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Tutoring & Mentoring
ICT and Digital Skills among Teachers (1)
Work-Integrated Learning: University-Industry Collaboration
Technology Enhanced Learning (1)
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Learning Space Design
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Maths and Statistics in Higher Education

Social Media and Social Networks in Education
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ABOUT ICERI2018 Proceedings

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2. The "ICERI2018_index.pdx" should be the currently selected index in the Search window (if the index is not listed, click Add, locate the index file .pdx, and then click Open).
3. Type the search text, click Search button, and then proceed with your query.

For Acrobat 9 and later:
1. In the “Edit” menu, choose “Search”. You may receive a message from Acrobat asking if it is safe to load the Catalog Index. Click “Load”.
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

For Acrobat 8:
1. Open the Search window, type the words you want to find, and then click Use Advanced Search Options (near the bottom of the window).
2. For Look In, choose Select Index.
3. In the Index Selection dialog box, select an index, if the one you want to search is available, or click Add and then locate and select the index to be searched, and click Open. Repeat as needed until all the indexes you want to search are selected.
4. Click OK to close the Index Selection dialog box, and then choose Currently Selected Indexes on the Look In pop-up menu.
5. Proceed with your search as usual, selecting other options you want to apply, and click Search.

For Acrobat 7 and earlier:
1. In the “Edit” menu, choose “Full Text Search”.
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.
WHAT A WONDERFUL WORLD: PORTUGAL IN THE INTERNATIONAL POSTERS COMPETITION

M.M. Nascimento¹, J.A. Martins², A. Estrada³

¹Universidade de Trás-os-Montes e Alto Douro (PORTUGAL)
²Instituto Politécnico da Guarda (PORTUGAL)
³Universidad de Lleida (SPAIN)

Abstract

For the third time, in 2017 Portugal was a participant in the third International Posters Competition of the International Institute of Statistical Literacy, ISLP. The aim of the ISLP competition is supporting, creating, and boosting activities of statistical literacy in every country in the world, materializing through the execution of a project work in statistics and its disclosure by form of a poster. The schools that participated in the first ISLP competition still try to continue, although an effort has been made to involve all the Portuguese schools the fact is that the schools do not involve themselves in this competition. In this paper, we analyse the views of the organizers, the jury members, and of the teachers in the ISLP competitions.

Keywords: Statistics, ISLP/IASE, International Competition.

1 INTRODUCTION

Statistics has a relevant role in science and citizens’ daily life, which is unquestionable. Therefore, and in summary statistical literacy is important not only to understand world around us but also to empower citizenship. As Mitag [1] refers that “Nowadays, the importance of statistical literacy also as a key qualification for employability” so from 2007 ISLP organizes international competitions. The first competition took place in Portugal in 2007 and had a quiz format similar to the popular contest “Who wants to be a millionaire”. As Sanchez and Campos [2] report “The next competition of the ISLP was in 2009, a worldwide competition in 3 phases in many countries, but with similar format to the Portuguese one. The finalist teams competed at the ISI meeting in Durban, South Africa, in 2009.” After that, the competitions became poster competitions. The actual International Posters Competition of the ISLP aim to support, create and increase activities of statistical literacy in every country in order to involve more and more students, teachers as society members in statistics in order to get public attention. In the first poster competition 2010/2011, the students from Third Cycle and Secondary School of S. Pedro (Vila Real) won a second place in the older age division and the Secondary School of Portela (Lisbon) won the second prize in the younger age division (Fig. 1, the two left side images). In the second competition 2012/2013, the students from Third Cycle and Secondary School of Pinheiro (Penafiel) won an honorable mention in the younger age division (Fig. 1, right image).

Figure 1. Portuguese poster winners (two left images) and honorable mention poster (right image).

In summary the aim of all the competitions is to motivate a positive experience of groups of students (in ages divisions) in performing statistical investigations with real data. In doing so we expect an improvement in the statistical thinking and reasoning in students. In this paper, we analyze the views of the competition organizers, some of the jury members, and some of the teachers in the ISLP competitions.
In this paper, we analyze the views of the competition organizers, some of the jury members, and some of the teachers in the ISLP competitions through a survey. Each category (students, teachers, and jurors) had a specific survey and despite of few answers the ones we got were analyzed (qualitative content analysis) and the opinions inspired us to continue to invite schools, teachers and students in order to participate in 2018/2019 International Posters Competition of the ISLP.

