

Undergraduate chemistry students' dropout and retention at the IFG, Itumbiara Campus

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ABSTRACT. Higher education courses have high dropout and retention rates across the country, mostly undergraduate courses, especially those related to exact-science areas, such as chemistry. Given this scenario, this study aimed to present and analyze the panorama about the reasons and causes of dropout and retention of students in the Chemistry Degree Course, Federal Institute of Education, Science and Technology of Goiás - Itumbiara Campus, from 2008/2 to 2012/1. For data collection, a questionnaire was used, which was delivered and answered by heads of department, staff, professors, dropout and retained students. Information from the Academic Management System (SGA) was also used to outline the profile of dropout and retained students, looking for factors that may influenced dropout and retention. Thus, for the organization of the data, the methodology of qualitative analysis of textual information from Textual Discursive Analysis (TDA) was used. Students' motivations and demotivation were analyzed and it was found that the affinity for the course was the most cited factor as a motivator. The highest failure rates are in subjects from the initial periods of the course, and this difficulty may be related to the lack of basic knowledge. However, proposals and ideas were collected to minimize the problems identified during the execution of the research and the main suggestions mentioned were the application of leveling mini-courses and the need for some professors to rethink their teaching didactics.

Keywords: Initial formation; Higher education; School Dropout; School Retention

DOI: <https://doi.org/10.33837/msj.v4i1.1357>

Received: December 10, 2020. Accepted: May 17, 2021

Associate editor: Anderson Rodrigo da Silva

INTRODUCTION

Data released by INEP (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira) show that in 2018, 3,445,935 students entered higher education. Out of those 707,048 enrolled in a degree course. Considering only the Federal Institutes and CEFETS, 197,506 students enrolled in 2018; at the end of four years (average minimum term for curricular integration), 259,302 (20.5%) students completed their studies in 2018 (INEP, 2018).

Evasion and retention in higher education courses have shown high rates in recent years. To this end, several studies have been carried out to identify the causes and factors that influence the student in dropping out of the course (Guerra, Ferraz & Medeiros, 2019, Pigosso, Ribeiro & Heidemanm, 2020).

Data collected by Oliveira Júnior (2015) showed that the Operational Audit of the Federal Court of Accounts (TCU) carried out in 2013 revealed that the average dropout rates of higher education courses in the Federal Education Network were of the order of 64.6% in undergraduate courses, 62.5% in Bachelor's degrees and 57.2% in Higher Technology Courses.

From the analysis of works available in the literature on the themes of evasion and retention, it is possible to come across studies that present complementary, similar or even contradictory theories and concepts. For the purpose of this study, the definitions of evasion adopted by Cunha and Morosini (2013) and the retention approach adopted by Martucci and Nastri (1990) were adopted.

Cunha and Morosini (2013) define evasion as a phenomenon of high social complexity whose characteristic is the interruption of the study cycle by the student. In this sense, all students who fail to complete the course are considered dropouts, regardless of whether the reason for terminating enrollment was due to abandonment, cancellation or transfer.

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For Martucci and Nastri (1990), retention occurs when the student is unable to fulfill the course's curricular matrix, proposed in the time determined by the Higher Education Institution (HEI). Therefore, students who do not complete the course within the minimum payment period are considered retained. For the development of this work, it took into account students retained in the period of data collection and who were still enrolled in the researched course.

It is known that education is a social right dealt with in the Federal Constitution in article 6, and the guarantee of that right through the student's access and permanence in school is promulgated in article 206 of the referred law (Brazil, 1988), as well as in the Law of Guidelines and Bases 9394/96 article 3 (Brasil, 1996). Considering the above in the legal bases, teaching must be taught based on the principles of equal conditions for access and permanence in school and the guarantee of the quality standard (Brasil, 1988). The present work addresses several points of view on students' evasion and retention, seeking to understand the reasons for students leaving the institution or interrupting their studies without completing the course.

Investigating the causes of dropout in the Chemistry Degree course is important to identify and thus make possible the ways to avoid or mitigate the indices. Clarifying and determining the causes of student dropout can mean a path towards restructuring, from the way the university welcomes the freshman to the conduction of possible changes in the structure of the curriculum (Barbosa, Araújo and Fonseca, 2017).

In the survey by Guimarães, Bzuneck and Sanches (2002), data on the undergraduate courses at the State University of Londrina/PR were pointed out, seeking to understand the motivations of students regarding entry into a course aimed at the area of education. Most of the students do not feel motivated with the teaching career, due to problems already presented by other authors such as devaluation of the career, low salaries and a double shift between work during the day and the course at night. The authors highlight a new variable, the age above that expected at admission, where these students have a more solid academic career, due to life experiences. On the other hand, it was found that students already inserted in the teaching career feel more motivated, seeking to complement their knowledge and improve their careers. They conclude by addressing that students' maturity is a determining factor in their academic life and that the analysis of students' motivation is complex, but necessary and can assist in a successful academic life.

Daitx, Loguercio and Strack (2016) studied this evasion and retention theme in a research carried out with students entering the period from 2009 to 2013 in the Evening Chemistry Degree course, at the Institute

of Chemistry at UFRGS (Federal University of Rio Grande do Sul). The authors point out that the dropout phenomenon affects about 20% of the incoming students, and that the retention phenomenon affects about 65% of the students and about 60 students (60%) of the last researched group, are retained in the first or second stage. of the course.

Mercuri, Azevedo and Silveira (2016) present an analysis of the CLABES editions. In the compilation of the aspects presented in the first three editions of the event, he obtained two theoretical supports that hinder the implementation of actions and proposals against evasion: the need for discussion on the topic within the HEI, with the target audience of professors and managers; the lack of an effective evaluation in the identification of the factors that cause evasion. Thus, both the absence of debate and continuous assessment make it difficult to create intervention plans to improve the situation in its reality or other HEIs that may apply similar solutions.

