NARRATIVES OF BRAZILIAN PARTICIPANTS IN THE INTERNATIONAL POSTERS COMPETITION

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In this paper, besides telling a story of the International Poster Competition in the world and in Brazil, we analyze the narratives of teachers, to observe if the participation in the ISLP improves teaching and learning in statistics education. These narratives were analyzed using the methodology of the Discourse of the Collective Subject. The perception of the teachers, present in these narratives, about the contribution of the ISLP, in the promotion of the Statistical Literacy, identified that the possibility to socialize the work made in classroom, and divulged in other spaces, was an incentive to learn statistics and motivated the students to overcome the difficulties faced in their construction of the posters.

INTRODUCTION

The development of skills and competences about Statistical Literacy are demands of all nations. A subject endowed with such requirements (Gal, 2002), can exercise his own citizenship with more autonomy. To promote quantitative skills around the world, with particular regard to Statistics, the International Statistical Institute – ISI established, in the late 90's, a committee, and carried out other actions until the creation of First International Statistical Literacy Competition in the 2000s.

This text describes the trajectory of this period of time, focusing on the Brazilian context. Specifically, it presents the analysis of the narratives of the teachers who participated in the last competition, in Brazil, in the 2016-2017 edition. Due to the methodology of the Discourse of the Collective Subject, the perception of the teachers, present in these narratives, about the contribution of the ISLP, in the promotion of the Statistical Literacy, are evidenced.

THE CREATION OF INTERNATIONAL STATISTICAL LITERACY COMPETITION

The International Statistical Institute – ISI established, in 1994, an ISI committee, known at the World Numeracy Program Advisory Committee. In 1997, it was recognized that International Association for Statistical Education - IASE is a natural Section to have a major involvement in the World Numeracy Programme –WNP. In 2000, this program passed a being the umbrella of the IASE. WNP involving different countries, meeting in search of financing and collective articulation for the development of activities aimed at the dissemination of quantitative skills, as well as the development of statistical science and scientific practices of data collection. However, the term “numeracy”, with the passage of time, began to be questioned, because it is too general including all kinds of science that treat with numbers. In 2001, the information about the actions and what directions WNP wanted was gather, from as many people as possible. Reports were written and presented to the IASE Executive Committee and ISI. Based on these reports it was decided to change the name of the project to International Statistical Literacy Project - ISLP. It was further decided by the IASE Executive Committee that the next project of the ISLP would be the creation of a website. Initially, the main activity of ISLP was the construction and maintenance of the ISLP site to allow ISLP management to work on ISLP web pages very easily, directly from the web browser, just as any other visitor could also add new materials to the web page. Thus, a new phase of promotion of ISLP was initiated by sending notices to different locations in the world where ISLP was not yet known, presenting information about the Project. In 2005, at the 56th ISI meeting, inspired by some of the experiences occurring in different places around the world, the First International Statistical Literacy Competition was to be held in South Africa, in 2009 (ISLP, n.d.).

The first Competition of the International Statistical Literacy Project (ISLP), also told a pilot, which occurred in 2008. After, in 2009, the Competition had three phases, and was done in five languages: the first phase was in the students’ school; second, the winners in each school

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competed nationally; third, national champions competed in the international final (ISLP, n.d.). This year, Brazil has already participated in such a competition.

BRAZILIAN CONTEXT

The first participation of the Brazil was in 2009, coordinated by Lisbeth Kaiserlian Cordani (Advisory Committee ISLP and Brazilian Coordinator). In this year participated 154 students, and an international evaluation committee selected 20 of them for the second phase. The national committee organized the second phase, and held on March 28 at the premises of the Institute of Mathematics and Statistics of USP. The second phase finalists, 3 students and 3 teachers (FIGURAS 1, 2 e 3), classified for third phase to hold in Durban, South Africa, on 20 august 2009, during the 57th ISI Meeting. The teachers participated in workshops on statistical literacy and other ISI Rally events and students, as well as competing with their peers from eleven nations, participated in statistical activities organized exclusively for them.

In this ISLP Poster Competition edition, the teacher by winners are Adriana Zequim (poster by student age category 12 to 14); Felipe Fontes (poster by student age category 15 to 16); and Claudette Vendramini (poster by student age category 17 to 18).

In the edition of 2011, 2013 and 2015, the International Poster Competition in Brazil began to be coordinated by Claudette Vendramini, Felipe Fontes e Luis Bueno. No ano de 2015 a ISLP Poster Competition ocorreu no Brasil.

The ISLP Poster Competition 2016-2017, in Brazil, Mauren Porciúncula joins the Brazilian Coordination Team. In this period, the competition was widely publicized. Members of the Statistical Education Working Group – GT12 of the Brazilian Society of Mathematics Education – SBEM and Dissemination and Estatistical Education Commission of the Brazilian Association of Statistics - ABE were notified and had the opportunity to publicize it in their spaces of action.

