DRIVE: A VIRTUAL SPACE TO DEVELOP RESEARCH AND DIGITAL COMPETENCES IN UNDERGRADUATE LEVEL

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DRIVE: UN ESPACIO VIRTUAL DE INVESTIGACIÓN PARA EL DESARROLLO DE COMPETENCIAS INVESTIGATIVAS Y DIGITALES EN PREGRADO

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Resumen: El objetivo del presente trabajo pretende establecer la metodología didáctica que se diseñó y aplicó dentro de Drive para el desarrollo de competencias investigativas y digitales en estudiantes de pregrado, por lo cual se considera un espacio virtual de investigación, tanto para la construcción de proyectos de investigación (PI) como de contenido de asignaturas (CA). El estudio se realizó en cuatro momentos distintos en tres universidades de México y con diversas licenciaturas. Se diseñó y aplicó una rúbrica analítica. En el primer momento se llevó a cabo una investigación cuantitativa instrumental, mientras que para los otros tres, exploratoria. El primer grupo se formó con 100 estudiantes procedentes de CUIM, UPEM e IAC para desarrollar sus PI; el segundo grupo de 32 discentes de IAC, con la intención de construir sus propios contenidos; el tercer grupo se integró con 43 alumnos de IAC para el desarrollo de su tesis; y el cuarto grupo se conformó de 32 discentes, también de IAC, con la finalidad de generar sus propios CA. De acuerdo con los distintos niveles de dominio de la rúbrica analítica, la mayoría de los estudiantes se encuentran en los dos últimos, lo que manifiesta un proceso óptimo para la solución de problemas en la construcción de un marco teórico, y así avanza hacia el manejo y generación de nuevos conocimientos, sea desde lo individual, sea desde la colaboración. Se llega a la conclusión que Drive es un espacio virtual de investigación por incluir cuatro elementos didácticos esenciales: el desarrollo de la investigación desde la empatía y realimentación del docente; un medio de comunicación entre pares como con el profesor; un enlace entre los repositorios científicos y el manejo de información; así como un espacio idóneo para fomentar la aplicación del APA para sustentar científicamente los argumentos construidos por los discentes.

Palabras clave: espacio virtual, investigación, competencias virtual, space, research, skills.

Abstract: The objective of this paper is to establish the didactic methodology designed and applied within Drive for the development of research and digital competences in undergraduate students; thus, it is considered a virtual research space, both for the construction of research projects and for subjects' content. The study was conducted in four different moments at three universities in Mexico with different undergraduate programs. An analytical rubric was designed and applied. An instrumental and quantitative research was carried out for the first moment, while the other three were exploratory. The first group was composed of 100 students from CUIM, UPEM and IAC who were developing their research projects; the second group of 32 students from IAC with intention of generating their own content; the third group was made up of 43 students from IAC who were working on their thesis; and the fourth group was made up of 32 students, also from

IAC, with the purpose of generating their own subjects' content. According to the various levels of proficiency of the analytical rubric, most of the students rank in the last two levels, which shows optimal problem-solving in the construction of a theoretical framework, thus advancing towards management and generation of new knowledge, either individually or collaboratively. It is concluded that Drive is a virtual research space because it includes four essential didactic elements: the development of research based on teachers' empathy and feedback; a means of communication among peers and with the teacher; a link between scientific repositories and information management; as well as an ideal environment to encourage the application of the APA Style to scientifically support students' arguments.
Virtual space for research, research competences, digital competences.
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Introduction

Since the evolution of telecommunications and the web, and prior to the current sanitary emergency, the educational context has progressed along with knowledge society. Based on the digital era's promotion of research development, handling and analyzing skills aimed at creating new content and disseminating them in scientific spaces (virtual, face-to-face, symposiums, congresses, journals, websites, blogs, webinars), an array of possibilities to cultivate generic and specific related competences has been unlocked; however, sometimes students fail to enroll because they lack this vision. In addition to this situation, there are many different forms of degrees in Mexico, some of which disregard dissertations, theses, research training, as well as researcher teachers to guide students in their academic training, resulting in digital illiteracy and in lack of professionalization pertaining to international needs demanded by comprehensive training, which entail developing research and digital competences in undergraduate programs.

Teaching experiences in different private universities in the State of Mexico: Centro Universitario Internacional de Mexico (CUIM), Universidad Privada del Estado de Mexico (UPEM) and Instituto Americano Cultural S.C. (IAC), helped identify the need to establish some didactic strategies to fulfill the previously mentioned needs. The first university had an institutional program in place to develop research projects in academic groups, although they lacked a researcher teacher, an evaluation instrument to steer each project's process and structure, and consequently, a lack of knowledge in terms of methodology and content.

