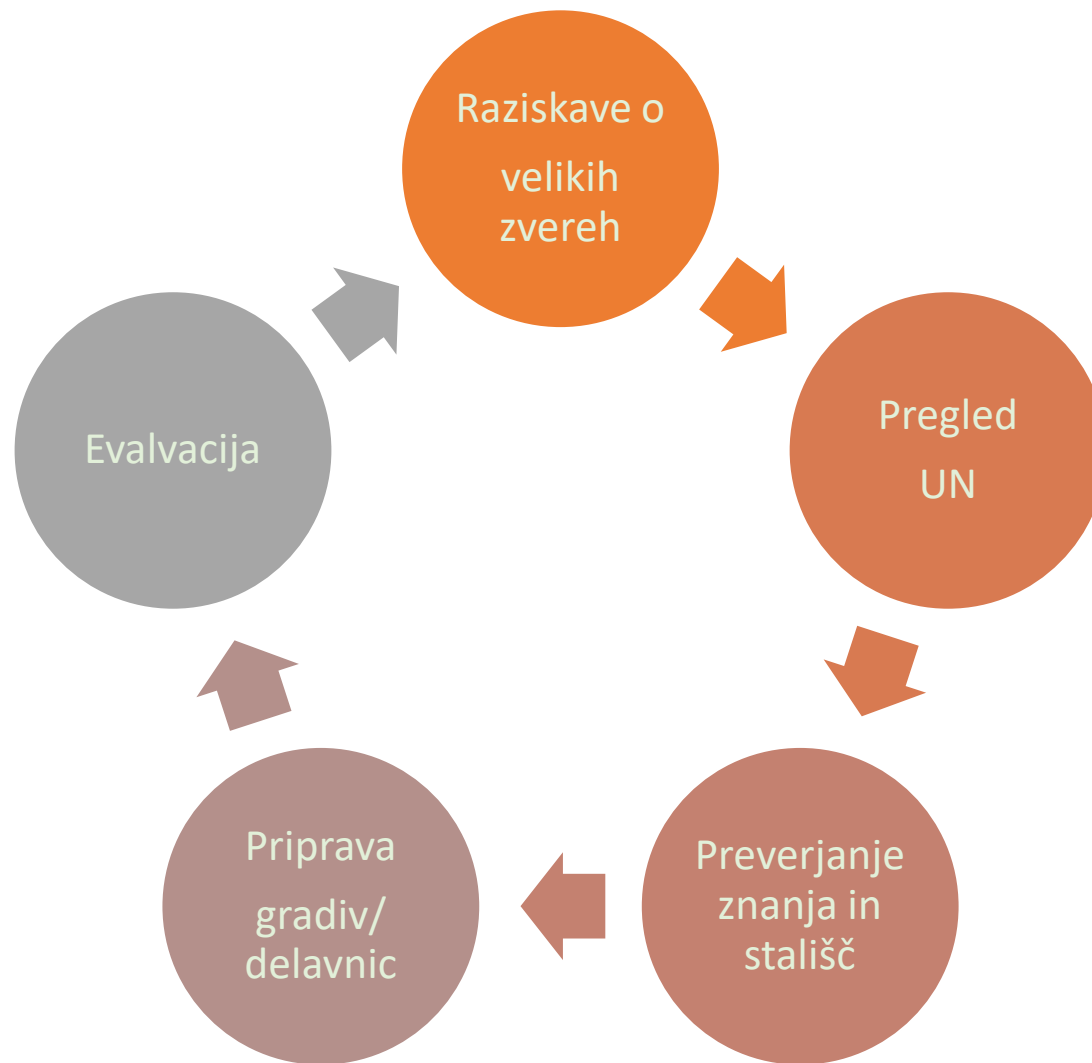


### Kategorije (dimenzije) stališč po Kellertu (1996):

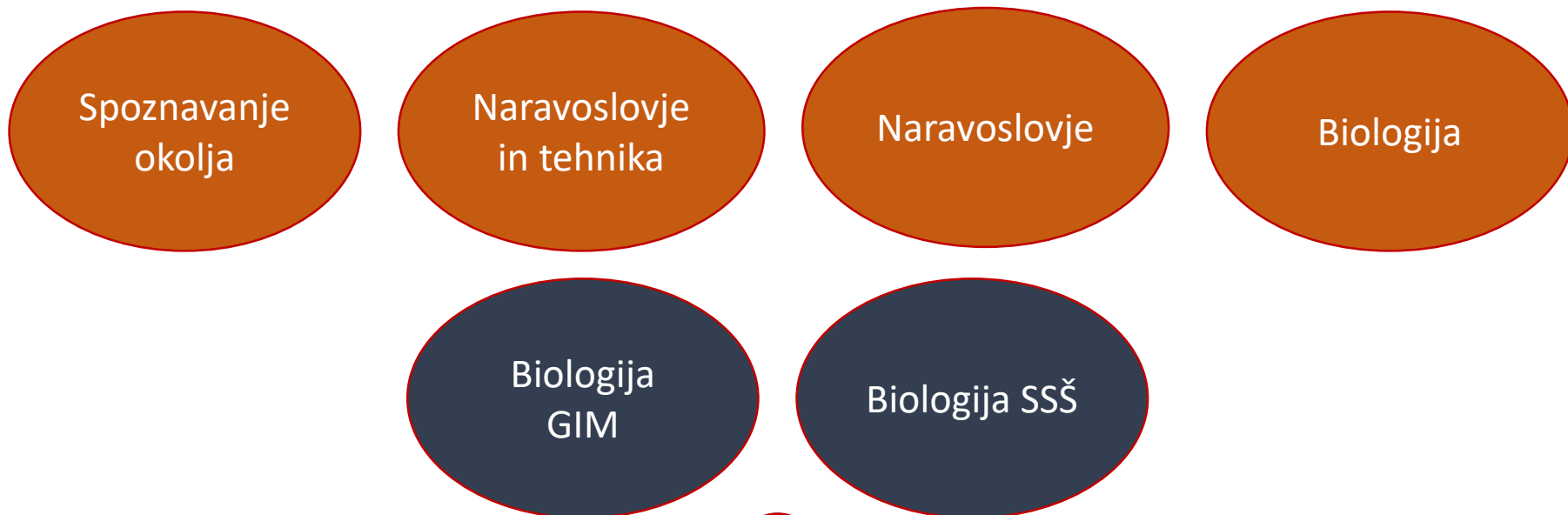
1. Estetska – *umetniške in simbolne značilnosti živali*
2. Dominionistična – *nadvlada nad živalmi (športne aktivnosti)*
3. Ekologistična – *skrb za okolje kot sistem in za povezave organizmov z okoljem*
4. Humanistična – *močna čustvena navezanost na živali (“imeti rad”)*
5. Moralistična – *skrb za pravilno ravnanje z živalmi / proti raziskavam na živalih in krutosti*
6. Naturalistična – *zanimanje za direktne izkušnje z živalmi in raziskovanje narave*
7. Negativistična – *aktiven umik živalim kot posledica strahu ali nevšečnosti*
8. Nevtralna – *pasiven umik kot posledica indiferece*
9. Znanstvena – *zanimanje za fizične značilnosti in biološko delovanje živali*
10. Utilitarna – *zanimanje za praktično in materialno vrednost živali (deli telesa, prostor kjer živijo ali oboje)*



