



# ŽENSKE V ZNANOSTI

Predstavitev primerov dobrih praks poučevanja o Ciljih Združenih narodov 2030 in o podnebnih spremembah

Avtor: Daniel Doz



# ŽENSKE V ZNANOSTI

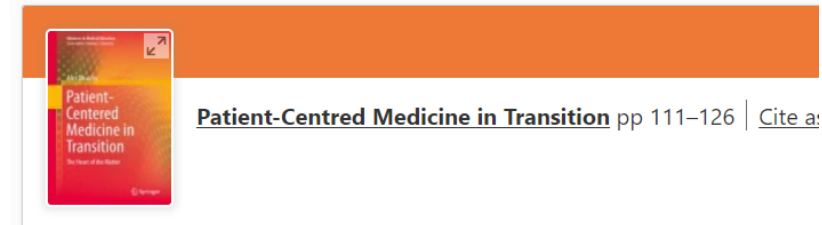
- IME ŠOLE: Licej Prešeren
- DATUM IZVEDBE: marec 2021, februar-marec 2022
- ODDELEK: uporabne znanosti
- PREDMET: matematika in fizika
- UČITELJ: prof. Alja Stergonšek, prof. Daniel Doz
- UČNI CILJI: spoznati ženske like v znanosti
- S katerim ciljem ZN se aktivnost povezuje?



# UVOD

- Spolni stereotipi v:
  - **matematiki** (Cvencek idr., 2011; Forgasz idr., 2004; Lindberg idr., 2010; Steele, 2003);
  - **fiziki** (Eaton idr., 2020; Maries idr., 2018; Reid in Skryabina, 2003; Wade, 2022);
  - **biologiji** (Eaton idr., 2020; Lauer idr., 2013; Martin, 1991);
  - **kemiji** (Levine idr., 2015; Makarova idr., 2019; Steegh idr., 2019; Udousoro, 2011);
  - **medicini** (Bickel, 2001; Bleakley idr., 2014; Hamberg, 2008; Verdonk idr., 2009).

Will this 'feminization' of medicine result in a change of cultural values, moving from a 'tough-minded' to a 'tender-minded' culture? Women are better communicators than men in medical contexts and so a feminization of medicine promises to change the landscape of communication with patients and colleagues. Importantly, as such a feminization occurs, will medical education develop a parallel literacy in gender theory, especially contemporary feminisms, to better understand these shifting and complex gender issues?



[Home](#) > [Patient-Centred Medicine in Transition](#) > Chapter

## Gender Matters in Medical Education

[Alan Bleakley](#)

Chapter | [First Online: 17 December 2013](#)

1539 Accesses | 5 Citations

Part of the [Advances in Medical Education](#) book series (AMEDUC, volume 3)



# STEREOTIPI V MATEMATIKI

APPLIED MEASUREMENT IN EDUCATION, 22: 164–184, 2009  
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 DOI: 10.1080/08957340902754635



## Gender Differences in Large-Scale Math Assessments: PISA Trend 2000 and 2003

Ou Lydia Liu

Educational Testing Service, Princeton

Mark Wilson

Graduate School of Education, University of California, Berkeley

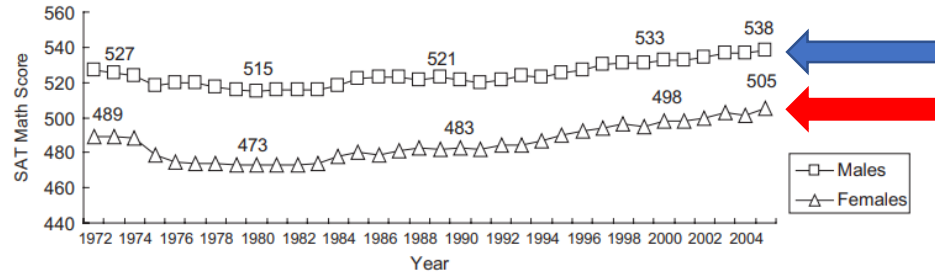


FIGURE 1 SAT mathematics score over the past three decades.

TABLE 5  
 Math Performance by Item Type

	Males		Females	Difference (SE)	z	d
	Mean (SD)	Mean (SD)	Mean (SD)			
<b>PISA 2000</b>						
Closed Constructed-Response	-.28 (.96)	-.38 (.95)	.10 (.05)	1.97*	.10	
Multiple-Choice	.11 (.03)	.11 (.02)	.00	.00	.00	
Open Constructed-Response	-.80 (.76)	-.86 (.75)	.06 (.50)	1.18	.08	
<b>PISA 2003</b>						
Closed Constructed-Response	.42 (.61)	.37 (.61)	.05 (.03)	1.83	.10	
Multiple-Choice	.10 (.11)	.10 (.11)	.00	.00	.00	
Open Constructed-Response	-.95(1.00)	-1.03 (.94)	.08 (.04)	2.12*	.08	
Short Response	.28 (.84)	.25 (.82)	.03 (.06)	.54	.14	
Complex Multiple-Choice	.80 (.37)	.73 (.36)	.07 (.03)	2.61**	.19	

Note. \* $p < .05$ ; \*\* $p < .01$ .

z statistic was calculated by dividing the difference by its standard error.

d = Effect size, calculated by dividing the mean difference by the pooled standard deviation of the two groups.