The situation was different at UPEM and IAC, research was taught as a subject but without effective research, it was a theoretical lecture that focused on protocol design without feedback. It is noteworthy to add that this situation allowed the use research as a didactic strategy to develop self-regulated learning (Ceballos, 2019). The proposal was initially applied at CUIM, then at CUIM, UPEM and IAC, and then only at IAC, the diverse context of the latter assisted in applying a different structure and systematization, reaffirming that the proposal can be applied in a collaborative context.

To be able to understand the theoretical framework, it is necessary to introduce the analysis categories that were developed before and during the construction of the project, as well as its application on the remaining universities, in this case UPEM and IAC. The categories were: research competences, digital competences, virtual research space and self-regulated learning.

Competences' definition has certain degree of difficulty, undertaking it is just a single approach to their true conceptualization, especially because most who define competences adhere to a taxonomical, functional and/ or utilitarian sense, disregarding the fact that the areas of ontology (reality of the self), the mere existence of students and their contexts), epistemology (production and application of knowledge) and axiology (values ranging from moral to ethical or jointly) (Climént, 2017), allow its integration to result in conceptual, procedural and attitudinal constructions in each student (De Freitas & Da Silva, 2019), elements intended to be extrapolated to the specific and generic competences of future professionals' training. In that sense, the study introduces generic competences required by all students in every professional program as part of their academic training, which in turn, will enable the development of specific competences. This project took into account the competences of the Tuning Project resumed by Pugh & Lozano (2019), but only those which are the epitome of the others, and from there, the research competences, namely: a) capacity to act in new situations; b) capacity to identify, propose and solve problems; c) commitment with their sociocultural environment; d) ability to work in international contexts; e) abilities to research, process and analyze information from diverse sources.

The undertaken proposal has the objective of identifying the levels of proficiency that can progressively take place with alongside other competences to move towards competences that help apply self-regulated learning as a capacity instead of a process. Jointly, these elements guarantee a teacher profile to anyone who wishes to embrace them, yet the only way to integrate and bolster them is through research as didactic strategy to develop programs, projects and learning spaces in the same digital tools applied in order to teach for the future, keeping in mind that the same technology is steering custom-made learning through artificial intelligence, augmented and virtual realities within an experiential context (Escamilla, 2019).

Both concepts of competences and of research competences are polysemic. Nonetheless, the meaning used since the beginning of the project is as follows: systematically-established skills to solve a typical problem of an academic area, 'specific' or specialization competences applied based on the scientific method, through collaboration and discovery, to make room for autonomous, self-managed discovery, i.e.: autonomous learning without losing sight of its social participation in favor of learning how to be, learning how to learn, learning how to do and learning how to coexist (Ceballos, 2020b), with the aim of building and disseminating knowledge from theoretical contributions, considering

conceptual, procedural and attitudinal knowledge (Ceballos & Tobon, 2019a).

Competences regarded were extracted from the indicators suggested by CUIM as part of their students' training, but from three dimensions: developing a research project, framing the research and applying the APA Style: 1) proposing a research problem, aimed at developing a research protocol. 2) knowing how to produce a contextual framework, 3) searching and managing information to produce a theoretical framework, 4) designing, applying and validating a data collection instrument, 5) disseminating research results, 6) mastering the research's framing to develop it and analyze data, 7) writing and scientific citation.

Digital competences are defined as the use of Information Society Technologies from a critical stance that is supported in ICT's basic competences, such as using computers to search for information with scientific identification, its evaluation, storage, production, dissemination, exchange and most importantly, its collaborative participation (Islas & Ceballos, 2018) in the web, based on three DEUEI (2012) dimensions, which include the project's competences: 1. Technological fluency: device management, use of software, performing in digital learning environments, communication with others in ICT, organization of information; 2. Learning and knowledge: use and treatment of information in research, collaborative communication to learn and produce knowledge, creation and innovation using ICT resources, critical thinking; 3. Digital citizenship: digital autonomy in public participation, digital identity and online privacy, intellectual property (Norman-Acevedo, 2019).

Web-based and didactic-oriented environments where platforms or digital tools are means to apply diverse knowledge for problem solving and to develop necessary competences per the student's academic area are considered to be virtual learning spaces. The elements that must be included are: didactic focus, content development, visual design, resources, multimedia activities, a specific community and the presence of a teacher (Morado & Ocampo, 2019). There are different types, ranging from didactic simulators that offer the chance to engage in learning activities as similar as possible to a professional reality (Islas & Ceballos, 2018), developing digital skills; to virtual research spaces, which are web-based resources that offer a large amount of data that can be incorporated in the production and dissemination of new knowledge. Said resources are found in scientific repositories and in specific social networks (Ceballos, 2020).

According to the reviewed information and collected experience, training in research (Hernandez & Polonia, 2019; Velandia, Serrano & Martinez, 2017) helps people, in this particular case students, to develop self-regulated learning, i.e., becoming aware of their own professional process, based on what they know and what they do not know, but identifying the fact that what they do know can help them attain the knowledge required for their own learning goals.

