The UFAM Scientific Initiation Program: A Study of the Results between the Years 2008 to 2018

Marcelo Albuquerque de Oliveira, and Mário Norberto da Costa Júnior

ABSTRACT

Faced with a reality of constant changes and competitiveness, new skills and competences are required every day to operate in a diffuse and complex society. Scientific Initiation Programs are an excellent way to promote and teach scientific skills that will enable you to acquire these new skills. This work aims to present the evolution of the Scientific Initiation activity carried out at the Federal University of Amazonas in the period from 2008 to 2018, making a comparison between the actions carried out at Campus Manaus and those developed in other units of the State. Bibliographic and documentary sources were used to verify this evolution in the period. The results show an increase of approximately 257% in the submission of processes in the UFAM CI, consisting mostly of the areas of Exact and Earth Sciences (24% of submissions) and Health (18% of submissions). Over the period, a total of 5,790 scholarships were offered for Scientific Initiation in the capital and 1,637 scholarships in the interior, with CNPq being the largest funding agency and FAPEAM in this one. This theme still needs further studies, mainly with regard to data from UFAM itself.

Keywords: scientific initiation, scientific research, research support grants

I. INTRODUCTION

In a reality of constant changes and competitiveness, new skills and competences are required every day to operate in a diffuse and complex society. Competencies such as dynamism, proactivity and the ability to make decisions are essential. However, the inquiring spirit, the motivation and the desire to learn to learn are the new requirements that professionals must have if they want success.

In this context, Higher Education Institutions (HEIs) are today the major centers that radiate scientific knowledge, thus allowing the formation of staff who present solutions to the challenges of the labor market. However, for these new skills to be absorbed, it is necessary to use new teaching methods and means. The teacher is no longer an exhibitor of content and becomes a researcher-motivator who encourages students in the same process. Thus, Scientific Initiation Programs are an excellent means for the promotion and teaching of doing science in Universities.

Researchers such as Lopes and De Souza Júnior [15] present Scientific Initiation as a “program developed in Higher Education Institutions (HEIs) that allows undergraduate students to be included in scientific research, providing technical and methodological support to their training.” In this case, together with a supervising professor, it is possible for undergraduate students to learn how to do science and disseminate effective results to society.

Taking as a basis the perspective of Scientific Initiation, and in view of the very little research on this topic at the Federal University of Amazonas - UFAM, this work aims to present the evolution of the Scientific Initiation activity carried out at the Federal University of Amazonas in the period of 2008 to 2018, making a comparison between the actions carried out at Campus Manaus and those developed in Campi in the interior of the State. Thus, a general assessment of this action will be possible over that time. Specifically, we want to: 1) Conceptualize scientific initiation and its main objectives for the University; 2) Map the development of Scientific Initiation at UFAM in the period from 2008 to 2018; 3) Map the policy for granting scholarships under the Institutional Scientific Initiation Scholarship Program (ISISP), called as PIBIC at UFAM, in the referred period.

This work is structured in five parts, starting with this introduction that contextualizes the theme under study. Following is a conceptual overview of research at the University, considering its historical aspects and application in the Brazilian model of higher education. There is also a brief overview of the History of formation at UFAM, locus of study, and the Scientific Initiation Program developed there. In the third part, the methodology used is presented, with the presentation of the results obtained in the fourth part. Finally, the final considerations are made that rescue the objectives and results achieved in the research, in addition to the
II. THE UNIVERSITY AS A RESEARCH CENTER

With the advent of Modernity and the paradigm shift in the way of building knowledge, Universities became the great instrument for the improvement and dissemination of scientific knowledge. For Durkheim [11], it was in this institution that elaborated medieval civilization and even undergoing transformations, it is perpetuated until today.

However, there is a diversity of conception of the organization of the university model. According to Moraes [17] there is the German model, which establishes a fusion between teaching and research, the American model with a focus on the progress of society and the French model that conceives the conservation of social order through the dissemination of knowledge. For the latter, the emphasis is on vocational training.