Pereira et al., (2016) affirm that there is a great complexity in analyzing the reasons for evasion due to the innumerable variables. The low competition and cut-off point for admission to the analyzed courses are factors that could cause future retention, due to the possibility of the student relating this fact to a lower charge during graduation. Failures in disciplines in the exact areas were presented as determinants of retention, not ruling out socioeconomic factors that may accentuate the problem.

Hengles and Pereira (2017) carried out a bibliographic survey on evasion at a higher level in Higher Education Institutions in the State of Rio Grande do Sul. In this study, there is a bibliographic scarcity in academic works on the topic of evasion, which mostly report causes, being the lack of affinity with the course and socioeconomic factors the main ones mentioned. Solutions and actions to face dropout rates are rarely discussed and are not presented, due to the complexity and individuality of the subject, requiring a comprehensive and in-depth research in order to be able to propose any initiatives on the topic.

At the University of Minho, in Portugal, Almeida, Casanova and Gonçalves (2017) carried out a study with 2146 students who attended the 1st year of the various 1st cycle and integrated master's courses at the University of Minho in the academic year 2015/2016, looking for relevant information about the reception of the student in the initial periods of the courses offered at the institution. The data obtained showed that social and cultural factors related to the affinity with the course, time of study and even location in relation to HEI are determining factors for a successful academic career. The results of the research demonstrate that the monitoring of the student is necessary due to the complexity of the subject addressed, since the various variables within the

theme of retention and evasion hinder a simplified solution to these problems.

Fávero, Parisotto and Carvalho (2017) presented in their study the list of dropouts from an HEI in Blumenau. In this work, the profile of the evaded student was verified and it was observed that several factors relevant to the permanence of the student are not under the control of the institution, such as time for study, psychological factors and personal problems. The great difficulty was the variety of factors pointed out, so hypotheses were created to simplify the most cited factors and eliminate the least relevant ones. Thus, the biggest hypothesis found in his study was that dissatisfaction with the student's personal life occurred in approximately 60% of the responses. More precise studies, in order to seek better actions on evasion in the HEI, are necessary to find solutions to the theme, argues the author.

The reasons for the great retention in higher education courses are already studied and several surveys showed the same factors, such as: socioeconomic condition, making the student have to work in another period; difficulty adapting to the academic environment; lack of affinity with the chosen course or even lack of option, which makes the student a possible dropout (Bastos & Ferrão, 2019).

One of the problems faced in Brazil in relation to evasion is the scarcity of information on the subject, such as the lack of evasion indicators. Therefore, in order to start solving such problems in this study, we sought answers to the following questions: how to recognize which students are evaded and which are retained in the databases of the Federal Institute of Goiás - Câmpus Itumbiara? Once these evaded and retained students were identified, two other questions were raised: is it possible to identify the factors involved in the evasion of these students? If so, what are the reasons? Responding positively to the questions raised, a third question was asked: what measures need to be implemented in the Chemistry Degree course at the IFG in Itumbiara / GO to understand this problem and consequently reduce its dropout rates?

In view of the above, the objective of this work is to present and analyze the panorama of evasion and retention in the Degree in Chemistry, from the Federal Institute of Education, Science and Technology of Goiás - Câmpus Itumbiara from the 8 (eight) completed cycles, since the implementation of the Chemistry Degree Course in 2008/2 until 2012/1.

With the need to create programs and actions to reduce dropout in higher education and bring opportunities for discussions on the subject, the Latin American Conference on Abandonment in Higher Education (CLABES) was created in 2011, bringing together managers, professors and students for the discussion of the evasion theme. In the 2016 edition, the event had 166 accepted papers and researchers

from 20 different countries, which shows the importance of the theme in the international academic community.

Data from the National Institute of Educational Studies and Research Anísio Teixeira (INEP, 2019) show that, in 2017, 18.6% of students in public universities dropped out of their face-to-face courses, a calculation made based on the number of dropouts in relation to the number of students enrolled. The index presented is high, but it is made available with little clarity on the information by INEP, since it only presents the number of dropouts without informing the reason for the evasion, making it difficult for forces to improve the country's situation.

Due to the complexity of the factors already presented by previous authors, each institution has found particular cases of student dropout and retention in higher education institutions (Mussida, Sciulli and Signoreli, 2019, Vilorio et al., 2019).

A different view on evasion within the Federal Institute of Santa Catarina (IFSC) Câmpus Criciúma, Oliveira and Volpato (2017) show that, in addition to the student's difficulty in learning, another relevant factor was the symbolic violence suffered by the student, both of students by students, as well as the student / teacher relationship. They point out that the imposition of different cultures and beliefs affects the student negatively and, still, raise the question whether the Federal Institutes really reduce inequality. The authors conclude with a reflection to the professors, if they feel responsible in any way about the student's dropout.

The themes of evasion and retention do not require a simple study, as several factors influence the result of the indexes. There is a need for studies, research and the creation of commissions in order to deepen these themes, which can help higher education institutions with high levels of dropout and retention.

MATERIAL AND METHODS

This research deals with a bibliographic study to survey the theoretical knowledge built on the topic discussed here. Data were collected directly and indirectly through documentary research in the Academic Management System (SGA) and questionnaires.

The analyzed data were generated and collected at the institution's SGA at the beginning of the 2016/1 academic semester and comprised the 8 (eight) completed cycles, from the implementation of the Chemistry Degree Course in 2008/2 until 2012/1. The cycle is the grouping of students who seek the same certification in a course with a similar workload and with the same start and end dates (Brasil, 2011).

Chart 1. Research Corpus

Research Corpus	Research Subjects
Total of 135 Questionnaires	7 Managers
	11 Administrative Technicians
	10 Professors
	7 Retained Students
	10 Dropped Students
	90 Students attending the 1st Workshop

The target audience of the present work were dropout and retained students from the Chemistry Degree Course at IFG in Itumbiara, Brazil. For the collection of the data with the evaded and retained students, questionnaires were elaborated containing open questions. We sought to extract relevant information such as the reason for joining and dropping out; factors that influenced the choice of the course; difficulties, motivations and discouragements encountered during academic life; failures; knowledge of research and extension programs, as well as their importance; and suggestions for improving dropout and retention rates. For dropouts, the questionnaire was sent via electronic mail, according to individual contacts of students registered with the SGA, using the Google Docs platform (Lakatos, Andrade, 1996).