ISLP Poster Competition 2016-2017 involved 15 students that proposed five posters, in the category students born in 2000 and younger. These posters were guiding by seven teachers, four of them worked in pairs and three individually. The posters were judged from 6 criteria: clarity of the message; data collection; analysis and conclusions; graphs and tables; presentation and creativity / importance (ISLP, n.d.a). The poster should be prepared according to posters guidelines, which was translated into Portuguese, and explained what is a statistical poster, with examples; the steps to make a poster (identify an issue, data collection, data quality, data analysis, writing the conclusions); and how to make an electronic or paper poster, emphasizing what content it should have (ISLP, n.d.b). In this ISLP Poster Competition edition, the teacher of the winner is Gabriela Braz (students born in 2000 and younger), and the Poster is about Cassino Beach, which contemplated one of the requirements of the competition, a theme about the country.

It is expected that in the next editions, this competition can grow in Brazil, meeting the expectations of the ISLP Poster Competition since WNP: dissemination of quantitative skills, as well as the development of statistical science and scientific practices of data collection.

METHODOLOGY

For this investigation we opted for a qualitative approach (Minayo, 2010). The subjects of this research were seven teachers guiding the elaboration of the posters.

These teachers were asked to record their own experiences in relation to participation in the ISLP. After the organization of the data produced by these subjects, for their analysis, we used the methodology of the Discourse of the Collective Subject - DSC, by Lefèvre and Lefèvre (2006). This process of analysis is based on three methodological figures: the Key Expression, the Central Idea, and the Discourse of the Collective Subject. Thus it was possible to identify and categorize the perceptions of these teachers in relation to participation in the Competition.

This methodology was chosen because the Collective Subject Discourse proposal at the end of the process results in collective testimonies made up of extracts from different individual testimonies - each of these collective testimonies conveying a certain and distinct opinion or position, being such testimonies written in the first a person of the singular, with a view to producing, at the receiver, the effect of a collective opinion, expressing itself directly as an empirical fact by the "mouth" of a single subject of discourse (Lefevre & Lefevre, 2006).

In order to construct the DSCs, fragments of the integrality of the statements, identified here as Key-Expressions (E-Ch), were selected. These were identified by researchers as the snippets that best describe the content of individual speeches. After identifying the E-Ch, the Central Ideas (CI) of each E-Ch were identified, which are linguistic expressions that objectively express the meaning of the discourse. Finally, the E-Chs that have similar or complementary ICs were grouped in a collective discourse. (Lefèvre, Lefèvre, & Teixeira, 2005).

According to Lefèvre and Lefèvre (2006), this methodology is indicated for researches that do not need the identification of the subject emitting the discourse, because the individuals share similar ideas.

> A collective subject in the DSC has been constituting an attempt to reconstitute a collective subject which, as a collective person, is at the same time speaking as if it were an individual, that is, as a subject of "natural" discourse, but representation with expanded content. (Lefèvre & Lefèvre, 2006, p. 519).

In short, the Discourse of the Collective Subject is a technique that consists in gathering, in the form of unique speeches, written in the first person singular, contents of testimonies of the individual discourses with similar senses. These contents of the same sense, gathered in a single discourse, because they are written in the first person singular, seek to express the speech of a collective subject (Lefèvre, Lefrèvre, & Marques, 2009, p. 1993).

RESULTS AND DISCUSSION

When analyzing the testimonies of the seven teachers who guided the development of posters for the ISLP, three central ideas were found, which we call: From the planning of the research to the construction of the poster for the ISLP; Teachers' perception of the contribution of the ISLP in the promotion of Statistical Literacy; and Perception of teachers in relation to the process participation in the ISLP. In this article we present and discuss only the second central idea.

The expressions used in the speeches, which could identify the posters, were replaced by "XXX" in the DSCs. A standardization of the sex of both teachers and students was also carried out for men. The standardization of the word student was still carried out in all sections where the subjects were referring to one, since some speeches used the expression boy and other girl.

Central Idea - Teachers' perception of the contribution of the ISLP in the promotion of Statistical Literacy

As soon as the proposal was presented, the group was very receptive with the idea of participating in the competition. They [the students] were very excited. They looked at previous banners and began to think about possible topics that would fit the ISLP rules and that were of interest to them. Besides being a first national competition, the possible international publicity, this time in Morocco, brightened the dedication. These papers also had the opportunity to have been shown to colleagues, which I also believe has motivated students to do their best! The students, whom I assisted in the production of the poster, were initially lost in the choice of theme, which should be relative to their country. One of them suggested XXX and then our subject was decided. At the moment, the trio, who was orienting, presented difficulties and needed a lot of help, but at no time they lost interest or they wanted to give up without completing the poster. Even so, there was a dispersion of the students, some of them already finished. activity, others because they did not like to write, others because they did not think they would participate in the contest, finally, many excuses were heard to support parallel activities. It was a challenge for everyone, because it was a different proposal than we were accustomed and in the end everything went well. They failed to win the contest, but they learned to work in groups, to discuss the subject with their colleagues, to research, analyze and respect others with their choices. During the development of the ISLP project, we observed that, in addition to the deficiency in relation to Student Statistical Literacy, the research mode was also not known. However, the students were very involved in teamwork. The competition assisted in the process of Statistical Letters of students and also showed the importance of Statistics in everyday life. After this activity, the