For De Paula [8], Brazil brought up during the Vargas era the first meeting of higher education courses, in 1934 the São Paulo University (USP) was structured. Its objective was that a “duly enlightened and formed elite would be able to propose a project for nationality that was above party interests”. USP was structured based on the arrival of professors from France for humanities courses, but for the exact areas they were called professors from Germany. Although they were predominantly French professors, USP also used the German model to structure research at the University.

The USP model was used for the formation of other Universities in the country until the implementation of the University Reform of 1968. From then on, the American model is adopted, which will combine teaching and research with a pragmatic and utilitarian conception. Nascimento [18] points out that in this period teaching was oriented towards the formation of professional specialists, through scientific and political knowledge to society.

Within this “new” conception of the University, the Law of Directives and Bases of National Education (LDB) No. 9.394 of 1996, in Art. 52 defines and identifies the university as “multidisciplinary institutions for the training of higher education professional staff”, in which research, extension, mastery and the cultivation of knowledge are developed [2].

In this way, it is evident that the Brazilian University has as a premise research through the systematic study of scientific and cultural issues that are relevant to society. In this premise, the researcher needs to dialogue with reality and with the knowledge already produced, allowing a broader understanding of the object under study.

Faria [12] made it clear that the University is the proper place for scientific activity, because there “live the professionals of all manifestations of science”. All the actors involved there need the research. After all, according to Severino [20] her teacher does not need to teach, the student to learn from her and the University to be effectively and mediator of education.

Unfortunately, in today’s national reality, there are still few Higher Education Institutions that combine teaching and research. In the words of Bridi [3], “what we have in the vast majority of Brazilian universities is only a ‘teaching university’, which, although it may play an important role for the country, is not legitimately ‘a university of teaching and research’.

In general, where most of the university research is developed, it is in graduate programs. Severino [21] explained that the “systematic practice of scientific investigation finds its natural place there, since its specific activity is research itself”. The practices defined in the *stricto sensu* courses naturally conduct research, since new knowledge, processes for the advancement of science or solutions for the needs of society are established there.

However, it is worth mentioning again Law No. 9,394 of 1996 (LDB), in Art. 43 makes it evident that among other purposes, higher education also needs to “Stimulate cultural creation and the development of the scientific spirit and reflective thinking”, in addition to stimulate “the work of scientific research and investigation, aiming at the development of science and technology and the creation and diffusion of culture” [2] [emphasis added]. In this case, it is imperative that, for the development of teaching, it is necessary to do science at the University, which must look for ways to build this knowledge in a solid and joint way.

III. SCIENTIFIC INITIATION AND PIBIC

In the context of university research, the beginning of many research projects begins in Research Groups, which must be catalysts for undergraduate students to take a liking for the “development of the scientific spirit”. However, it is in the Scientific Initiation and Graduate Programs of Universities where a good part of the research being developed in these Institutions is carried out.

According to Massi and Queiroz [16], in Brazil, the pioneer Scientific Initiation (CI) programs date from the first half of the 20th century. However, specifically in 1951, with the creation of the National Research Council – CNPq, undergraduate research gains strength with the granting of annual scholarships. Carvalho [5] also made it clear that the “emergence of CNPq, the expansion of the higher education system and the consolidation of postgraduate studies” were the driving factors for the expansion of scientific research on the national scene.

But what is Scientific Initiation? For Lopes and De Souza Júnior [15] define it as a “program developed in Higher Education Institutions (HEIs) that allows undergraduate students to be included in scientific research, providing technical and methodological support to their training”. Massi and Queiroz [16] understand it “as a process in which the set of essential knowledge is provided to initiate young people in the rites, techniques and traditions of science”. In other words, Scientific Initiation serves as the first contact of the undergraduate student with doing science, also allowing Higher Education Institutions to attract new talents.

Still in this sense, it is important to highlight that National Council for Scientific and Technological Development (CNPq) presents Scientific Initiation as a means of raising the level of available information and the popularization of science and technology as essential knowledge for all. In this case, Scientific Initiation can bring changes not only to students, but also to the country's development by promoting national science on a large scale with the research developed.