Information from professors of the Chemistry Degree Course, administrative technicians and managers related to the Campus Education sector were collected, in person, through questionnaires with open questions, aiming to raise perceptions about the reasons for dropout and retention; the influence of professional performance in the student's academic life and in the indexes presented; the actions taken by category to reduce these indexes and the proposals to improve the situation. The point of view of the servants on the situation, both of evasion and retention, is little explored in the literature, but as important as the notes cited by the students.

During the 1st Workshop on Evasion and Retention A Degree in Chemistry from the IFG in Itumbiara city, a questionnaire was applied to the students present at the event and regularly enrolled (retained or not retained) for 90 (ninety) participants.

For data analysis, the Discursive Textual Analysis (DTA) technique was used, mainly used to obtain and treat qualitative data as one of the focuses of this research, following the perspective presented in the work of Moraes and Galiazzi (2016).

The data collected were compiled and the research corpus is available in Chart 1. The managers chosen for the collection were professors and administrative technicians. The professors participating in the research, teach classes in subjects of the Chemistry Degree course.

RESULTS AND DISCUSSION

The themes of evasion and retention have been frequently debated in HEIs, since the complexity of these phenomena interferes with university management throughout Brazil. Specifically in the Chemistry Degree course at the Federal Institute of Goiás (IFG) - Câmpus Itumbiara, this issue was addressed in a discussion about the academic career, students' reality and permanence in the course (Oliveira et al., 2016a).

The Chemistry Degree (IFG) course has high dropout and retention rates since its beginning in 2008, as was evidenced in the works published by (Oliveira, et al., 2016a), (Oliveira, et al., 2016b), therefore, an updated and more in-depth study on the subject was necessary. These studies showed a reality, not only at IFG, but that is repeated in many undergraduate courses at Brazilian universities. However, the knowledge of the reality of the IFG in Itumbiara / GO, the deepening of these discussions may lead to the understanding and development of new strategies to minimize possible retentions and evasions.

The Profile of the Evaded and Retained Student

In order to understand who are the students entering the course from 2008/2 to 2012/1, in the surveyed course and to outline the profile of dropouts and retained, data on sex, age, school of origin, location were extracted from the SGA residence and socioeconomic status. Quantitative data and qualitative analysis are described below.

Regarding the number of students who entered the Chemistry Degree course in the period, a total of 247 students was identified. Of these, 161 are female and 86 male. Based on the SGA data, it was found that of 161 students, 98 (61%) were evaded and 32 (20%) were retained. For the male of the 86 new entrants, 68 (79%) were dropped out and 10 (12%) were retained in the course. It is believed that the other students, that is, about 39 were in a regular situation in the course. Thus, it is clear that dropout is 18% higher in the male audience, which can be related to the need to work and the student is unable to take a double journey. The retention rate is 8% higher in the female audience, which suggests that the surveyed course is more attractive to the female audience.

Regarding the school of origin of the interviewees, of the total of 247 study participants, 187 came from public schools and 60 from another type of institution. Of these 187 coming from public institutions, 136 (73%) are dropouts and 25 (13%) are retained. In relation to students who came from other institutions, there are a total of 60 newcomers, of which 30 (50%) are dropping out of the course and 17 (28%) are retained. It is anticipated that dropout is 23% higher in students from public schools than in students

who came from affiliated, philanthropic or private institutions. Retention is also higher at 15% in the public from other non-public institutions. In this sense, it is inferred that the student's school trajectory can also influence the student's permanence or dropout in the course. In this line of reflection, it is understood that the blame may not only be on the student or on his individual characteristics, the institution is also responsible for the student's success or failure. It can also be said that the school trajectory influences quality training and the pursuit of studies with greater success. Alvarenga et al., (2012) carried out a study in the courses at the Federal University of Lavras and found similar data.

In the work developed by Cunha and Morosini (2013), the authors discuss the phenomena of dropout / dropout in higher education and the data are similar, since most of the students surveyed come from public schools where one of the main issues resides in the quality of education necessary for the continuation of their studies. Thus, because they do not have enough "cultural capital", they tend to fail in studies at higher level and become potential candidates for dropout / dropout.

Analyzing the age of students entering the period from 2008/2 to 2012/1, it was noted that advancing age has a higher dropout rate, which is consistent with the literature Silva (2013) Schuster (1999), which can be related with the responsibilities of adulthood, which make them choose between academic life and their responsibilities. Thus, it was observed that 89% of students over the age of 31 were dropped out in the period studied and 7% were held up for some reason. This same profile was observed in the aforementioned literature, presenting a recurring problem in the history of higher education in Brazil.

Considering, also, the profile analysis of the dropouts and that the city of Itumbiara is located on the border of the State of Minas Gerais and with surrounding cities very close, an analysis was also carried out on the place of residence of these students, as shown in the Table 1. It was noted that, among the dropout residents in surrounding cities, an index only 6% higher than the dropout rate resident in Itumbiara. The retention rate is similar among those who live in Itumbiara and in the surrounding cities. In this sense, it is observed that the external factor locality is not decisive for school dropout.

Table 1. Location of Residence

	Ingressed	Evaded	Retained	Retained	Retained
Itumbiara City	201	133	66%	34	17%
Surrounding cities	46	33	72%	8	17%
Total	247	166		42	

Table 2 shows the family income per capita (Rfp). For the purpose of analysis, it is worth mentioning that the per capita family income is the total sum of the gross income in the month of all those who make up the family, divided by the number of its members.

