Using SAS® Reporting for Self Evaluation of High Schools

Anja Habus-Korbar[1], Nataša Tepić[1], Vesna Lužar-Stiffler[2,3]

[1] *National Center for External Evaluation of Education (NCEE), Marulićev trg 18, Zagreb*
[2]*University Computing Center, J. Marohnića 5 and* [3]*Cair Center, Maksimirska 116, Zagreb*
anja.korbar@ncvvo.hr, natasa.tepic@ncvvo.hr, vluzar@srce.hr

Abstract. *The aim of this poster is to show how the results of a National assessment were exhibited to the schools through a simple, clear, and easily interpreted report created using SAS reporting and ODS thus minimizing potentially misleading statistical interpretations of results.*

Keywords. SAS®, ODS, NCVVO, NCEE, education, school self-evaluation

1. Introduction

The objectives and functions of NCEE, among others, are to monitor and evaluate global and regional performance of students in order to improve the quality of the Croatian educational system. National assessment is a testing procedure conducted on high school students with the goal of learning about student knowledge and about the educational system. To constantly improve the quality of school functioning, schools in Croatia are obligated to use results from the National assessments and all other educational efficiency indicators for constant analysis and periodic self-evaluation [1].

National assessment results represented the first comparative data on student achievement acquired through tests based on objective evaluation criteria and therefore these were generally accepted as both a good start point for discussions of current school efficiency/quality and as a benchmark for improvement.

The aim of this poster is to show how the results of the National assessment were exhibited to the schools.

To avoid misleading interpretation of the results (as for example would ensue, if a naked average/mean score was used as the comparison tool) the report had to be both clear and easily accessed, but at the same time give evaluators the bigger picture in proper context.

2. Methodology

The report was generated by NCEE (Informatics Department) and University Computing Center, Zagreb using SAS® 9.1 software following the National assessment data collection in May 2006. Key SAS procedures used were proc report and proc capability. SAS Output Delivery System (ODS) allows the user to create hierarchical reports in HTML format which are linked and could easily be published on the web [2].

3. Results and discussion

Below is the main report schools received following the National assessment (please see Figure 1). Along with the mean/average result of the test for school, program and class, the report also contains the percentage of students in a specific class/program/school that (based on their scores) fall into one of the four categories at the national level (represented/exhibited by quartiles).

The main benefit of this approach is that the schools can now easily compare themselves at the national level. In addition to the table report, the schools were presented with a graphical display (histogram). For purposes of comparison at the national level, two histograms were generated for each school, one representing the distribution of the school results and another representing the results at the national level.

To differentiate the scores, the traffic lighting idea was used. This approach is generally recognized as a simple and valuable technique for use in performance/evaluation reporting [3].
Another helpful tool for comparison is a reference line visible on each graph, representing the 1st, 2nd, and 3rd quartile at the national level.

In addition to reporting on the naked mean score of the test, schools were also presented with the

percentage of their own students in each school/class/program falling into different quartiles at the national level.

4. Conclusion

This simple, clear, and easily interpreted report facilitates self-evaluation by the school at the national level thus minimizing potentially misleading statistical interpretations of results.

After the first National assessments were conducted in May 2006, the first systematic implementation of self-evaluation/improvement were begun in all of the gymnasium program secondary schools in Croatia.

5. References

[1] Act on Primary and Secondary Education (Official Gazette, 87/08), Article 88.
[2] Andrew H. Karp, Steps to Success with the SAS® Output Delivery System, Proceedings of the SAS Global Forum: 2008, USA, SAS Institute Inc. Paper 172, 2008.
[3] Carpenter, A. Carpenter's Complete Guide to the SAS REPORT Procedure, SAS Institute Inc., Cary, NC, USA (2007).