The same CNPq [6] provides scholarships to promote research aimed at high school and undergraduate students and
There are currently seven (7) financing programs, as shown in Table 1.

| TABLE 1: TYPES OF SCIENTIFIC INITIATION |
|-------------------------------|------------------|
| MODALITIES                     | PROGRAMS                      |
| PROGRAMS FOR HIGH SCHOOL PUBLIC SCHOOL | Scientific Initiation Program of the Brazilian Mathematics Olympiad of Public Schools (PIC - OBMEP) |
|                                | Junior Scientific Initiation Program (ICJ) |
|                                | Institutional Program for Scientific Initiation Scholarships for Secondary Education (PIBIC - EM) |
| PROGRAMS FOR HIGHER EDUCATION (PUBLIC AND PRIVATE) | Institutional Program for Scientific Initiation Scholarships (PIBIC) |
|                                | Program for Scientific Initiation in Affirmative Actions (PIBIC-Af) |
|                                | Institutional Program for Initiation Scholarships in Technological Development and Innovation (PIBITI) |
|                                | Institutional Scientific Initiation and Master's Program (PICME) |

All of these programs have their own rules and defined publics, however, they have in common the objective of developing scientific research in official educational institutions in the country. Pinto, Fernandes and Silva [19] are also mentioned who highlight the existence of other incentive programs for Scientific Initiation, whether from Higher Education institutions or Research Support Foundations (FAP's). Students participating in Scientific Initiation can take part in research under development by teacher-supervisors, benefiting from knowing the management of the scientific method, in addition to improving intellectual autonomy, critical reflection, in addition to enabling students to articulate the various knowledge in a multidisciplinary way [3].

The same author points out that one of the major impediments to the Scientific Initiation Program is the limitation in the number of scholarships, making it a "selective activity, which benefits few and discriminates against many, apparently privileging the most 'qualified' and 'promising' [3].

However, even in the face of this limiting item, Massi and Queiroz [16] present a list of benefits for those who are willing to participate in Scientific Initiation:

1) Better income coefficients in undergraduate courses;
2) Development of new learning strategies, "learning to learn";
3) Enhancement of the undergraduate course, offering a broader view of the course, with a greater base of previous knowledge;
4) Development of interpretive, analytical, critical and contributory skills;
5) Promotion of students' self-worth and self-esteem, which is recognized by them and by other colleagues;
6) Satisfaction in the production of research work and in the construction of meaning as to what is researched;
7) Approximation between the student and the teacher, which allows the exchange of information and personal experiences;
8) Incentive to graduate students to continue their studies in postgraduate courses, stimulating the entry into the master's degree of younger students and recent graduates;
9) Promotion of a reduction in the average time of qualification for master's and doctoral students in Higher Education Institutions;
10) Presentation of research as a differentiator for the job market, enabling a better placement of graduates in paid activities.

Given this situation, there is no denying that Scientific Initiation presents itself as a great pedagogical support for university education and a means of developing scientific research in the country. However, Massi and Queiroz [16] already indicated that there were few studies developed on this topic in the country. According to these authors, after a bibliographic survey from 1997 to 2007, six doctoral theses, eleven master's dissertations, four complete articles published in national journals were found, in addition to six more works published in other journals.

In this same perspective, there are still few studies focused on CI studies at the Federal University of Amazonas. As an example, we cite the works of Fernandes, Bessa e Silva [13], Bezerra [1] and Cruz [7], which deal with this theme according to a specific population of an undergraduate course at UFAM. Thus, data on a general overview of Scientific Initiation at the Institution is scarce.

IV. THE SCIENTIFIC INITIATION AT UFAM

Located in the great Amazon biome, the Federal University of Amazonas is a century-old institution that dates back to the old Free University School of Manaus (sic). It was founded on January 17, 1909 by the inspiration of Lieutenant Colonel of the National Guard, Joaquim Eulálio Gomes da Silva Chaves, in the city of Manaus, Amazonas, and is considered by the Guinness Book as the first Higher Education Institution in the country. It maintained its activities in the various courses available until 1926. However, the Law, Dentistry and Agronomy faculties continued to function independently [4].

Due to the articulation of several local groups, during the Government of President João Goulart, Federal Law 4.069-A was signed on June 12, 1962, establishing from then on the University of Amazonas. Academic activities began in 1968, with the institution being organized in the following units: Faculty of Law, Faculty of Social Studies, Faculty of Philosophy, Sciences and Letters, Faculty of Engineering, Faculty of Medicine and Faculty of Pharmacy and Dentistry.