During data collection at the SGA, it was noted that information on family income was not informed by a significant number of dropout and retained students. Therefore, it was decided to consider per capita family income in the analysis (Table 2), despite requiring certain knowledge for the adequate choice of the alternative that corresponds to the socioeconomic condition. According to reports by the School and Academic Records Sector - CoRAE, this information is filled in by the candidate at the time of registration for the selection process and is not subsequently confirmed or updated at the time of registration. Therefore, it is not known whether the student has the correct concepts for adequate information filling, that is, it is not known whether this information corresponds exactly to the reality experienced by the student.

In the analysis of per capita family income, students with an income between 1.5 Mw and 2.5 Mw are the ones with the lowest dropout rate and the highest retention rate in the course. In this work, considering the data presented above, we emphasize that it cannot be said that low income is a motivator for dropout in the studied course, since students with income above 2.5 Mw also have high dropout rates and low retention index. Results presented by authors such as Bittencourt and Mercado (2014) show that 38% of students with income between 3 and 5 Mw and Paz, Barbosa and Azevedo (2005) who present that 62% of students with income from 1 to 3 Mw evade and have socioeconomic factor among one of the main reasons that leads to evasion.

Table 2. Family income per capita (Rfp) in relation to the Minimum Wage (Mw)

	Ingressed	Evaded	Evaded	Retained	Retained
Rfp <= 0.5 Mw	18	12	67%	4	22%
0,5 Mw < Rfp <= 1 Mw	65	42	65%	10	15%
1 Mw < Rfp <= 1.5 Mw	53	37	70%	9	17%
1.5 Mw < Rfp <= 2.5 Mw	40	24	60%	11	27,5%
2.5 Mw < Rfp <= 3 Mw	50	35	70%	6	12%
Rfp > 3 Mw	19	14	74%	2	10.5%
Not informad	02	02	100%	0	0
Total	247	166		42	

Retention and Evasion Rates in the Period 2008/2 to 2015/2

The analyzed data were generated and collected at the institution's SGA at the beginning of the 2016/1 academic semester and comprised the 8 (eight) completed cycles, from the implementation of the Chemistry Degree Course in 2008/2 until 2012/1. It was observed, during the analyzed period, that of the 247 newcomers, 42 were still enrolled, 39 completed the course and 166 completed their enrollment without completing the course, as shown in Table 3.

The quantitative analysis indicates a rate of 67% dropout, 17% retention and 16% diploma. It was found that more than 60% of this loss occurred in the first half of the course. There was also a strong relationship between dropout and failure, as at least 118 students (71%) failed in the semester prior to dropout, as shown in Figure 2. Data very similar to those presented by Ferrão et al., (2020) in the Engineering course analyzed, demonstrate that approximately 50% of students have dropped out of the course for the same reason. The authors, as an intervention measure, proposed motivational monitoring with the student.

As seen in Figure 1, the highest profile of those who were unsuccessful were students who failed the semester prior to dropout.

It was also observed that students who asked to cancel their enrollment were significant for the number of unsuccessful submissions. It was noted that these students rarely redeemed their enrollment, but

when they reopened, they felt great difficulties and ended up avoiding the course.

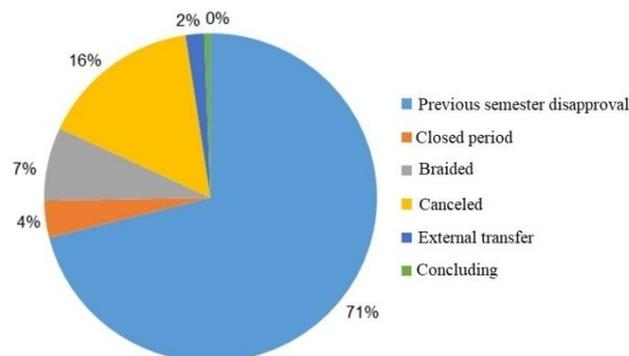


Figure 1. Profile of Unsuccessful Finalists.

Subjects with the highest failure rate in the period from 2008/2 to 2015/2

The data survey was carried out to identify the subjects with the highest failure rate. The study of the reasons can help in the identification of factors that can lead the student to retention / evasion of the course. The data are shown in Table 4.

Table 3. Students' enrollment status per cycle.

Cycles	Conclusion		Evaded	Retained
	Within the Cycle	Without the Cycle		
From 2008/2 to 2012/1	1	7	22	1
From 2009/1 to 2012/2	0	13	17	0
From 2009/2 to 2013/1	0	5	22	5
From 2010/1 to 2013/2	0	7	20	4
From 2010/2 to 2014/1	0	3	17	6
From 2011/1 to 2014/2	0	2	21	9
From 2011/2 to 2015/1	0	1	23	9
From 2012/1 to 2015/2	0	0	24	8
Total		39	166	42

Table 4. Total enrollments in the discipline, approvals and disapprovals.

Subjects	Time course	Total Enrolled	Total Approved	Total Reproved	Reproved
Structure and Properties of Matter	1°	532	266	266	50%
Chemical Transformations	1°	427	176	251	59%
Elementary Mathematics	1°	716	263	453	63%
Calculation I	2°	361	140	221	61%
Analytical Geometry	2°	512	177	335	65%
Probability and statistics	3°	208	115	93	45%
Calculation II	3°	113	53	60	53%
Organic I	4°	211	116	95	45%

The highest rates are present in structural subjects of the course such as Chemical Transformations, Elementary Mathematics and Analytical Geometry. Silva-Filho et al., (2007) show that the high failure rates are related to previous high school knowledge. The subjects of the first years of the course are those with the highest values in percentage of failure. As seen by Almeida, Casanova and Gonçalves (2017), failure can be related to the student's difficulty in adapting to academic life and also the lack of prior knowledge. Another factor to be taken into account is the offer of the course to be at night and the vast majority of students have double hours, needing to work during the day and study at night, not having free time for studies or even to participate in extra care. shift to remedy your difficulties.