Program	Razredno odjeljenje	Predmet dio ispita	Broj učenika u razredu	Prosječni broj bodova razrednog odjeljenja	Prosječni postotak ostvarenih bodova u odnosu na maks.br.bodova	Prosječni broj bodova – nacionalno	Postoci u kvartilima - Republika Hrvatska				Postoci u kvartilima - program			
							<p25	p25-p50	p50-p75	>=p75	<p25	p25-p50	p50-p75	>=p75
Prirodoslovno-matematička gimnazija	1c	Ukupan rezultat	34	73.59	73.59	63.74	2.94	14.71	26.47	55.88	2.94	20.59	26.47	50.00
		Književnost	34	33.74	74.97	29.78	8.82	20.59	29.41	41.18	8.82	26.47	29.41	35.29
		Jezik	34	11.32	75.49	9.16	8.82	8.82	29.41	52.94	8.82	8.82	29.41	52.94
		Izražavanje	34	28.53	71.32	24.80	0.00	29.41	35.29	35.29	0.00	29.41	35.29	35.29
Jezična gimnazija	1a	Ukupan rezultat	31	63.00	63.00	63.74	9.68	54.84	12.90	22.58	9.68	48.39	19.35	22.58
		Književnost	31	28.77	63.94	29.78	29.03	25.81	22.58	22.58	25.81	29.03	22.58	22.58
		Jezik	31	9.81	65.38	9.16	19.35	29.03	16.13	35.48	19.35	29.03	16.13	35.48
		Izražavanje	31	24.42	61.05	24.80	25.81	45.16	16.13	12.90	25.81	45.16	16.13	12.90
	1b	Ukupan rezultat	32	65.25	65.25	63.74	15.63	28.13	25.00	31.25	15.63	25.00	28.13	31.25
		Književnost	32	27.94	62.08	29.78	37.50	21.88	21.88	18.75	34.38	21.88	25.00	18.75
		Jezik	32	9.91	66.04	9.16	15.63	21.88	34.38	28.13	15.63	21.88	34.38	28.13
		Izražavanje	32	27.41	68.52	24.80	9.38	15.63	53.13	21.88	9.38	15.63	53.13	21.88
Prirodoslovno-matematička gimnazija		Ukupan rezultat	34	73.59	73.59	63.74	2.94	14.71	26.47	55.88	2.94	20.59	26.47	50.00
		Književnost	34	33.74	74.97	29.78	8.82	20.59	29.41	41.18	8.82	26.47	29.41	35.29
		Jezik	34	11.32	75.49	9.16	8.82	8.82	29.41	52.94	8.82	8.82	29.41	52.94
		Izražavanje	34	28.53	71.32	24.80	0.00	29.41	35.29	35.29	0.00	29.41	35.29	35.29
Jezična gimnazija		Ukupan rezultat	63	64.14	64.14	63.74	12.70	41.27	19.05	26.98	12.70	36.51	23.81	26.98
		Književnost	63	28.35	63.00	29.78	33.33	23.81	22.22	20.63	30.16	25.40	23.81	20.63
		Jezik	63	9.86	65.71	9.16	17.46	25.40	25.40	31.75	17.46	25.40	25.40	31.75
		Izražavanje	63	25.94	64.84	24.80	17.46	30.16	34.92	17.46	17.46	30.16	34.92	17.46
Ukupno za sve programe i odjeljenja		Ukupan rezultat	97	67.45	67.45	63.74	9.28	31.96	21.65	37.11	9.28	30.93	24.74	35.05
		Književnost	97	30.24	67.19	29.78	24.74	22.68	24.74	27.84	22.68	25.77	25.77	25.77
		Jezik	97	10.37	69.14	9.16	14.43	19.59	26.80	39.18	14.43	19.59	26.80	39.18
		Izražavanje	97	26.85	67.11	24.80	11.34	29.90	35.05	23.71	11.34	29.90	35.05	23.71

Figure 1. Schools Level Report for Results of the National Assessment. (Screenshot)
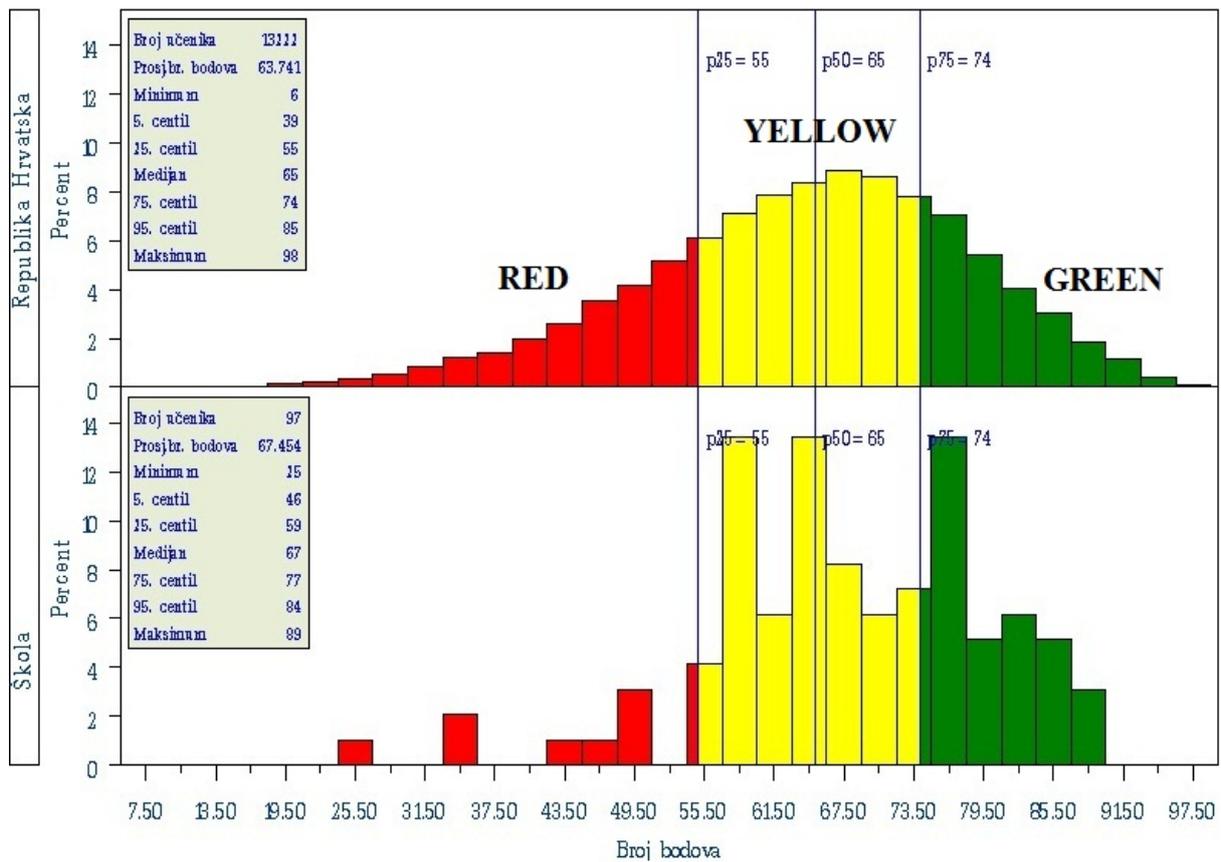
Figure 2. Distribution of School Results (bottom histogram) and of Results at the National Level (top histogram)