2 METHODOLOGY

In order to catch a glimpse on the organizers an interview was done and their main aspects were described. The juror elements fulfilled a Google Drive survey. The ages of the jurors ranged from 40 to 70 and they were mainly women (5 out of 10). Finally, the teachers that agreed to answer fulfilled another Google Drive survey and their respondents had ages from 30 to 48 and were mainly women (4 out of 5). The survey asked every respondent their participation dates in the different ISLP national competitions and their opinion about the competition importance for its main subject statistical literacy. Since most of the students had already gone out of the schools were they were enrolled in the national competition it was not possible to get any respondent to the third Google Drive survey built. Since we had very few answers we decided to emphasize the respondents' opinions using their own words after a brief content analysis.

3 RESULTS

In the next paragraphs, the results of the organizers, jury members, and teachers are presented.

3.1 Views of the organizers

From the beginning, it was quite a challenge to organize the country competition. In 2009 it was difficult since at the end we should gather all the student in one place to do the final selection. Since ISLP adopted the poster format, the dissemination and the motivation and involvement of the teachers became our main challenge. According to Carvalho and Solomon [3] "The Portuguese curriculum has recently moved away from a focus on individual subject disciplines towards the development of cross-disciplinary competencies for civic life, including the development of statistical literacy in application to everyday problems." This text reports to a mathematics curricula change of 2007 but in 2013 mathematics curriculum moved back to the middle twenty-century curricula, so a strong drawback in the 2007 conceptions and in the implementation of a new approach and a fresher look to statistics, and particularly towards statistical literacy had its breath taken away. Nevertheless, some of the teachers continue to like to be involved and continue to encourage their students to participate. As organizers, our main tasks are to translate to Portuguese all the documents produced by ISLP about the competition rules, teachers notes, poster guidelines, and judging criteria. Our task also involves finding the jury of the National Poster competition. We also disseminate the competition all over Portuguese schools (through ALEA and web sites of teachers associations, social networks, and so on). For the last competition (with the support of University of Trás-os-Montes and Alto Douro) we were able to make a Portuguese website available with all the Portuguese information about the National Poster Competition 2016/2017. Also very important is finding sponsorship for the national prizes, and that unfortunately was not yet accomplished in the way we think students and teachers deserve. Finally, in every competition the organizers had to translate to English the winner posters in order to the ISLP international jury may understand them.

3.2 Views of the elements from the jury

The jurors of the National Posters Competitions (Table 1) have always been higher education teachers, teachers the secondary school level (ages 16-18), 3rd basic cycle level (CEB, ages 13-15) from the 2nd CEB (ages 12-11) and from the 1st CEB (ages 6-10).

<table>
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<th>Competitions</th>
<th>1st CEB</th>
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<td>2016/2017</td>
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We invited all elements of the jury – all teachers – to answer a survey as jurors in the ISLP National Posters competitions and we only had 10 answers (mainly from those we still were able to contact by phone) 50% were women, and in this paper we only focus some of their answers. There we stated that “Statistical Literacy: beyond the basic knowledge that underlies reasoning and statistical thinking – reading and interpreting data, graphs, their origin, etc. – the citizen must have to be an (in)formed and critical person in the current era of information” and all agreed (30%) or totally agreed (40%) with it and the remaining were indifferent. Among the main reasons for the importance of the ISLP competition in the development of statistical literacy the jurors wrote:

“The importance of the competition in developing statistical literacy stems from the participants having to study a theme with interest in which they have to involve statistical concepts through group work that appeals and develops synthesis, linguistic, social, and visual abilities.”

“Dealing with a real problem allows the development of important skills that promote citizenship and statistical literacy.”

“The competition is important because it promotes (...) the approach of a theme based on statistics and makes the students go through several stages of an ‘investigation’. On the other hand it has been a stimulus, providing a competitive opportunity to share and apply statistical knowledge and the surrounding reality, trying to use rigorous and appealing language using the poster format.”

“Students and schools carry out group work on their countries that show and report data and their statistical treatment to students and schools in other participating countries. They alert and are alerted based on a theme that shows the diversity of countries, difficulties, advances and hideaways, etc., and forming opinions.”

In the survey, conveyed 70% of the jurors liked or liked very much that the final artifact for the competition was a poster and they gave reasons such as:

“It is a catchy format for the participants.”

“[Posters are] Easy to implement and to compare across groups. You may lose a little bit about presentations because you might give more importance to form and less to content; the competition is about literacy, and the focus should be it.”

“Poster is an appealing format and at the same time demanding in form, it can be rigorous, and requires synthesis skills. In addition, it is a vehicle of transmission of information that also stimulates creativity and facilitates the sharing of results between the students (groups) and also another ‘public’.”