Opinion of Managers, Professors, Administrative Technicians and Students

The need for a current analysis of the factors that motivate the student to enter the degree course can help to understand what leads him to evade, allowing an opportunity for interventional actions to reduce the evasion rate. Managers' opinions on the evasion and retention problem, the points of view of the administrative technical servants have their importance due to the direct or indirect relationship with the student, being able to offer important information for a possible effective action.

The importance of analyzing the professors' information is extreme because they are in closer contact with the student, being able to hear their suggestions, questions and assimilating all the information with their experience, concluding strongly arguments to understand the student motivations.

The analysis categories were obtained through the discussions presented by students, professors, administrative technicians and managers and are presented in Chart 2.

Manager questionnaire

Seven (7) Campus managers have published a questionnaire to collect information on the reasons for dropout and retention in the course; selection of the direct or indirect direct of its management in the indexes found; the summary actions in relation to this problem and, finally, a suggestion or idea to improve the institution's staff. Managers were asked what would be the main reasons for evasion and retention in the course, their answers are assumed in Figure 2.

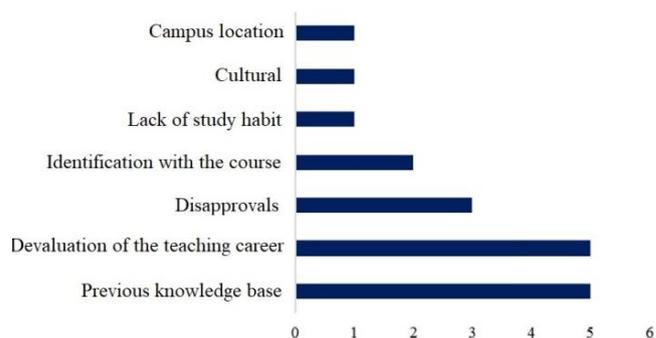


Figure 2. Reasons for Evasion and Retention Presented by Managers

It should be noted that the main reasons given were the devaluation of the teaching career, the absence of previous content and excess of failures. Authors such as Andriola, Andriola and Moura (2006) present similar data in their studies. Some statements can be highlighted like that of Manager A:

"When failing, the student is unmotivated and gives up on the course or ends up finding the failure something normal, being retained for several years. The issue of retained students has even become cultural, the failure in the subjects of the Degree in Chemistry has become so frequent that "abnormal" is that student who does not fail at all, which ends up naturalizing what is not a natural thing (failure)". Manager A

Chart 2. ATD categories.

Categories	Examples
Reasons for Evasion	"When failing, the student is unmotivated and gives up on the course ..."; "... having to work and take care of the family at the same time"; "... would solve my problems with access to the IFG or difficulty following the mathematics discipline."
Reasons for Retention	"... difficulty due to the lack of time available to study at home and also a willingness ..."; "At the time, I worked and didn't have time to study and there were a lot of college things to do."
Proposal for improving evasion	"... it would be carrying out activities at the beginning of the school semester with the aim of trying to level the basic knowledge a little ..."
Proposal for improving Retention	"... could be mini-courses, projects or booking the first weeks of class each semester for this purpose."; "... they are part of a whole that is the Institution, which needs to work so that the student" works "too."
Choice of the Degree course in Chemistry	"... how about making a day of professions on campus ..."; "Since there is a deficit in the exact area, I saw one more opportunity."

When asked about the actions taken by their management in relation to dropout and retention rates, several responses were obtained from actions and studies carried out, which are expressed in Figure 3.

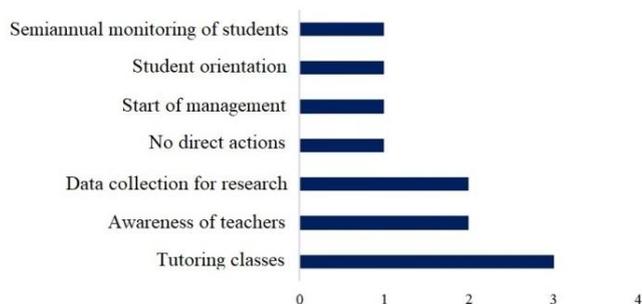


Figure 3. Actions against Evasion and Retention Presented by Managers

The Institution is composed of several sectors, some with more and others with less contact with students, even so it is clear that the answers about the actions in the majority converge. In this sense, it is noted that managers are aware and seeking to mobilize against the high rates of evasion and retention, it is observed that, in the vast majority, managers are aware and mobilized against evasion and retention in the course.

Questionnaire to Administrative Technicians

Data collection was carried out with 11 administrative technicians through a questionnaire. The instrument was applied personally and addressed practically the same issues applied to managers. Therefore, their responses were similar to those presented by the managers, mainly addressing the lack of previous students' content as a reason for retention and that some of them enter the course for lack of other options. Most consider that their performance on Campus and participation in the student's academic life directly influences the dropout and retention rates, as presented below by Administrative Technician B:

"I believe that directly, each professor, administrative technician, is part of a whole that is the Institution, which needs to work for the student to" work "too." Administrative Technician B

When approached about whether they would have any proposal or idea to improve the dropout rates, most suggested a union between the servants to increase the effectiveness of an intervention to be carried out. As Administrative Technicians C and D present:

"Yes, that the institutional community is mobilized to participate effectively, without reinforcing the fragmentation of this community - that the oneness becomes a determining practice for the necessary actions. May a humanist vision be further studied in all segments of the campus. Paulo Freire, republished in 2001, recommends a school that: Make a real community of work and study, plastic and dynamic. And that, instead of children and professors to rigid and nationalized programs, make them learn, especially how to learn..."

"How about the students of the course go to schools in the city promoting the area / the entrance exam? Or how about making a day of professions at the Campus, spreading the Chemist / Teacher day to the community? Provide buses, cheaper snacks, cultural activities, lectures with professionals already trained, putting all the possibilities of performance..."