## Sosledje projektnih aktivnosti - izobraževanje



## Učni načrti



### Posredne navezave:

- spoznajo, da **genetika** danes predstavlja orodje za raziskave na področju ekologije, okoljevarstva in naravovarstva.
- na primeru **proučevanja populacije** volka v Sloveniji utrdijo znanje genetike in povežejo vsebine z **lokalnim okoljem**.



## Projekti



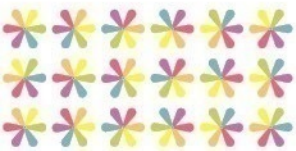
### MEDVED KOT MODELNI ORGANIZEM ZA POUK BIOLOGIJE

Priročnik za učitelje

Vesna Oražem, Tadeja Smolej in Izток Tomažič



Colovito upravljanje in varstvo  
rjavega medveda v severnih  
Dinaridih in Alpah

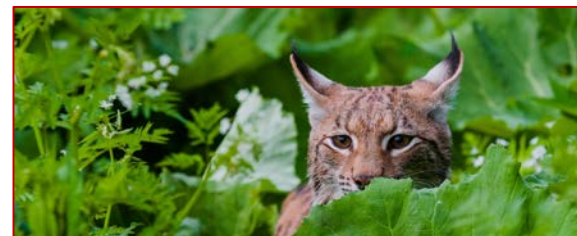
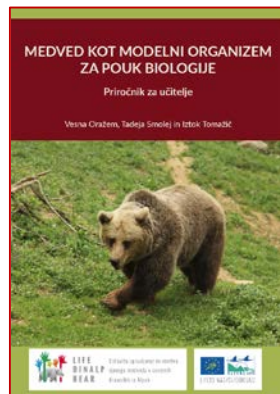


## Projekti



Delavnice za učence in dijake

Izdelava priročnikov za učitelje

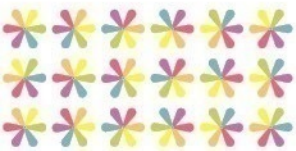


Delavnice za učitelje

Izdelava priročnika in učne poti

**RAZISKAVE:** znanje, sprejemanje, stališča, pristopi

<https://dinalpbear.eu/wp-content/uploads/Priročnik-za-učitelje-MEDVED-KOT-MODELNI-ORGANIZEM-ZA-POUKU-BIOLOGIJE.pdf>



**Primerjava velikih zveri Slovenije**  
 V Sloveniji živijo tri vrste velikih zveri: medved, volk in ris. Izpolnite lahko najдете na spletnih straneh, ki vam jih je posredoval učitelj.

	Volk ( <i>Canis lupus</i> )	Ris (Iy)
Uvrstitev v sistem		
Anatomija		
Zravenjski prostor		
Prehrana		
Razmnoževanje		
Ogroženost in varovanje		

**Telesna zgradba zveri**  
 Slikovno građivo dejavnosti

Del kožuha risa

Del kožuha medveda

Kožuh volka

**Volk kot modelni organizem za pouk biologije**  
**Volkovi v živalskem vrtu**

7. Označi telesne dele volka.

8. Opazuj vedenje izbranega volka v ogradi. Žival nat Spodaj so narisane prepoznavne pozicije ušes volk

**Pozicija ušes**

1. Naprej 2. Nazaj

**Pozicija repa**

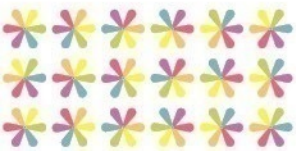
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**Izraz**

1. Samozavesten 2. Napadalen

**Volkovi in genetika**  
 6. Iztrebki volkov in

**Ocena velikosti populacije**  
 7. Oceni število volkov





JOURNAL  
OF BALTIC  
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EDUCATION

ISSN 1648-3898 /Print/  
ISSN 2538-7138 /Online/

### THE VOCATIONAL UPPER SECONDARY SCHOOLS STUDENTS' KNOWLEDGE AND THEIR ATTITUDES TOWARD WOLVES

**Vesna Oražem,  
Iztok Tomažič**

#### Introduction

A wolf (*Canis lupus*) is a charismatic species which was heavily hunted and exterminated in the large part of Europe. Therefore, for most of the Europeans, attitudes towards wolves are not constructed on their primary experiences, but on sources such as Grimm's fairy tales (e.g. Little Red Riding Hood) where wolves are portrayed in a negative way (Kellert, 1985b). Negative attitudes towards wolves are an important factor of their abundance decrease (Majič Skrbineš, 2012). Chapron et al. (2014) concluded that conservation of large carnivore species is only effective if positive public attitudes, besides implementation of actions which support human-carnivore coexistence and protective legislation, are considered. The big question is what can be done in schools to lower fears and change negative attitudes toward positive ones in order to help in wolf conservation efforts.

