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FEMININE PARTICIPATION IN THE INFORMATION SYSTEMS COURSE OF THE FEDERAL INSTITUTE OF GOIÁS CÂMPUS LUZIÂNIA

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ABSTRACT

This article presents an analysis of the participation of women in the course of Information Systems (IS) of the Federal Institute of Goiás (FIG) Câmpus Luziânia. Through a qualitative and quantitative exploratory case study, the research contemplated semi-structured interviews, aiming to contribute to the contextualization of the relationship between women and the Information Technology (IT) area. As a result, there were found minor participation of women in the course analyzed and the need to promote actions that could help attract and retain women in this field, such as creation of specific events for women in the field of informatics and dissemination of examples of women in this context.

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INTRODUCTION

It is notorious that the level of education of women is increasing and making possible the expansion of female participation in the field of science. However, areas such as computing and technology show a decrease in women's inputs, being treated as "male" areas (LIMA, 2013). In computer science courses, the number of women entering undergraduates dropped from 30% to between 5% and 10%, and only 19% of women entering the university chose technology courses (COELHO, 2013). Several national and international papers have been the subject of discussions about female participation in the area of computing and computing (Savoy, 2012). Among the national studies on the female presence in courses and in the professional market of the Computing and Technologies areas, it is important to highlight the studies of: Frigo *et al*. (2013), Medeiros (2005), Natansohn *et al*. (2011), Leta (2003) and Mendes and Figueiredo (2015), who help to find answers to the problems of female participation in these areas. Therefore, the objective of this work is to analyze the participation of women in the Information Systems (IS) course at the Federal Institute of Goiás (IFG) Câmpus Luziânia.

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Through a qualitative and quantitative exploratory case study, the research included semi-structured interviews, aiming to contribute to contextualizing the relationship of women in the Information Technology (IT) scenario. This article is structured in five sections. In this section we present, besides the introduction, the definition of the research problem, the objective, the justification and importance of the study and the structure of the present research. Section 2 brings the theoretical framework, with the formation of a conceptual and theoretical basis, which provide support for the development of this study. Section 3 presents the method used and the techniques and methodological procedures used. Section 4 describes the results obtained in the research and discussion. Finally, section 5 retakes the purpose of the article, how it was achieved, and suggestions for future research.

Theoretical Reference

Women face enormous resistance related to the insertion and permanence in several sectors, mainly in the area of IT. According to data from the Women in Tech event, conducted by CA Technologies, only 8% of developers worldwide and 11% of executives in technology companies in Silicon Valley are women. The Independent Work and Enterprise Report, prepared by the Workana freelance work platform, concluded that the IT area as a whole has only 6% of women in our

country (DREHMER, 2017).As Cabral and Bazzo (2005, p. 4) state: "Historically, women have been removed from the creative circle and leader of scientific and technological production. This limited his performance outside the private sphere of the house and was, centuries after centuries, evidenced by his absence and conduction in careers such as physics, chemistry, biology, mathematics, engineering, and computing. These areas have developed in the spirit of values considered historically as masculine - certainty, efficiency, control, order." For Schienbinger, 2001, p. 24, female participation in the scientific community has presented some problems, such as the devaluation of the characteristics considered as feminine, such as "subjectivity, cooperation, feeling and empathy". Structural changes in the culture, methods and content of science in relation to women will not be easy, since we have lived hundreds of years of exclusion of women. One should not expect success so quickly that its origins have been structured to exclude them. (Schiebinger, 2001, p.37).The female participation is still timid, but already represents 16.14% of the professionals that work in the area (QUIRINO *et al*., 2011). That is, women are gradually gaining their space, and this evolution of participation is undeniable, even in the face of obstacles to be overcome due to the patriarchal structure established by society. There is still a large gender disparity in the area of computing, whether in the area of education or the labor market, as it is also seen throughout the world. In Brazil, as in the rest of the world, it is verified that the courses in this area have a lower percentage of enrollments of female students (IPEA, 2011). According to Carrasco (2003, p. 37): "With the increasing participation of women in the labor market and the masculine social response to this change of culture and behavior of women, they took up the double journey and the double work, from one space to another, overlapping and intensifying their working times". It is notorious that women leave behind more and more behind the scenes, becoming protagonists in the participation in academic and professional circles. According to Dinis (2008, p. 478): "the university has been called upon to take responsibility for the discussion of the theme of alterity of the inclusion of minorities, which implies discussing their position with regard to the new school subjects who claim their place in the school curriculum."Thus, the inclusion of women in academic, scientific and technological sectors is a matter of equality, demanding specific policies and actions to overcome the challenges that are posed to achieve this equality in fact.

Methodological Procedures

In this section we present the methodological aspects used in conducting this study. As for the research methodology, this work consisted of a qualitative and quantitative exploratory case study. As for the media, the research was bibliographical, as it relied on information contained in books and technical and academic publications. Regarding the ends, the research was exploratory, since it is carried out in an area in which there is little knowledge accumulated and systematized. Gil (2008) states that exploratory research has as its main purpose "to develop, clarify and modify concepts and ideas, with a view to formulating more precise problems or searchable hypotheses for later studies". Mattar (1998) corroborates and complements by stating that "exploratory research is often used to extend knowledge about a given subject." This work uses descriptive research as a method, because according to Gil (2008), this type of research tries to describe the characteristics of the researched phenomenon or of a determined population. Field research was used to collect data through a semi structured questionnaire to identify how the female participation in the IS course is, comprising a total of three objective and nine discursive questions applied to all, and five more discursive questions applied only to women, whose answers were given in writing, in the presence of the researcher. The population studied consisted of 23 students, duly enrolled in the second, fourth and eighth years of the Information Systems course at the Federal Institute of Goiás, at the Luziânia campus. The data analysis method employed consisted firstly in using the Microsoft Excel 2013® program, in which a database was designed fed with the questionnaires answered. Then, the descriptive analysis of the frequencies of the answers given by the students was carried out.