As transcribed above, it is not only the responsibility of the one work group, the students themselves can also assist the community in the dropout / retention factor, for the most part the administrative technicians have proposed the same ideas for a possible reduction in the rates.

Questionnaire for Professors

Ten Professors answered the questionnaire and expressed opinions similar to those already identified in the previous items, presenting as low incidence of motivation the little appreciation of the teaching career and the lack of knowledge base coming from basic education, mainly of mathematical content. In their answers, the professors demonstrated that student failure occurs mainly through the abandonment of the discipline and lack of prior knowledge to monitor the learning process. Answers about the reasons for the high rates are shown in Figure 4.

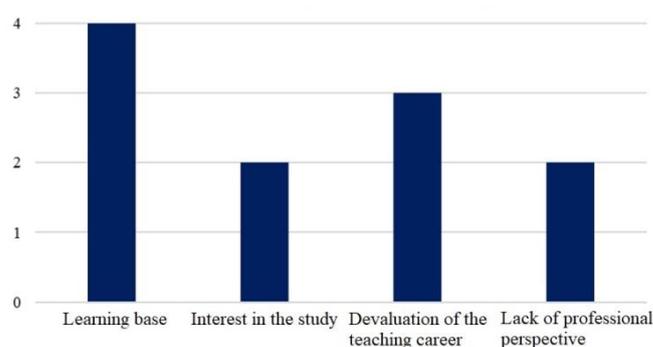


Figure 4. Reasons for Evasion and Retention Presented by Professors

These data are similar to those found by managers, administrative technicians and also by authors such as Guimarães, Bzuneck and Sanches (2002).

When asked about their didactics, they stated that it did not directly influence the student's success or permanence.

As measures to improve the index, courses for leveling previous content were suggested for students and professors' awareness for a different look at their teaching methodologies, as highlighted by Professor A:

"With regard to the professors of the course, I believe that a proposal to reduce evasion / retention in the Chemistry Degree Course at IFG-Câmpus Itumbiara would be to carry out activities at the beginning of the academic semester with the aim of trying to level the students a little basic knowledge of students, which are fundamental for the good development and monitoring of their discipline. Such activities could be mini-courses, projects or booking the first weeks of class each semester for this purpose. Another proposal would be for the collective of professors of the course to rethink their teaching methodologies and ways of approaching the contents, in order to facilitate the learning of their students. " Professor A

Analyzing the professors' responses, there is great interest and knowledge on the subject due to greater contact with students. Important information was revealed and will be used for the proposal of actions for the reduction of retention rates in the course, thus causing, consequently, the drop in the number of dropout students.

In the research by Ribeiro, Yamamoto and Inocêncio (2018), who sought to identify the aspects of school dropout and retention in higher education, from the creation of leveling projects, in the face-to-face and distance modalities, and from the inclusion programs of the school itself. institution and the Ministry of Education (MEC) at the Federal University of Jataí (UFJ), showed the importance of these actions, as there are no institutionalized leveling actions, and that this deficiency tends to provide a higher dropout and retention rate in undergraduate courses from UFG or UFJ. Thus, the authors present in their study proposals for distance and face-to-face leveling interventions that may provide the student with greater academic success and permanence in their courses until conclusion.

Questionnaires to Retained Students

Among the 42 students retained in the studied period, only 7 (seven) answered the questionnaire. Although

these students have an enrollment link with the Institution, many are no longer attending classes regularly and have not been contacted. The others, despite the insistence, argued lack of time and lack of interest in collaborating with their opinion.

Students were asked about the reason for entering the course, their failures, motivations and discouragements found during academic life, failures, about the didactics applied by professors, knowledge of research and extension programs, as well as their importance and suggestions for improvement evasion and retention rates. The majority reported that the failures were mainly in disciplines in the exact area, understanding that the difficulty is given both by the lack of prior knowledge and by the lack of commitment in the disciplines. When asked why they failed:

"Difficulty in calculations and areas, due to poor training in previous stages of education (...), difficulty due to the lack of time available to study at home and also willingness." Retained Student A

One question addressed whether the student would have felt like giving up on the course:

"I already felt like giving up on the course. At the time, I was working and didn't have time to study and there were a lot of college things to do. " Retained Student B

It appears that the offer of the evening course requires a greater commitment from the student who takes a double journey.

All students who answered the questionnaire said they knew the Campus research and extension programs, such as PET, PIBID and PIBIC as the Retained Student C presents in his speech:

"They are extremely important in training since some of the programs mentioned above, the student works on critical reflection. Another contribution is for students who wish to take a master's degree, due to the score ". Retained Student C

Dropped Students Questionnaire

Seeking to present the demotivation and difficulties that the student suffered during the period in which he was enrolled in the course, the questionnaire applied to dropout students was sent to the email provided at the time of registration.

The SGA informed the existence of 166 dropout students, only 10 (ten) responses were obtained, which suggests the lack of updating of the electronic contact, lack of interest on the subject and /

or the unavailability of the student to answer the survey.

When asked about the motivation to enter the course, only one student showed interest in the area of education in his speech:

"For working in the Education area, and for having been awarded by the Freire Platform with the vacancy, and there is a deficit in the exact area, I saw one more opportunity."
Dropped Student A

It was identified that the biggest motivation of the student to enter the course was the gratuity of the course and the lack of option of free courses at night.

As a decisive factor in the student's dropout, the difficulty of achieving good results in the course, failures and the need to work appeared as determinants for the student's dropout. Most students had didactic and economic difficulties to stay in the course, which made them make the decision to drop out. Both the didactics of the teacher and the high demand compared to high school, within the disciplines were the factors most commented by the students.

The students' personal motivations and demotivations are varied. What drew attention to these statements was that they entered the course motivated, as they were aware of the wide need of this professional in the job market and also of the opportunities that training could provide, thus envisioning a better future. However, this motivation does not end up remaining for a long time, as both the learning difficulty and the double journey end up making it impossible to continue the course.