A wolf is the second most common species among large carnivores in Slovenia and Europe. Beside wolves, Slovenia is inhabited by brown bears (*Ursus arctos*), which are the most common and, Eurasian lynx (*Lynx lynx*) (Chapron et al., 2014) and, since 2005, the golden jackal (*Canis aureus*) (Krofel, 2009; Krofel & Potočnik, 2008).

The core area of wolf inhabitation is the south-western part of Slovenia. The population belongs to a wider Dinaric-Balkan population (Majič Skrbineš, 2012) and consists of approximately 60 individuals (Bartol et al., 2017). Wolves prefer wide areas, where large prey abundance is high and disturbance is low (Jonozovič, 2003), but can also greatly adapt to live in human-dominated habitats (Chapron et al., 2014). Although, wolf populations and their habitats need to be preserved, one should be aware of the

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*Sustainability* 2019, 11(4), 1124; <https://doi.org/10.3390/su11041124>

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## Wolves' Conservation through Educational Workshops: Which Method Works Best?

Vesna Oražem<sup>1</sup> ✉, Iztok Tomažič<sup>1,\*</sup> ✉, Ivan Kos<sup>1</sup> ✉, Dolores Nagode<sup>2</sup> ✉ and Christoph Randler<sup>3</sup> ✉

<sup>1</sup> Department of Biology, Biotechnical Faculty, University of Ljubljana, Večna pot 111, 1001 Ljubljana, Slovenia

<sup>2</sup> Faculty of Education; University of Ljubljana, Kardeljeva ploščad 16, 1000 Ljubljana, Slovenia

<sup>3</sup> Department of Biology, Eberhard Karls University of Tübingen, Auf der Morgenstelle 24, D-72076 Tübingen, Germany

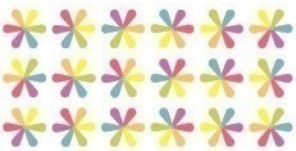
\* Author to whom correspondence should be addressed.

Received: 31 January 2019 / Revised: 17 February 2019 / Accepted: 19 February 2019 / Published: 21 February 2019

Full-Text | PDF [2898 KB, uploaded 21 February 2019] | Figures

### Abstract

(1) Background: Conservation biology education is an important societal goal, targeting the worldwide promotion of biodiversity conservation. When learning about animals, direct experience poses an ideal opportunity to influence the participants' attitudes and knowledge. However, in the case of large carnivores, direct experiences are scarcely possible, except at local zoos. School teaching should therefore rely on preserved materials, which are still originals. (2) Methods: Here, we investigated how students' attitudes and knowledge regarding wolves can be improved in three different teaching contexts: (a) through conventional lectures, (b) through lectures combined with hands-on activities in the real classroom setting, and (c) through lectures with hands-on activities at the university. Students from general and vocational (veterinary) upper secondary school participated in the study. Attitudes and knowledge were tested before and after the teaching. (3) Results: Students displayed positive attitudes toward wolves and their prior knowledge had the highest influence on attitude ratings. Knowledge about wolves improved during teaching regardless of the teaching approach. The highest influence on attitudes and knowledge was observed in the university setting. (4) Conclusion: The university setting evidently produces the strongest effect so it is a recommended approach when designing conservational topics. View Full-Text