Analyzing the cons and the pros of considered by the jury we had complains of lack of time to accomplish the task thoroughly (2 teachers, 20%), since it overlaps with all the things that teachers have to do in schools (preparing classes, giving them, and bureaucracies). One juror did not really wishes to be a juror anymore; and another one complained he could not find the ISLP Portuguese site (but this was due to an upgrade to the university webpages and probably it was erased). The remaining 8 (80%) had no cons to refer. The pros written in the answers of those jurors mainly were generally about the statistical literacy dissemination and ways of connecting statistics with other areas, since students and teachers could view the themes (such as environment and history, as referred) in different perspectives. As a summary, we chose one of the jurors’ texts:

“The variety of proposals and ways of approaching the themes, as well as the rigor that some of the works present (as a result of the hard work of teachers and students ...). Another aspect that I liked was the creativity presented in some works. Finally, being a member of the jury allows a more comprehensive view of the work done in several schools and by students of different age levels, which is very enriching.”

To end the elements of the jury views, from the 10 answers only 2 did not want to participate again as jurors, what we think is very nice and keep cheering us on, since all their work is voluntary.

3.3 Views from the teachers

The teachers that participate in National Posters Competitions are our heroes! Without their will and commitment, there was no Portuguese Poster Competition! However, as they all say, they have a lot of work; also some of them change schools, which is why with had only five answers to our survey. In summary, answering National ISPL surveys is not a priority. Based on our registrations in Table 2 we
present the number of teachers involved by age division and year of the competition. Some of the teachers are the same, that is, for instance, as we know in 2010/2011 one teacher worked with all his students (younger and older students) and present two final posters to that year competition, and one won the second prize for Portugal in that year. In the last year, we also know that another two teachers of a professional school worked with all their students (younger and older students) made a school competition and the their own jury chose the posters that were presented to the Portuguese competition and even won the National Posters Competitions in the younger age division. Therefore, despite we still have few teachers involved in the competition they embrace it as their own and are able at least to involve and motivate their own students.

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<tr>
<td>2016/2017</td>
<td>3</td>
<td>4</td>
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From all the five teachers that answered the survey two identify themselves as the school coordinators of the competition as well as teachers and only one was a man. All of them strongly agree with our statement of statistical literacy (please review it above). Among the reasons that considered important in their participation in this competition, and as an example:

“It is important for students to become aware of the importance of statistics, to work with real data, to draw conclusions, and to be critical.”

Three of the teachers totally agreed that the theme were motivating but two of them only agreed and one of them gave a reason that reminded the jurors opinions about the importance of the competitions. That is, “My choice came from the fact that the theme ‘History of my country’ was interesting but at first we had a hard time deciding how to approach the subject. The theme ‘Agriculture’ seemed easier for us.”

In what concerns the choice of the project at work for the competition as an appropriate option all the teachers totally agreed. In addition and as reasons, two different perspectives:

“More and more students work in groups and have to outline their projects and accomplish them.”

“I think competition is an important and motivating element in accomplishing any work. Our students have to understand that only with rigor and demand can they achieve good results in such a competitive world.”

As with the jurors, all the teachers liked (20%) or liked very much (80%) that the final artifact for the competition was a poster, but different views emerged:

“This is the most practical way to present, but a more dynamic presentation is more interesting (for example, making a video).”

“I find it interesting the final result to be a poster because it is appealing and trains the students’ synthesis. The students perform a work that can begin in the elaboration of a survey, collect the data and make the data analysis and present the conclusions as a poster.”

Analyzing the cons and pros of the National Competitions a teacher mentioned, “Participation in competitions for prizes should not be filled among students, but it is still an important factor. I believe that at national level there should be a more rewarding prize.” We finish with a comment of one of the teachers wrote: “It enables the development of statistical literacy and awakens students’ interest towards statistics. Unfortunately, the school does not give the importance that it should give to this subject. On the other hand it makes us think, reason, and develop themes that until now had not been possible to address.”
4 FINAL REMARKS

Summarizing our analysis, we think that the National Poster Competition may help to contribute to the development of statistical literacy. As organizers, we still have a lot work to do in order to accomplish the ISLP aims. Possibly our future work should be directed to the dissemination through active involvement with schools in order to show that with small steps like being involved in a national competition we may lead schools – and therefore, society – to the long run purpose. As Branco and Martins [4] said “A citizen with the skills that statistical literacy gives is an informed citizen, will live better life, and may contribute in a clarifying way to a fairer society”.

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REFERENCES