students learned how the construction and structure of a graph works. At the end of the project, both students and us teachers have learned a lot about teamwork and research organization. I could note the interest of the students in the proposed activity, which may be a consequence of the dynamized theme. I come to the conclusion that the theme and class dynamics showed [good] result. Many students stated that they could not see difficulty in content because it was explained differently. Encouragement and participation in the ISLP was an alternative way of applying the knowledge acquired. The students stayed in expectation to know the result, but there was still the waiting period for the evaluation and choice of the winner in the Brazilian stage. As soon as the result was announced I contacted them and gave the news through a social network - facebook.

Participation in the ISLP was a challenge for both the teacher and the students, especially because this activity was different from the ones performed at school, which did not require creativity and the authorship of the students. Suecker (2016) emphasizes the importance of the teacher to propose interactive pedagogical activities, since these demand the participation and authorship of the student, which makes the process of teaching and learning more exciting for young people immersed in the digital world. In this sense, Carvalho (2011) emphasizes that "assuming the need for methodological strategies that guarantee the development of each student's cognitive potential is a condition to ensure their effective participation in society". On the other hand, teacher training courses in Brazil have little preparation for future teachers to teach statistics in basic education, especially with regard to didactic aspects (Utsumi, Cazorla, & Kataoka, 2016). This finding further highlights the importance of ISLP in the process of teaching and learning statistical concepts.

Another positive aspect of the proposal concerns the need for the activity to be carried out in a group, because the exchange of experiences among students, promote the confrontation of ideas and the socialization of the solutions found, which potentiates the construction of statistical knowledge by the students (Garfield, 1993; 2013). According to Bittencourt, Grassi, Arusievicz and Tonidandel (2004), the production of knowledge does not take place in a solitary way, but in a collective way. This is one of the aspects that make research an important ally of teaching. The possibility of investigating a particular topic chosen by the students, based on their personal preferences and styles, makes them co-responsible for conducting the research activity (Ponte et al., 1998). Despite this, a certain dispersion was observed among the students who used various excuses to perform parallel activities proposed by the teacher. For Moraes (2014) not all the students of the group can enter the experience, feel the fullness inherent in the experience of the investigative process thus.

Part of this difficulty can be explained by the students' lack of knowledge about statistical concepts because they are little worked in school. Despite the researches (Lopes, 2008 and Gal, 2002) and the official documents that govern education (Brasil, 1997a, 1997b, 1999, 2016; Franklin *et al.* (2005) of statistics since the early years of primary schooling still needs to be done to ensure students' statistical literacy. According to Gal (2002), Statistical Literacy consists of a person's ability to interpret and critically evaluate statistical information found in various contexts, as well as the ability to discuss and communicate their understanding of the meaning of this information.

To participate in ISLP, students chose a subject of their interest. This process is similar to teaching by Learning Projects, proposed by Porciúncula and Samá (2014). According to Fagundes, Sato and Maçada-Laurino (1999) in a project of learning the construction of knowledge part of topics of interest to students. In addition, this pedagogical proposal enables the student to develop the ability to ask questions; to seek answers; to construct coherent arguments; and to know how to think and learn to learn through research. The teaching of statistical concepts through Projects of Learning, according to Porciúncula and Samá (2014), allows students to experience all stages of a statistical research, from their planning and data collection to the analysis and presentation of them. For the authors, the teaching of Statistics through the Learning Projects can contribute to the cognitive development and the promotion of learning, since it allows the construction, not the memorization of statistical concepts.

CONCLUSION

The Collective Subject Discourse - DSC made possible the analysis of Brazil's participation in ISLP 2016-2017. Through this analysis, three main ideas were found: From the planning of the research to the construction of the poster for the ISLP; Teachers' perception of the contribution of the ISLP in the promotion of Statistical Literacy; and Perception of teachers in relation to the process participation in the ISLP.

The analysis of the central idea the perception of the teachers about the contribution of the ISLP in the promotion of the Statistical Literacy identified a differentiated approach to the statistical concepts and the possibility that the work done in the classroom was socialized and divulged in other spaces was an incentive in the accomplishment of the and motivated the students to overcome the difficulties faced in their execution. Group activity made it possible to coexist and deal with the insecurities inherent in the research itself, and to contribute to the formation of individuals with initiative, autonomy, aware of current problems, sensitivity to work with others.

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