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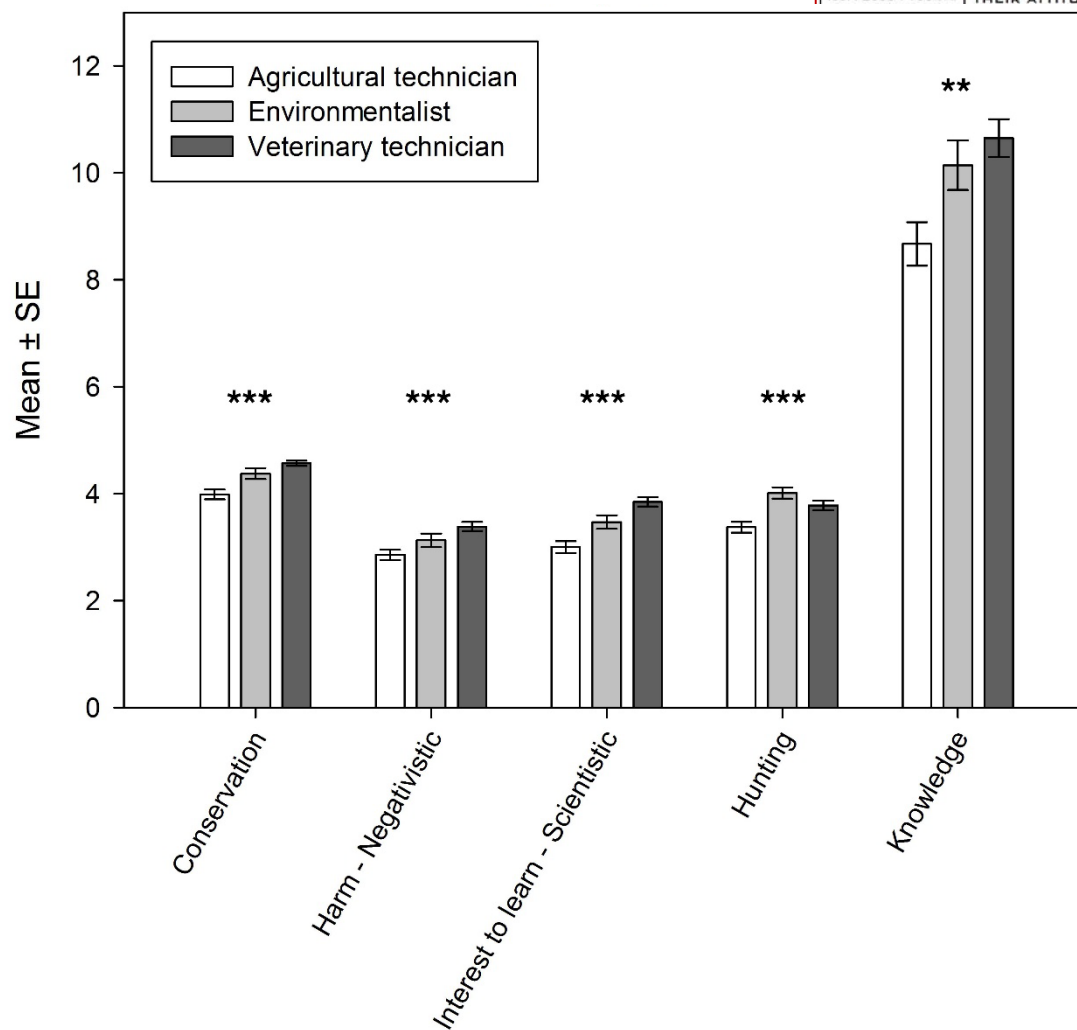


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### Znanje in stališča o volkovi: SSŠ

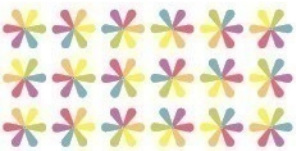
2015 / 2016

N = 493



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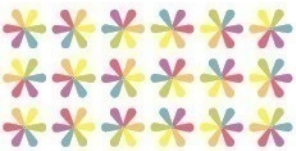
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## Raziskave: vpliv pouka