Also according to Brito [4], in 2002 the university is renamed the Federal University of Amazonas (UFAM) through Law No. 10,468. UFAM is currently located on its Central Campus, in the city and Manaus and on five more campuses in the interior of the State (Benjamim Constant, Coari, Humaitá, Itacoatiara and Parintins). Its academic structure is divided according to thematic areas, with currently 18 teaching units in the capital (Institutes and Faculties) and 5 Institutes in the Interior.

In these Units, 113 Undergraduate, 35 Master and 13 PhD courses are distributed. These courses allowed the enrollment...
of more than 19 thousand undergraduate students and 270 stricto sensu graduate students in 2018. Its staff consists of more than 1,600 professors, of whom more than 850 have doctorates or post-doctorates, and equal number of administrative technicians to support other activities. That same year, a budget of more than 600 million was executed to carry out the University’s actions [23]. Among the highlights, there are also more than 1,700 CI projects, more than 820 in extension and almost one hundred innovation actions. All of this gathered in more than 280 Research Groups registered at the Institution [10].

The emergence of Scientific Initiation activities at UFAM dates back to 1984 as part of the CNPq Pilot Project for the establishment of the Institutional Scientific Initiation Scholarship Program. At that time, the Federal University of Bahia (UFBA) and the Federal University of Maranhão (UFMA) also participated in this project. The objective was that the Scientific Initiation activity in these Institutions was geared towards the “integration of the undergraduate student with the scientific culture, in addition to improving their skills and opening doors for graduate studies” [26].

Within this perspective, Scientific Initiation at UFAM participates both in the Institutional Scientific Initiation Scholarship Program, which is coordinated by CNP, and in the Scientific Initiation Support Program (PAIC), which is directed by the Fundação de Ampara a Pesquisa do State of Amazonas (FAPEAM). Thus, it is possible, with the contribution of resources from these two entities, to encourage CI actions in the Institution.

In order to operationalize this activity, the sector responsible is the Research Department, which is located in the Dean of Research and Graduate Studies (PROPESP). This Department has a Research Coordination, which is responsible for the actions of launching public notices, monitoring of registrations, monitoring of the registration of scholarships, cancellation and conclusion of the Scientific Initiation project, among other activities established in Institutional Normative.

It should also be noted that the actions of CI at UFAM are governed by Resolution No. 040/2012, which establishes as objectives “to stimulate interest in scientific research”, “providing the development of logical and creative thinking” and presenting itself as a means of improvement of knowledge areas and encouragement for student science production. [22].

This Normative also establishes that registrations are launched by means of a public notice in which the conditions and requirements for the presentation of proposals are informed. When these registrations are concluded, they are evaluated by an internal faculty committee, which will verify the adequacy of the projects to the requirements established in the notice. Once the projects are approved, the advisors and students must present two research reports (partial and final), which will be evaluated by the project committee for each area of knowledge, thus ensuring the monitoring and quality of the projects. It is still relevant to mention that at the end of the year of activity the projects are presented in a large exhibiting event called CONIC (Congress of Scientific Initiation of UFAM).

Unfortunately, CI presents itself as a selective activity, as indicated by Pinho [9]. Every year, research funding agencies provide scholarships for participants in CI research at UFAM. However, as will be seen below, this number did not follow the natural evolution of research at the Institution. Scholars who manage to receive these scholarships use these resources to purchase books, fieldwork, etc. However, due to the condition of some students, this resource is used for survival needs, serving as an income supplement or even the only source of resources in some cases [9].

However, even in the face of a scenario of stagnation of resources for research, especially in the provision of scholarships for CI by the development agencies, UFAM itself has been allocating resources since 2010 to meet the growing demand for new research projects, as check soon ahead. The contribution of own resources has allowed more research projects to be developed over the years. For those who are unable to obtain a scholarship, the opportunity for learning provided by the application of research in the area of interest is undeniable, such as raising awareness of research, developing the ability to argue, to abstract, to create problems, to reason critical, that is, the development of scientific habitus [9].