"As it is an area with a lot of deficit in Education, I saw a better opportunity for my future". Dropped Student B

"The course motivates, therefore, the job opportunities are many and I like the course. What discourages me is my learning disability, having to work and take care of the family at the same time". Dropped Student C

One question addressed whether they were aware of the Campus research and extension programs. Five students knew or had participated in the programs. Even those who were unaware, believed that these programs could help training and learning, as Dropped Student C Student presents in his speech:

"Yes, I am sure that scientific research is present in all university curricula, thus demonstrating its importance in the professional environment. The job market is demanding more and more from the professional, that it is no longer enough to have theoretical knowledge, but to carry out a

practice that seeks the production of new ideals and knowledge". Dropped Student C

It is important to highlight that 2 (two) students did not know how to say the importance of the Campus Research and Extension programs and the Dropped Student D says that they are not aimed at solving the main motivating factor of evasion, lack of previous knowledge:

"Very unlikely, because none of these programs would solve my problems with access to the IFG or difficulty following the mathematics discipline. Honestly, these programs are designed by people who do not live in reality". Dropped Student D

The last question requested suggestions from dropout students to improve dropout rates, it is concluded that there is a need to carry out welcoming work, equity and continuous monitoring of students as presented in the statements of students E and F:

"Continuous guidance work would be necessary: the preparation of the teaching staff, the availability of time for material resources and, finally, the attribution of points in the Gratification of Incentive to Teaching."
Dropped Student E

"The institute embraces everyone as one."
Dropped Student F

Note the complexity of the theme in the speech of Dropped student G Student who emphasizes the existence of several factors that motivate dropout, being of individual and internal orders. Therefore, he suggests both structural changes in primary and secondary education, as well as the adaptation of the IFG - Câmpus Itumbiara to the reality of students with difficulties in offering quality education and training of a professional able to work in the labor market.

"There is nothing that the institution can do that will insure everyone. But if it is well investigated, I believe that the IFG will perceive the same thing as me. There are points in common in these reasons and among the various individual reasons there are those that weigh more. I saw two of these reasons that weigh more in the lives of students who joined me. I saw friends who gave up, like me, because they needed to work and had to choose between study or work. And nobody will want to study if they need food on the table. (...) Well, it is not possible for the IFG to assume the responsibility of changing the Middle and Elementary Schools alone (...) If the IFG does not adapt to the reality of the students in the

city where it was installed, it will not solve this problem. Dropped Student G

Workshop on Evasion and Retention of the Chemistry Degree Course at IFG Itumbiara Campus

In April 2016, the “I Workshop - Evasion and Retention in the Chemistry Degree Course at Campus Itumbiara - General Aspects” was held. The event was organized by the Department of Academic Areas (DAA), Grupo Pet Química (PET) and the Research and Extension Center in Educational Processes (NuPEPE), with the special participation of the Local Commission for the Development of the Strategic Plan for Permanence and Success - Campus Itumbiara. The target audience of the workshop were regularly enrolled students and professors of the Chemistry Degree Course.

The workshop was an intervention measure in order to guide everyone involved in the undergraduate course on the status of the course. This action was considered extremely positive by the organizers and students present because it brought complexity and awareness about the topics of evasion and retention.

On the occasion, two lectures took place, one promoted by the tutor of the Tutorial Education Group (PET). In that first moment, it was informed that the main objective of the workshop was to provide a moment of reflection and debate and to make notes aiming at improving the quality of graduation.

It is worth mentioning here that the PET group is part of the institutional programs of the Ministry of Education (MEC), created exactly to operate in courses with a large number of dropouts and retention, existing at the Campus since 2013, which aims to work on data from the Degree and contribute with the accomplishment of academic activities and act for the successful permanence of the students in the graduation.

Since its implantation, PET has done the job of welcoming the student, being responsible for several actions, such as mini-courses addressing basic topics such as mathematics and chemistry, holding freshmen reception, an important moment, when the incoming student has his first contact with the students. norms and rules of the HEIs, together with a presentation of the course and motivational dynamics for greater interaction with the new student. In 2017, the Degree course student manual was developed in partnership with CoRAE, which presents various institutional and course information.

In the second moment, quantitative and qualitative data collected by the Local Commission for the Elaboration of the Strategic Plan for Permanence and Success - Campus Itumbiara, created in 2015, were presented, in order to analyze and propose actions on the topic of evasion within the Campus.

It is known that this commission arose to meet the demand of the Federal Court of Accounts (TCU) which, after detecting unsatisfactory rates, prepared a guiding document about the need for improvement in the performance of the federal education network related to school dropout and retention.

The members of this commission collected data that allow for a more comprehensive analysis on the topic. As a team, they have already carried out quantitative and qualitative research with civil servants, alumni and students. In the preliminary analyzes, they managed to point out individual, internal and external factors that motivated evasion, which enabled a more detailed understanding of the problem faced on campus.

In addition to the lectures, the event was also a key moment for collecting data from students through a questionnaire.

Considering the data collected, the factors that led the student to enter the course are shown in Figure 5, and the affinity for Chemistry was the most chosen option, but the relationship with teaching is not yet the main factor of student entrance.

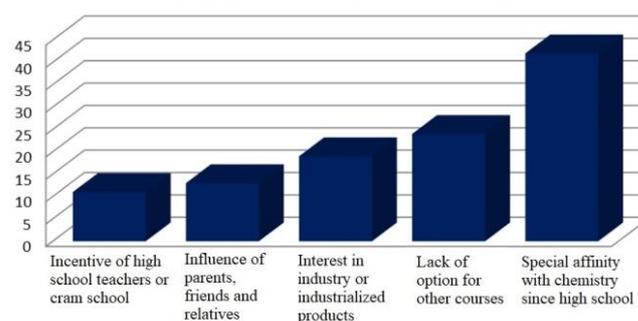


Figure 5. Factors that led the Student to join the course.