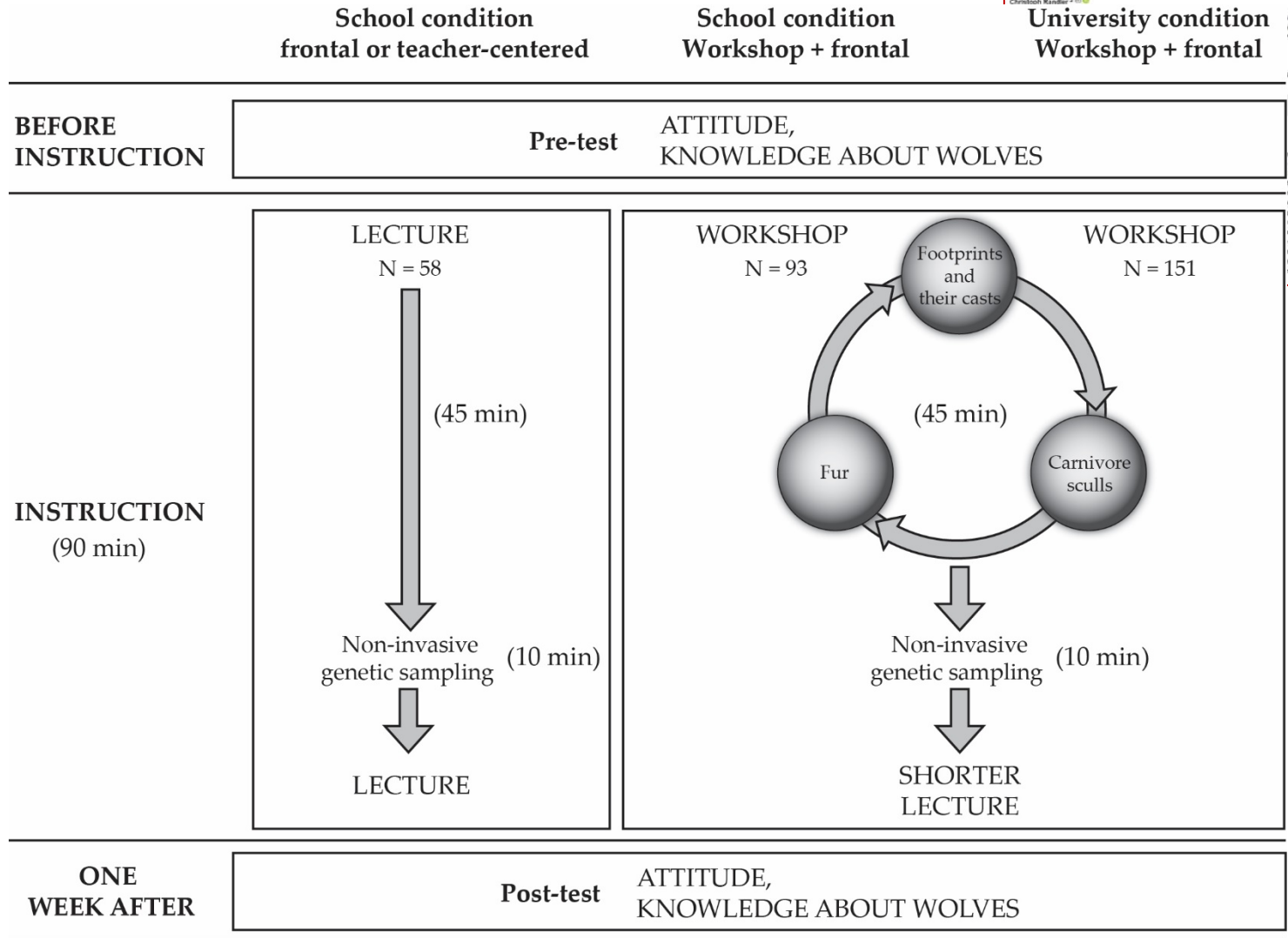
### Metode

**Vzorec:**

Gimnazija  
SSŠ

N = 302

2013 / 2014



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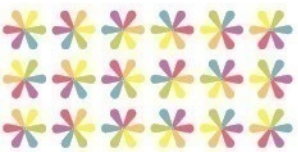
Vesna Oršič<sup>1</sup>, Irena Tomšič<sup>1\*</sup>, Ivan Kos<sup>1</sup>, Dušica Nagode<sup>2</sup> and Christofh Rueder<sup>3</sup>

<sup>1</sup>Biološki inštitut, Slovenija; <sup>2</sup>2016 Tübingen, Germany; <sup>3</sup>2016 Tübingen, Germany

\*Correspondence: [irena.tomsic@biol.i.si](mailto:irena.tomsic@biol.i.si)

Received: 15 March 2019; Accepted: 22 April 2019; Published: 25 April 2019

Abstract: The worldwide species an ideal large carnivores, therefore rely on 'old' attitudes and high conventional and (c) through participatory approaches after the teaching. Find the highest quality of the teaching activity setting. (4) tested approach



### Metode

**Vzorec:**  
**Gimnazija**  
**SSŠ**

**N = 302**

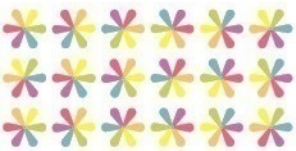
**2013 / 2014**

7	Volk živi samotarsko življenje.	DRŽI	NE DRŽI	NE VEM
8	Volk je v Sloveniji ogrožena vrsta.	DRŽI	NE DRŽI	NE VEM
9	Volk dnevno prehodi ali preteče okrog 7 km.	DRŽI	NE DRŽI	NE VEM
10	Človek lahko v naravi nadomesti ekološko vlogo volka.	DRŽI	NE DRŽI	NE VEM
11	Veliko volčjih mladičev pogine preden dopolnijo 1 leto.	DRŽI	NE DRŽI	NE VEM
12	Ker je število volkov v Sloveniji previsoko, napadajo domače živali.	DRŽI	NE DRŽI	NE VEM

### ZNANJE: izbirni tip vprašanj

**Pri vsakem vprašanju je pravilen le EN ODGOVOR. Če ne veste odgovora, obkrožite »ne vem«.**

1. Volkove uvrščamo v družino:
  - a) mačk.
  - b) psov.
  - c) kun.
  - d) ujed.
  - e) Ne vem.



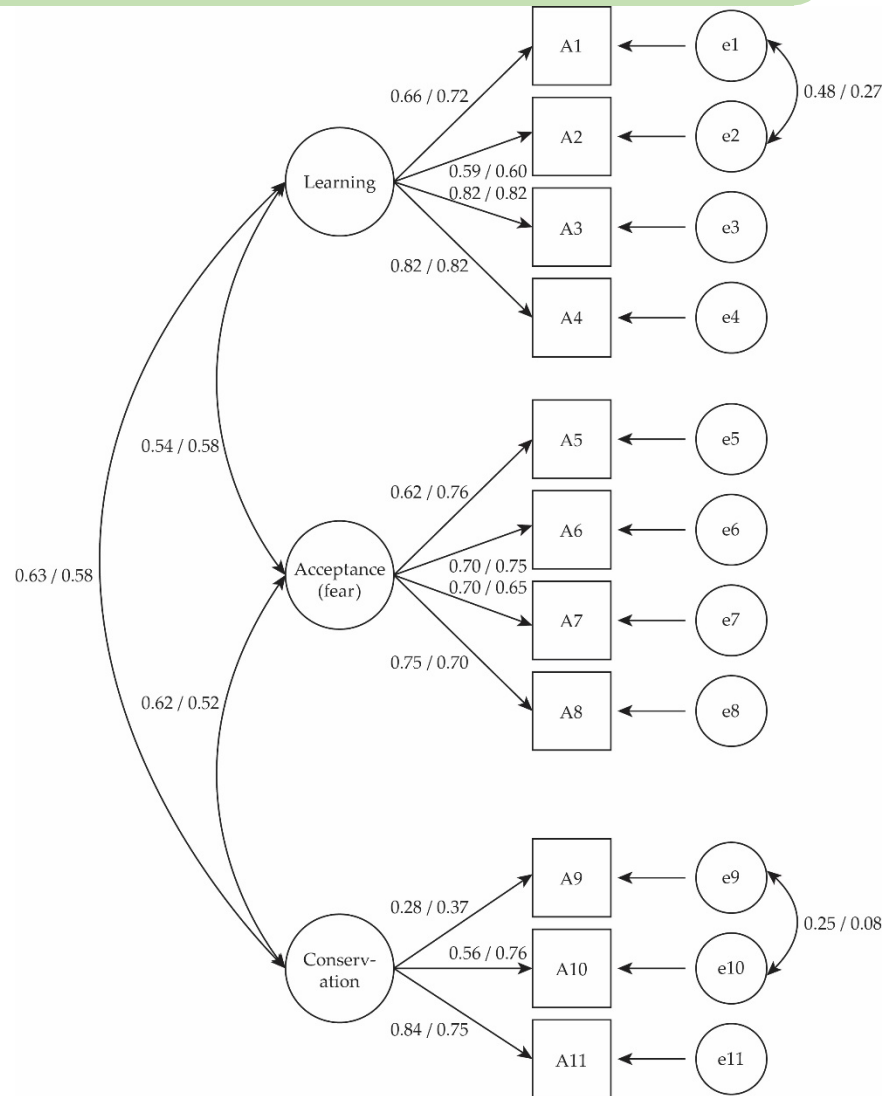
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### Metode