Child Development, May/June 2011, Volume 82, Number 3, Pages 766–779

## Math–Gender Stereotypes in Elementary School Children

Dario Cvencek, Andrew N. Meltzoff, and Anthony G. Greenwald  
 University of Washington

Imagine yourself an elementary school teacher. One of your female students fails to complete an arithmetic assignment and offers an excuse that **“Girls don’t do math.”** What might be a pretext for **avoiding homework** could also be the outcome of social-cognitive development. Combining cultural **stereotypes (“Math is for boys”)** with the knowledge about one’s **own gender identity (“I am a girl”)** to influence one’s **self-concept (“Math is not for me”)** reflects the tendency to achieve what social psychologists (Heider, 1946) call *cognitive balance*.

# PRI NAS?

Education and Self Development. Volume 16, № 4, 2021

## Students' Mathematics Achievements: A Comparison between Pre- and Post-COVID-19 Pandemic

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Our second aim was to investigate possible grade differences between genders. At the end of the first semester, males had the mean grade  $M=7.98$  ( $SD=1.42$ ;  $min=5$ ;  $max=10$ ), while females had an average of  $M=8.31$  ( $SD=1.29$ ;  $min=4$ ;  $max=10$ ). At the end of the second semester, i.e., at the end of the school year, boys' mathematics grade was on average  $M=7.45$  ( $SD=1.49$ ;  $min=4$ ;  $max=10$ ), while for girl it was  $M=7.79$  ( $SD=1.43$ ;  $min=3$ ;  $max=10$ ). Due to the violation of the assumption of normality, the non-parametric Mann-Whitney U test was used to check the differences between men and women for the grade at the end of the first semester and second semester. Firstly, the test showed a statistical significance ( $U=5698$ ;  $p=.054$ ) at the end of the semester, indicating that girls tend to have higher mathematics grades than boys. Secondly, the non-parametric Mann-Whitney U test showed no statistically significant differences in mathematics grades between boys and girls ( $U=5753$ ;  $p=.069$ ) at the end of the second semester, which indicates that boys and girls had similar final grades for mathematics.



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## Students' Perceived Invested Effort in the Italian National Assessment of Mathematics

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### National Assessments as Part of Students' Grade

Students are mainly against the grading of their INVALSI mathematics standardized assessments ( $Mdn=2.00$ ). The differences between males' ( $Mdn=2.85$ ) and females' ( $Mdn=2.20$ ) opinions about the inclusion of the national assessments as part of their final mathematics grades are statistically significant ( $U=5305$ ;  $p=.003$ ). Hence, we conclude that females are more convinced that the INVALSI should not influence their final grading in mathematics than males.

### Perceived Difficulty of the Test

Students felt the mathematics standardized assessment was normal-difficult ( $Mdn=5.00$ ). When students' perceived test difficulty was considered, differences among girls ( $Mdn=4.55$ ) and boys ( $Mdn=4.08$ ) was found ( $U=5529$ ;  $p=.017$ ): girls tend to evaluate the INVALSI test as more difficult than boys. Details are presented in Table 4.

# ŽENSKE V ZNANOSTI

## Mednarodni dan žensk in deklet v znanosti

11. FEBRUAR

Don't let anyone rob you of your imagination, your creativity, or *your curiosity.*

- Mae Jemison



licejpreseren Danes, 11. februarja, obeležujemo mednarodni dan žensk in deklet v znanosti, katerega namen je spodbuditi zanimanje žensk in deklet za znanstvene predmete ter opozoriti na enakopravne možnosti v znanosti. Ženske so na znanstvenem področju še vedno premalo zastopane. Ali ste vedeli, da samo dve ženski sta do danes dobitnici Fieldsove medalje za matematično raziskovanje?



Zgolj 30% študentk v visokošolskem izobraževanju izbere znanstvene predmete



Od leta 1901 so ženske in dekleta prejele le 23 od 637 Nobelovih nagrad na področju znanosti



(Nobel Prize, 2022)

# UČNI CILJI AKTIVNOSTI

- UČNI CILJI: obeleževanje dneva žensk in deklet v znanosti
- S katerim ciljem ZN se aktivnost povezuje?





# POTEK IZVEDBE

- Dijaki 2.UZ so pripravili 2 sliki, ki smo jih objavili na šolskem Instagramu.
- Dijaki 5.ZL so pripravili krajši posnetek, kjer predstavijo spolne stereotipe v matematiki in znanosti nasploh.
- Zaključni se 8. marca: dijaki 3.UZ, 4.UZ in 5.UZ morajo pripraviti razmišljanje o temi žensk v znanosti.



# ŽENSKÉ V ZNANOSTI



licejprešeren Ženske v znanosti.

Kdo so bile in katere so njihove zasluge oziroma odkritja v znanosti?

Več o tem na razstavi v veliki dvorani v 4. nadstropju.

Plakate so izoblikovali dijaki 4. UZ, ko so bili v prvem razredu.



#zenskevznanosti #zenske #znanost #znanstvenice



# UČNI CILJI AKTIVNOSTI

- UČNI CILJI: spoznavanje različnih ženskih likov v znanosti
- S katerim ciljem ZN se aktivnost povezuje?





# POTEK IZVEDBE

- V prvem letniku so dijaki 4.UZ pripravili pod mentorstvom prof. Stergonšek raziskave in plakate o ženskah v znanosti
- Vsak dijak je prebral knjigo o kaki znanstvenici
- Pri pouku fizike (prof. Stergonšek) so predelali in pripravili raziskave/posterje
- Razstava v naši veliki dvorani

# ODZIV DIJAKOV IN MNENJE UČITELJA O AKTIVNOSTI

- Aktualna tematika!
- Dijaki spoznavajo vlogo žensk v znanosti
- Prebijemo „gender stereotypes“!
- Uporabiti socialna omrežja (Instagram, TikTok, BeReal)