V. METHODOLOGY

This study is classified as an applied research, with a quantitative approach, with its objectives of exploratory / descriptive aspects, since it seeks to provide a general overview of the development of Scientific Initiation at UFAM over the period from 2008 to 2018. Still regarding the design for collecting information it is characterized as a case study, which, according to GIL [14] is characterized by the in-depth study of few objects, thus allowing its broad and detailed knowledge.

After a bibliographic review, which obtained in indexed books and scientific articles a greater conceptual knowledge of the subject under study, primary documents were obtained from the Dean of Research and Graduate Studies at UFAM. These data were stored in the Scientific Initiation Research Projects Monitoring Portal, called LIRA, containing the data related to the research carried out on the various UFAM campuses from 2008 to 2018. We opted for the above period due to data availability that appeared on the referred platform, thus covering a wide period and that exceeded several administrations of the institution and the federal government.

In view of this, the sample involved all the work carried out from 2008 to 2018 on the five campuses of UFAM in the interior of the State of Amazonas, in addition to those carried out on the central Campus, in Manaus. All these data extracted from the platform were consolidated into spreadsheets in Microsoft Excel software, thus allowing the stratification and modeling of graphs, allowing an understanding of the development of the Program.

Finally, for the analysis and treatment of the data, a statistical-descriptive approach was used, verifying the influence of the data on the results presented. For this, content analysis was adopted in three stages: first, a pre-analysis of the data obtained for prior knowledge was performed. In the second moment, a broader exploration of these data was made, allowing to detail specific points that supported the next phase. Finally, data were processed and interpreted, using simple statistical calculations as percentages and distribution of absolute values over time, as shown below.
VI. ANALYSIS AND DISCUSSION OF RESULTS

Following, data are presented referring to the number of projects registered, approved and completed on the Lira Platform, taking into account the Interior and Capital Units. In a second step, elements are provided regarding the total scholarships directed to the participants of Scientific Initiation at UFAM, also covering campuses in the interior as well as in the Capital.

A. The Evolution of Scientific Initiation at UFAM

Initially, there is a gradual increase in the submission of proposals over the period under study. It appears that the series starts with the submission of 500 projects in 2008 in all UFAM Units. Throughout the period under analysis, the Program took shape throughout the Institution, reaching 2018 with a total of 1,787 submissions, which corresponds to a percentage change of 257% (Graph 1).

The largest number of these projects is concentrated in the capital, the institution's headquarters, where the largest number of UFAM courses are available. In 2008, there were 404 projects in the capital and 96 in the interior. Eleven years later, those figures jumped to 1,324 in the capital and 463 submissions in the interior. This corresponded in percentage numbers to an increase of 382% in the interior and 228% in the capital.

Even in the face of numerous logistical obstacles, the Interior Units expressed a significant increase in project submissions. In 2008, 15 projects were presented in Benjamim Constant, 24 in Coari, 19 in Humaitá, 15 in Itacoatiara and 15 in Parintins. At the end of the period, Benjamim Constant submitted 49 projects (increase of 227%), Coari 94 (increase of 309%), Humaitá 121 (increase of 404%), Itacoatiara 136 (increase of 616%) and Parintins 63 (increase of 320%), as shown in Graph 2.

Even in the face of numerous logistical obstacles, the Interior Units expressed a significant increase in project submissions. In 2008, 15 projects were presented in Benjamim Constant, 24 in Coari, 19 in Humaitá, 15 in Itacoatiara and 15 in Parintins. At the end of the period, Benjamim Constant submitted 49 projects (increase of 227%), Coari 94 (increase of 309%), Humaitá 121 (increase of 404%), Itacoatiara 136 (increase of 616%) and Parintins 63 (increase of 320%), as shown in Graph 2.

When verifying in the total number of submissions the distribution of projects by the nine areas of knowledge of CNPq, it is noticeable that: the largest number of proposals were in the area of Exact and Earth Science (24% of the proposals), followed by the Science area Health (18% of proposals), Agricultural and Applied Social Sciences (16% of proposals), Human Sciences (15% of proposals), Biological Sciences (10% of proposals). The Engineering and Linguistics areas had a lower value (3% of the proposals) due to the organization of the committees of these areas only from 2018. Previously, the projects in these areas were included in the Exact Sciences and Human Sciences, respectively, as shown in Graph 3.