Vzorec:  
Gimnazija  
SSŠ

N = 302

2013 / 2014



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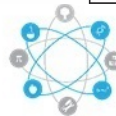
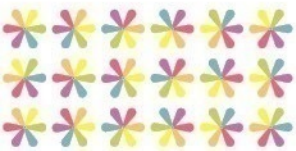
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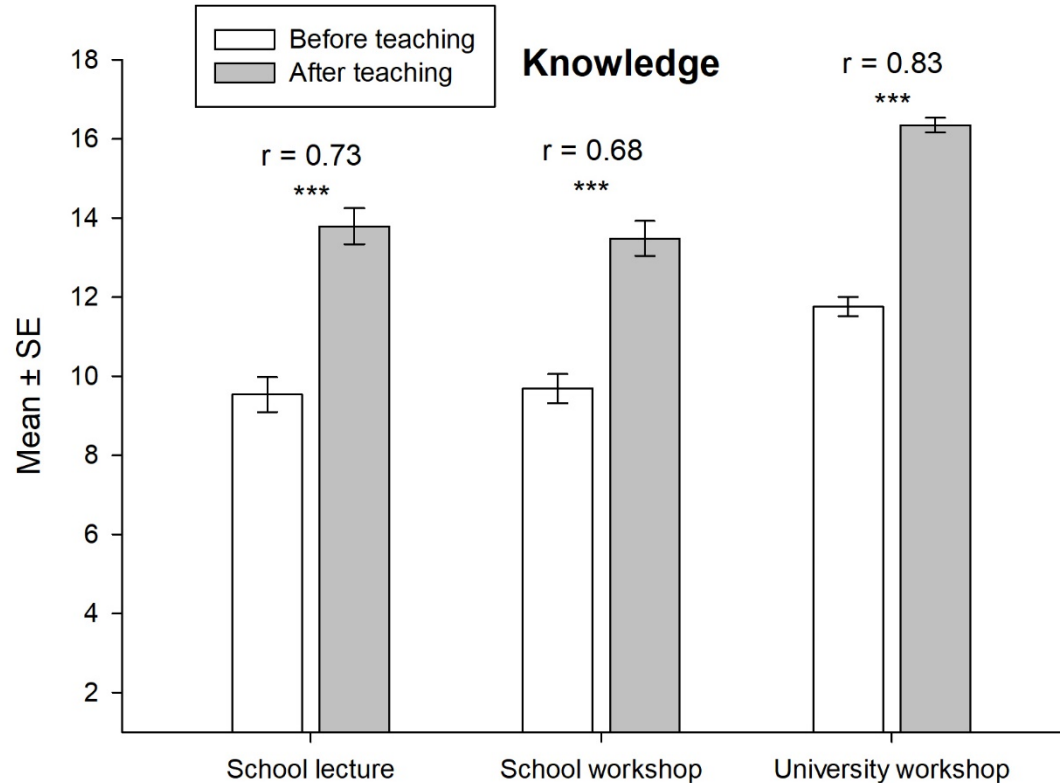
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### Rezultati



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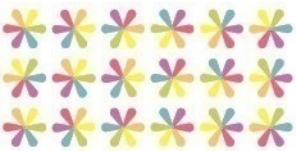
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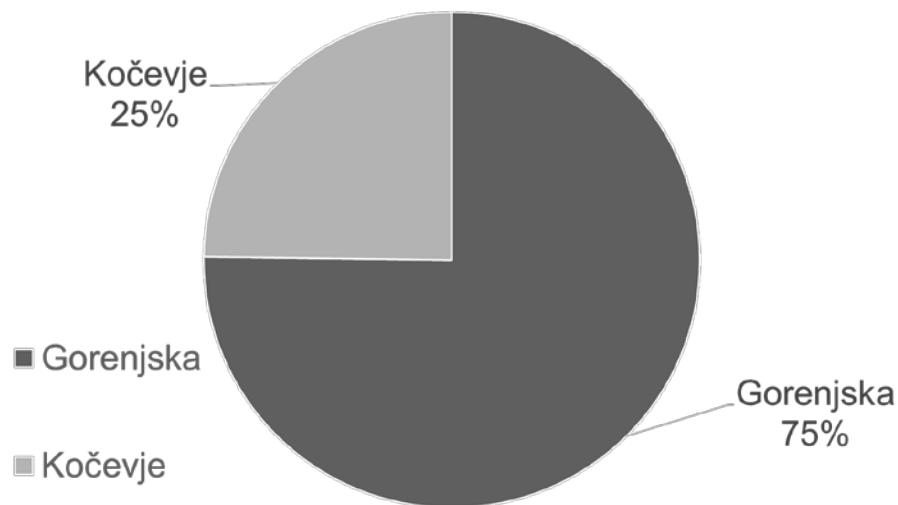
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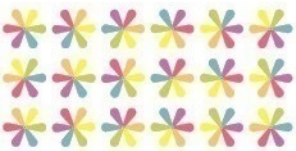
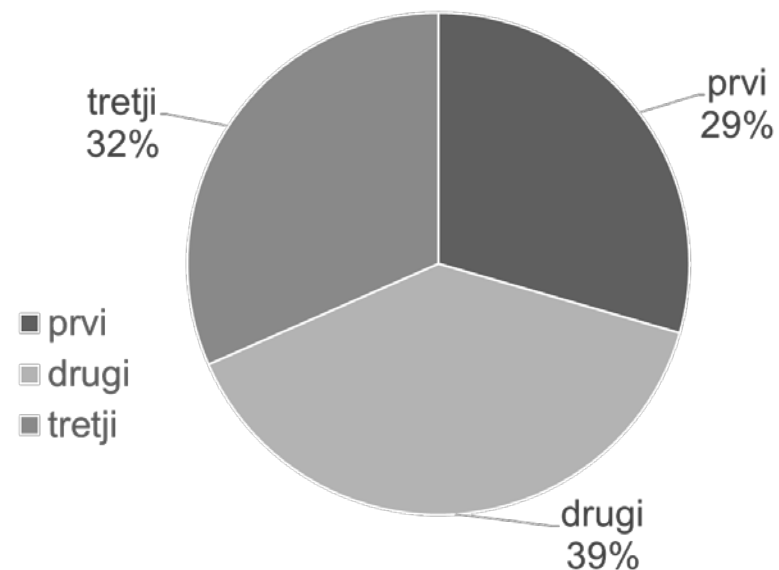
### • Stališča in znanje dijakov o risih