Subsequently it is researched if the student intends to pursue a teaching career (Figure 6), 69% of the students said they would want to. It is noticed that, during the course development, the student showed greater empathy with the teaching career. The presentation of the type of career that the course provides is positive for students who are already getting to know their area of expertise. Silva et al., (2017) in an engineering course at the Federal University of Santa Catarina, obtained a decrease in dropout rates when he carried out a project based on a game with the students, presenting the area of activity and motivating them to pursue their careers.

The matrix of the IFG Chemistry Degree Course has four supervised internships, presenting to the student the competencies and skills of the teaching career, in addition to extension projects such as the PET group, which allows the student to get to know the scientific area and academic, being able to participate in congresses and short courses. The Institutional Teaching Initiation Program also provides

opportunities for students to start teaching with the aid of a scholarship.

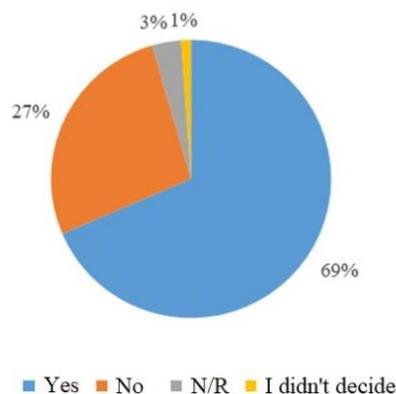


Figure 6. Student's intention to follow the teaching career.

The motivations and demotivations were questioned and are presented in some statements:

"Motivation: A better future, to be a good professional.

Demotivation: The difficulties of the course, reconciling life with everything that is spent in college." Student Workshop A

"Motivation: My motivation is knowledge, as it is a very good and high quality course.

Demotivation: What demotivates me is the failure rate, because sometimes it does not depend on the student's effort, many times this comes from the lack of preparation of the professor". Student Workshop B

"Motivation: Possibility of training, goodwill of some professors who believe in the students' potential.

Demotivation: Lack of interest from students and some professors. Lack of innovation, student victimization and lack of time (on my part) to participate in events. "Student Workshop C

The main demotivating factor is the same presenting in other studies as Guimarães et al., 2002, Bittencourt et al., 2014 and Sá et al., 2016, the student's difficulty in reconciling academic life with professional and personal life. As already discussed (Figure 1), failure is the main factor that discourages students from following the course. A large portion of the students who answered the questionnaire claim to already have disapprovals in their academic career, as shown in Figure 7.

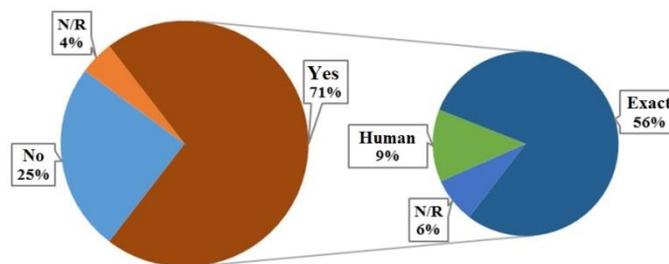


Figure 7. Disapprovals and area.

Of the 90 questionnaires applied, 68.8% of the students reported that they had difficulties in specific disciplines, 25.8% had difficulties in specific disciplines in the humanities area and 5.4% did not answer this question. A later question asked whether the student had already failed a discipline and 71% said yes, 25% who had not failed and 4% did not answer. Of the 71% of students who reported failure, 56% presented them in subjects in the exact area, 38% in the humanities and 6% did not report subjects that failed. It is noted that the vast majority of failures are present in disciplines in the area of exact, difficulties that are presented due to previous knowledge that students did not have, showing, consequently, great difficulties.

CONCLUSIONS

The data obtained from this research showed that, during the period studied, 247 students entered the course, only 39 reached the conclusion, 166 dropped out for some reason and 42 were still enrolled in the condition of being retained.

From the quantitative analysis of the data, it was identified that the biggest reason for dropout was failure in subjects in the previous semester. It was noted that the difficulty in adapting academic life was considered a determining factor for the student not having a successful career.

It was found that the main occurrences of failures are in disciplines offered in the first semesters of the course, mainly in the disciplines of the exact area such as, Elementary Mathematics, Analytical Geometry and Chemical Transformations. In general, it is concluded that interventional measures must be taken to better welcome the student, thus avoiding failure in the basic disciplines of the course and the construction of a basis for the effective continuation of studies.

Qualitative data collected in the questionnaires applied to Managers, Professors and Administrative Technicians affirmed that the difficulty that the student presents in following the teaching and learning process comes from basic education, therefore, the lack of previous content and the

difficulty in keeping up with the new pace of learning study present at the institution.

In order to remedy the difficulties and motivating factors of the indexes presented, it was noted that the civil servants have been looking for measures to improve the situation found in the institution. As a proposed intervention measure, we cite the I Workshop on Evasion and Retention of the Chemistry Degree course at IFG Câmpus Itumbiara, which had a positive balance, presenting students with the reality of the course and giving students the opportunity to express their opinion, wishes and suggestions.

Finally, it was concluded that our country suffers from serious problems in relation to public policies for education and these problems are expressed in the dropout and retention rates. There is a lack of effective programs for the permanence and success of students and there is a need for an in-depth look at the issues on the part of our leaders in order to achieve effective actions against dropout and retention in all categories of education.

ACKNOWLEDGEMENTS

To the Instituto Federal of Goiás (IFG), to MEC/FNDE/PET for financial support for research and to NUPEPE and NUPEQUI Research Directories.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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To cite this paper:

Oliveira, Y. A., Rodrigues, R. P., Cardoso, A. G., Santos, J. P. V., Goulart, S. M. (2021). Undergraduate chemistry students' dropout and retention at the IFG, Itumbiara Campus. *Multi-Science Journal*, 4(1): 38-51. DOI: <https://doi.org/10.33837/msj.v4i1.1357>