After submitting projects on the project monitoring platform (Portal Lira), they are evaluated by a committee of teachers in the areas of knowledge. Thus, due to the incompatibility of the project, it is not approved for the research. In a relationship between the total of projects submitted (10,378) and approved (9,210), there was a decrease of just over 10% over the initial total.

It is also noted that in 2008, 390 projects were approved in total. Of these, 65 were from the interior units and 325 from the capital. In 2018 these values were raised to 1,676 proposals were approved that year, representing an increase of 330% in the period. The growth of approved projects in the units of the interior reached 568% and of the capital 282%, according to Graph 4.

In Units outside the capital, growth has shown significant improvements over the years in the approval of CI projects. Benjamim Constant went from 10 projects in 2008 to 49 in 2018, which represents 390% growth. Coari approved 17 projects at the beginning of the period and reached 91 in 2018, an increase of 435%. Humaitá also submitted 17 projects approved in 2008 and reached 2018 with 117 submissions accepted, equivalent to a 588% increase. Itacoatira still had 13 projects accepted at the beginning of the series and in 2018 it had 118 approvals, representing the largest increase of all,
in the order of 808%. Finally, Parintins left 8 projects approved at the beginning of the series and reached 59 at the end of the series, making a growth of 638% (Graph 5).

At the end of the research, each CI project must present a final report with the results and / or conclusions obtained. Overall, a total of 324 surveys were completed in 2008. This figure increased to 565 projects in 2018, that is, an increase of 74%. However, when comparing the data from the capital and the countryside, there is an expansion of 491% in the completion of projects in the units of the countryside. The capital grew by only 29%, as shown in Graph 6.

Through Graph 7, it is possible to examine more closely the Units outside the capital, realizing that there is a disparity in the values in some of these study centers. In the city of Benjamin Constant, 8 projects were completed in 2008 and none in 2018. Humaitá also presented the same perspective, with 5 at the beginning of the period and none in 2018. However, Coari, who completed only one survey in 2008, concluded in 2018 51 projects, that is, a 5,000% growth. Itacoatiara went from 10 projects closed in 2008 to 96 at the end of the period, with a variation of 860%. Finally, in Parintins a total of 8 studies were completed in 2008 and 42 in 2018, representing a growth of 425% in the period.

B. The Evolution of Scholarship Offers for Scientific Initiation at UFAM

During the process of evaluating research projects, a "ranking" of these works is made to include those with the highest scores with scholarships. Due to the scarcity of resources, not all approved projects are awarded scholarships to encourage research. Roughly speaking, this classification involves the sum of points of merit of the project with the sum of points of the individual production of the project advisor. Thus, those researchers who have more academic production are considered as scholarships. This rule is easy to follow by the evaluation team, however, it may incur a form of discouragement to students who cannot find a mentor with greater academic production.

Still regarding research incentive grants, the data below include three sources of funding for Scientific Initiation. Two are external to attend the Institutional Program for Scientific Initiation Scholarships (PIBIC), the funding sources being the National Council for Scientific and Technological Development - CNPq and the Research Support Foundation of the State of Amazonas - FAPEAM. The other source, internal, comes from UFAM's own resources for application in research.

Graph 8 indicates that in 2008 the CNPq and FAPEAM grants represented the only source of financing for CI research in the capital. CNPq contributed with 202 grants and FAPEAM with 87. As of 2010, UFAM will contribute to this total. In 2018, CNPq already made available 237 scholarships (variation of 17%) and FAPEAM 255 (variation of 193%). However, in view of the application of scholarships offered by UFAM, this became in 2018 to represent most of the research incentive scholarships in the capital, representing a 3.075% increase in relation to 2010, the first year of incentives data by UFAM itself.

In the units in the interior, the situation was no different. In 2008, 14 CNPq and 46 FAPEAM scholarships were distributed. UFAM has not yet contributed to this amount. In 2018, 19 CNPq grants (36% change), 92 from FAPEAM (100% change) were offered and UFAM made 184 grants available (6,033% change), as shown in Graph 9.
After an overview over the period under study, it can be seen through Graph 10 that UFAM's courses in the capital received a total of 78% of the scholarships offered (total of 5,790) from CNPq and FAPEAM development agencies, in addition to incentive granted by the Institution itself. Units in the interior of the State received in the following proportion: Itacoatiara with 7% of the total (508 bags), Humaitá with 5% (399 bags), Parintins with 4% (296 bags), Coari with 4% (287 bags) and Benjamin Constant with 2% (147 bags).