Regija obiskovanja šole



Letnik anketiranih



## Raziskave: RISI

### •Stališča in znanje dijakov o risih

TRDITEV	M	SN	SO	N
<b>Pripravljenost za učenje</b>				
O risih bi se rad učil.	<b>3,2</b>	0,05	1,07	472
Želim izvedeti, kako risi plenijo.	<b>3,3</b>	0,05	1,10	472
Rad gledam poljudno – znanstvene oddaje o risih.	<b>2,5</b>	0,05	1,11	470
Rad bi spoznaval življenjska okolja risa.	<b>3,2</b>	0,05	1,06	471
Rad bi izvedel več o evolucijskem razvoju risa.	<b>3,0</b>	0,05	1,10	468
<b>Varstvo</b>				
Najbolje bi bilo, da bi odstrelili vse rise.	<b>1,2</b>	0,03	0,65	472
Risi v ekosistemu niso pomembni.	<b>1,7</b>	0,04	0,94	471
Nameniti bi morali več denarja za varovanje risov.	<b>3,5</b>	0,05	1,04	471
Risov v Sloveniji ni potrebno ohraniti, ker živijo tudi drugod po Evropi.	<b>1,5</b>	0,04	0,81	472
Risa je v Sloveniji pomembno ohraniti za prihodnje generacije.	<b>4,2</b>	0,04	0,91	472
<b>Sprejemanje in strah</b>				
Prisotnost risa v gozdovih v svoji okolici bi sprejel brez večjih težav.	<b>3,6</b>	0,06	1,20	472
Risi ne sodijo v bližino človeških bivališč.	<b>3,1</b>	0,05	1,14	471
Taboril bi le tam, kjer daleč naokoli ne bi bilo nobenega risa.	<b>3,0</b>	0,05	1,16	472
Risov se bojim.	<b>2,7</b>	0,06	1,24	470
Strah bi me bilo hoditi po gozdu, če bi vedel, da tam živijo risi.	<b>2,7</b>	0,06	1,29	472

**NEOPREDELJENI**

**PRO - VARSTVENO**

**NEOPREDELJENO**

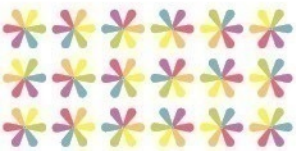


## Raziskave: RISI

### •Stališča in znanje dijakov o risih

	REGIJA ŠOLE				Mann-Whitneyev preizkus	
	Gorenjska		Kočevje			
TRDITEV	M	SN	M	SN	Z	p
<b>Pripravljenost za učenje</b>						
O risih bi se rad učil.	3,0	0,05	3,5	0,11	-4,06	<0,001
Želim izvedeti, kako risi plenijo.	3,2	0,06	3,7	0,10	-3,75	<0,001
Rad gledam poljudno – znanstvene oddaje o risih.	2,5	0,06	2,6	0,11	-0,76	0,447
Rad bi spoznaval življenjska okolja risa.	3,0	0,05	3,5	0,10	-4,34	<0,001
Rad bi izvedel več o evlucijskem razvoju risa.	2,9	0,06	3,3	0,11	-3,52	<0,001
<b>Varstvo</b>						
Najbolje bi bilo, da bi odstrelili vse rise.	1,2	0,03	1,2	0,06	-1,00	0,315
Risi v ekosistemu niso pomembni.	1,8	0,05	1,5	0,08	-2,58	0,010
Nameniti bi morali več denarja za varovanje risov.	3,4	0,05	3,7	0,10	-2,51	0,012
Risov v Sloveniji ni potrebno ohraniti, ker živijo tudi drugod po Evropi.	1,5	0,04	1,3	0,06	-2,75	0,006
Risa je v Sloveniji pomembno ohraniti za prihodnje generacije.	4,1	0,05	4,3	0,08	-2,35	0,019
<b>Sprejemanje in strah</b>						
Prisotnost risa v gozdovih v svoji okolici bi sprejel brez večjih težav.	3,5	0,06	4,0	0,11	-4,18	<0,001
Risi ne sodijo v bližino človeških bivališč.	3,1	0,06	3,1	0,11	-0,02	0,987
Taboril bi le tam, kjer daleč naokoli ne bi bilo nobenega risa.	3,0	0,06	3,0	0,11	-0,62	0,537
Risov se bojim.	2,8	0,07	2,6	0,12	-1,76	0,078
Strah bi me bilo hoditi po gozdu, če bi vedel, da tam živijo risi.	2,8	0,07	2,5	0,12	-2,30	0,022

Opombe: Anketirali smo 355 dijakov iz gorenjske in 117 dijakov iz kočevske regije.