Analysis of the Results Obtained

The questionnaires were applied to the students of the Bachelor's Degree in Information Systems, Federal Institute of Goiás, Câmpus Luziânia. In which 78.3% were male and 21.7% female, demonstrating the greater participation of the male audience. The participation of the interviewees per semester in the course was 26.1% of the 8th Semester, 26.1% of the 4th Semester and, finally, 47.8% were of the 2nd Semester. The participation of the interviewees according to the age group. Where the majority of the students studied is between the age group of 21 to 25 years, with 40.9%. With respect to the main reason (s) for which they chose the course, it was pointed out "The course looks good", with 52.2%, as the main reason for the participants to choose this area, followed by "Mercado of attractive work ", with 30.4%.Regarding the satisfaction of the choice of course, they showed that 78.3% are satisfied with the course, 13.0% are a little dissatisfied and 8.7% a little satisfied. It was also analyzed if at some point the students interviewed felt unmotivated and / or thought to give up the course, in which the majority of the respondents, 69.6%, stated that they did not feel unmotivated and / or thought about giving up the course at some point. Regarding the factor to stay in the course, it is noted that among the main factors that motivate the respondents to stay in the course is the fact of having "interest in the area" (39.1%), followed by "Labor market" (21.7%) and "Quality of the course" (13.0%). As to the motives that could lead students to give up the course. The majority said that there are no reasons that would give up the course (39.1%). The main reason that could lead them to give up was "Reprobation in many matters" with 26.1%, followed by "Difficult matters" with 13.0%.In relation to the discipline that you liked the most during the course. These responded as the main "programming" subject, with 39.1%, followed by "Algorithm", with 17.4%, and "Database", with 13.0%. When asked about the discipline they least liked during the course. Most answered that it does not exist. The majority of those that pointed out a discipline, stated as main material "Calculus", with 27.3%.In order to capture more detailed information, interviews were conducted with 10 students from the Information Systems (IS) course at the Federal Institute of Goiás, Campus Luziânia. In these interviews, the students described their experience and difficulties from different angles, paying attention to the problems faced in the classroom. Starting from the study, it was verified that the majority (90.0%) of those questioned affirmed that the fact that they had female teachers influenced positively in their academic life. As one of the students' reports, she said: "It ends up being a good influence, an example for women," and in another student's report, "It is good to see that there are those who have overcome machismo," another student also pointed

out "He influenced very positively, bringing inspiration." In the only contrary report the student said that "The gender does not interfere with anything, if the teacher is a man and has a good education and didactic good I do not see problem". Confirming Schiebinger, 2001, who states that the lack of female models has been pointed as one of the factors that leads to the small participation of women in science, especially in the exact sciences.

When asked why women are a minority in computer science courses, and what could be done to change it? Some of them answered: "Perhaps because it is an area with more men, some women do not see it as an option"; "I believe that for lack of interest"; "Why we grew up with the idea of exact is for men, women are better at humans, and there rooted and in fact women are discouraged to learn mathematics"; "I think a lot of women think computer science is a subject for men." With regard to the question about whether there is prejudice in the area of informatics in relation to women, if so what could be done to end? And how to contribute to the increase of women in the area of computer science? The students said that it is necessary to: "Create specific events for women in computers, so girls know that IT is also a topic for girls"; "More dissemination, more interaction through events"; "Increased visibility of women in IT to lessen prejudice."Asked if the fact that the number of women in the classroom was lower than that of men made them feel constrained or inhibited at some point. They all said bluntly that they did not. The majority (80.0%) consider that one of the positive aspects that it would have with the greater insertion of women in the area would be the removal of social and cultural barriers that prevent women from reaching their potential in the course and consequently in the market of job.

Final Considerations

Through this research on the participation of women in computing, a brief mapping was done around the Information Systems course of the Federal Institute of Goiás Câmpus Luziânia. In this context, this research aims to contribute to the organizational studies regarding gender relations in the academic environment. The mapping performed is relevant because it presents the academic scenario of the Information Systems course, mainly revealing that for the majority, 90%, the fact that they had female teachers had a positive influence on their academic lives. Through the results obtained, there was a need to promote actions that could help attract and retain women in the area, such as creation of specific events for women in the IT area and dissemination of examples of successful women in IT. The present study is important and serves as a starting point for studies of gender relations in computer courses, revealing difficulties faced within the classroom. Needing, therefore, support for the elaboration of public policies, programs, projects and more studies for changes in this framework. One suggestion would be to promote the rescue of the history of women who contributed to the evolution of informatics. For those who formulate the policies for the insertion of women in the area of computing, it is essential to guarantee women equality, and it is indispensable that all have the same social conditions to develop their skills, and there is no judgment by gender, race, social status or orientation sexual. As future work, we suggest the continuity of this study in other campuses, institutions and courses in the area of computer science, aiming to encourage the insertion of women in computing, and observing the female school dropout, in order to verify if it can happen by the low host of women in courses with a high number of male students.

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