Finally, graph 11 shows in absolute values the number of research incentive grants offered in the period in the capital and interior of the State. As can be seen, a total of 5,790 scholarships were distributed in the capital during that period. Of these totals, CNPq scholarships, 3,450 FAPEAM scholarships and 1,225 CNPq (28% increase over the period. In this case, it is certainly the responsibility of the Department responsible to monitor the projects completed over the period. In the capital, there was an increase of only 29% over the 11 years analyzed. However, in the interior this increase was of the order of 490%. This proves the need for greater incentive and support for CI actions in the interior due to the commitment of teachers and students involved in these projects.

Elsewhere, completed projects are still a small proportion of the number of submissions and approval. Over the period, in general, there was a 74% increase in research completion. However, the vast majority of this result comes from surveys in the interior, with a 490% growth rate. The capital had only a 28% increase over the period. In this case, it is certainly the responsibility of the Department responsible to monitor the researchers more closely to improve these numbers.

It is also relevant to highlight that, over the years, 2,752 CNPq scholarships, 3,450 FAPEAM scholarships and 1,225 CNPq scholarships were offered by UFAM itself. Of these totals, the largest concentration of scholarships is at the Central Campus due to the greater number of projects, with CNPq being the largest source of these scholarships (44%) in the capital. As for the interior of the State, most of the scholarships come from FAPEAM (67%). This highlights the importance of these agencies for promoting research in undergraduate courses.

Finally, it is undeniable the importance of CI programs to improve the quality of teaching in undergraduate courses at Universities. However, even with an activity that has been carried out for more than fifty years in the country, there are still few studies on this theme carried out at UFAM. It is up to the graduate programs and the CI projects themselves to carry out further research so that they have a greater understanding of how this tool is doing to make science today. Thus, it will be possible to know better the profile of the graduates of PIBIC / PAIC, if the Program stimulated scientific production and to know, also, if the graduates of this research activity obtain better opportunities in the job.

VII. FINAL CONSIDERATIONS

The current educational context demands a lot from the HEI in the formation of cadres for the society, who must be proactive, creative and ready to learn to learn. This study confirmed the evolution of the UFAM Scientific Initiation Program in the period from 2008 to 2018, also presenting the development in the process of offering scholarships for this activity.

It was found that over this period there was an increase of approximately 257% in the submission of cases in the CI of UFAM. This demonstrates a growing adhesion of teachers and students to the Program. This growth occurred more sharply on campuses in the interior of the state (382%), compared to projects in the capital (228%).

Still in general computing, the largest number of projects presented in the period corresponded to the areas of Exact and Earth Sciences (24% of submissions) and Health (18% of submissions). The areas with the lowest participation were Engineering and Linguistics, in view of the rearrangement of the Lira platform to accommodate these areas only recently.

As for accepted projects, there was also a higher proportion of those accepted in the interior (568%) in relation to projects in the capital (282%). This became even greater with regard to the projects completed over the period. In the capital, there was an increase of only 29% over the 11 years analyzed. However, in the interior this increase was of the order of 490%. This proves the need for greater incentive and support for CI actions in the interior due to the commitment of teachers and students involved in these projects.

Finally, it is undeniable the importance of CI programs to improve the quality of teaching in undergraduate courses at Universities. However, even with an activity that has been carried out for more than fifty years in the country, there are still few studies on this theme carried out at UFAM. It is up to the graduate programs and the CI projects themselves to carry out further research so that they have a greater understanding of how this tool is doing to make science today. Thus, it will be possible to know better the profile of the graduates of PIBIC / PAIC, if the Program stimulated scientific production and to know, also, if the graduates of this research activity obtain better opportunities in the job.
market. As an accurate diagnosis, it is possible to try to improve even more this program that values an important competence required in these days: the critical spirit.

REFERENCES