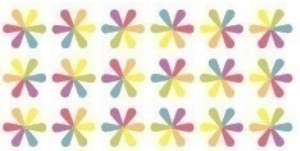
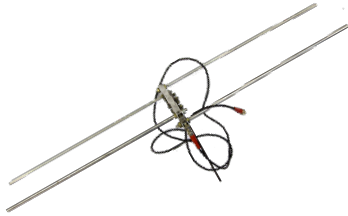


### •Stališča in znanje dijakov o risih

Stališča glede na količino znanja	nizko znanje		srednje znanje		visoko znanje		Kruskal Wallis test		
	M	SN	M	SN	M	SN	$\chi^2$	df	p
<b>TRDITEV</b>									
<b>Pripravljenost za učenje</b>									
O risih bi se rad učil.	2,8	0,12	3,2	0,06	<b>3,6</b>	0,15	17,041	2	<b>&lt;0,001</b>
Želim izvedeti, kako risi plenijo.	2,8	0,12	3,4	0,06	<b>3,5</b>	0,15	17,299	2	<b>&lt;0,001</b>
Rad gledam poljudno – znanstvene oddaje o risih.	2,0	0,12	2,6	0,06	<b>3,0</b>	0,15	27,591	2	<b>&lt;0,001</b>
Rad bi spoznaval življenjska okolja risa.	2,9	0,12	3,2	0,06	<b>3,4</b>	0,14	6,591	2	<b>0,037</b>
Rad bi izvedel več o evolucijskem razvoju risa.	2,5	0,12	3,0	0,06	<b>3,3</b>	0,14	18,477	2	<b>&lt;0,001</b>
<b>Varstvo</b>									
Najbolje bi bilo, da bi odstrelili vse rise.	1,2	0,08	1,2	0,03	1,2	0,09	0,145	2	0,930
Risi v ekosistemu niso pomembni.	1,8	0,12	1,7	0,05	1,6	0,12	3,211	2	0,201
Nameniti bi morali več denarja za varovanje risov.	3,2	0,12	3,5	0,06	<b>3,7</b>	0,15	9,266	2	<b>0,010</b>
Risov v Sloveniji ni potrebno ohraniti, ker živijo tudi drugod po Evropi.	1,6	0,11	1,5	0,04	<b>1,3</b>	0,09	8,166	2	<b>0,017</b>
Risa je v Sloveniji pomembno ohraniti za prihodnje generacije.	3,9	0,11	4,2	0,05	<b>4,3</b>	0,12	9,914	2	<b>0,007</b>
<b>Sprejemanje in strah</b>									
Prisotnost risa v gozdovih v svoji okolici bi sprejel brez večjih težav.	3,2	0,14	3,6	0,06	<b>4,1</b>	0,15	19,509	2	<b>&lt;0,001</b>
Risi ne sodijo v bližino človeških bivališč.	3,3	0,11	3,1	0,06	2,9	0,18	3,761	2	0,152
Taboril bi le tam, kjer daleč naokoli ne bi bilo nobenega risa.	3,4	0,14	3,0	0,06	<b>2,5</b>	0,15	15,906	2	<b>&lt;0,001</b>
Risov se bojim.	3,1	0,15	2,7	0,07	<b>2,3</b>	0,16	14,653	2	<b>0,001</b>
Strah bi me bilo hoditi po gozdu, če bi vedel, da tam živijo risi.	3,1	0,15	2,8	0,07	<b>2,3</b>	0,17	14,031	2	<b>0,001</b>
Opomba: Slabo znanje je imelo 72 dijakov, srednje znanje je imelo 341 dijakov in dobro znanje 59 dijakov in dijakinj									



### Diskusija

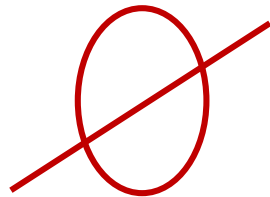


## Zaključki

Pomembno je:

- kdo se uči (KPT, NT, VT)
- v kakšnem okolju se uči
- kakšen je pristop k poučevanju

**BOLJE NEKAJ KOT NIČ**



**Raziskujem: IZ ŽIVLJENJA VOLKOV**

**Cilj:** Izvedel boš nekaj o volku kot predstavniku velikih zveri (volk, medved in ris), ki živijo v Sloveniji.

**Navodilo:**

1. Obišči spletno stran [www.volkovi.si](http://www.volkovi.si) in poišči podatke iz življenja volkov ter jih zapiši v preglednici.

Kategorija	Opis (podatki)
Uvrstitev v živalski sistem	
Telesne značilnosti	
Življenjski prostor	
Prehrana	
Razmnoževanje	
Ogroženost in varstvo	

**Preglednica 3.16:** Zapiski o volkovih

2. Slika 3.54 prikazuje, s katerimi živalmi se prehranjuje ta vrsta velikih zveri. Iz grafa razberi, katere živali so glavni plen volkov in kolikšen delež plena predstavljajo domače živali (rejene živali: ovce, koze).

**Slika 3.54:** Delež plena volkov

Žival	Delež (%)
srna	52,60 %
jelen	21,29 %
drugi prašič	18,28 %
zajec	3,90 %
črnačak	1,92 %
domače živali	0,75 %
muflon	0,64 %
drugo	1,17 %

Katera vrsta živali je glavni plen volkov?  
Kolikšen delež plena volka predstavljajo domače živali?

SDZ, Naravoslovje MK (2019)