Method

As explained before, the proposal was applied in different institutions and throughout several moments; at CUIM, UPEM and IAC an instrumental quantitative study took place (Montero & León, 2007), but at IAC the research was exploratory. Both are explained below.

At CUIM an analytical methodology and rubric were developed to measure research competences and related digital competences; they were subject to validation by expert judges, applied to a pilot group, and subsequently to a sample of 250 students (Ceballos & Tobon, 2019b). From there, the methodology and the evaluation instrument were applied at the other two universities. The process was as follows:

1. 1. Research projects were undertaken in groups, upon selecting the topic of interest, needs were defined to produce the research question and design the entire research protocol. From that point on, teams were organized to develop the project individually but with a specific and clear objective. The development of the theoretical framework, design of the didactic strategy and its application were conducted alongside the researcher teacher; empathy promoted a climate of trust which turned mistakes into learning (Daza-Orozco, C; Cera-Ochoa, 2018)

   2. These didactic strategies were applied (Ceballos, 2020b):

a) A socio-formative vee map to identify the needs to be solved according to the students' educational area. This information graph helped find the research question, general objective, justification, temporary index, hypothesis, as well as the analysis categories to build a theoretical framework. The use of this type of map drives analysis, reflection, synthesis, evaluation (and application) of procedures to collaboratively solve problems.

b) Concept maps or documentary analysis to search for information in scientific repositories, such as Scielo, Dialnet and Redalyc, and in ResearchGate, the social networking site, through analysis categories per the research protocol; data obtained was reviewed, discriminated, analyzed and collected to be paraphrased and produce knowledge in a new document. The APA Style was manually used in the analysis categories to understand the logical process of a research project's structure and of its relationship with the scientific grounds in terms of citation and reference.

c) The research framing allowed to define the research's object (fundamental theoretical framework), the subject (situational theoretical framework) and the context (contextual theoretical framework), in the title, the research question, the general objective, hypothesis, and as expected, in the table of contents.

d) Drive was the strategy considered from the beginning as means for collaborative work and based on feedback, yet it became more preferred due to the following points:

a) Its flexibility helped students and teachers edit and reedit, making teachers coauthors of each team's product.

b) Editing and accompaniment took place synchronously and asynchronously, assimilating mistakes as learning pretexts: review, modify and share again.

c) The format, similar to Word, facilitated the gradual production of the document alongside the teacher's accompaniment aimed at developing the competences, and in the end, a product that evinced the entire process.

d) Students were allowed to insert observations, recommendations, review the intervention log, and resorted to digital resources for their research.

e) A space for dialog, intervention, criticism, confrontation, tolerance, leadership, accountability was set up as part of the team's work.

3. The evaluation (socio-formative) was a gradual process that happened with the design of an analytical rubric, validated to measure the levels of proficiency of each competence and subsequently applied based on a formative objective in the sense of co-evaluation, hetero-evaluation and self-evaluation, integrating students' knowledge to reach common goals. It is worth mentioning that, prior to the instrument, empathy and feedback generated a constant environment of review, which favored the application of the aforementioned based on the quality of the teacher-student and student-student relationships. The evaluation methodology was: review, modify and share.

- Instrument and Participants

To collect data from the first moment at CUIM, UPEM and IAC, and from the second moment at IAC, an analytical rubric was used, it had thirteen items and four levels of proficiency: a) receptive level, allows to identify only the level of reception of information, of operational performance and notions on reality which make students implement the expected competence; b) decisive level, acknowledges solving simple problems of the context with or without help; c) autonomous level, allows to identify the degree of resource management, and solid and deep argumentation to solve problems; d) strategic level, determined not just through the use of strategies that cause changes in reality, but through creativity and innovation, therefore high levels of impact in reality are expected, it also evaluates the evolutive and prospective analysis to reach the best solutions to a problem with responsible perspective of the consequences in a given context (Hernandez, Tobon & Guerrero, 2016). Indicators included: title page, organization of the table of contents, elements of the introduction, study goals, justification, organization of the theoretical framework, intervention proposal, evaluation instrument, results' analysis, level of discussion, conclusions, use of references, use of the APA Style (Daza-Orozco, C.E.; Sanchez-Camargo, J.; Roncancio-Parra, 2014) .

Students in groups at CUIM, UPEM and IAC (school cycle 18/3) constituted a non-probabilistic sample because the study was based on an instrumental research design, which although quantitative, had similar student characteristics due to the way in which each group designed its own research project with the assistance and use of research strategies. This sample consisted of 100 students divided in two teams, the first team (fifty students) was enrolled in pedagogy at CUIM, who worked in four-month periods with research strategies under a single teacher, who also happened to teach one four-month period in the other group (made up by three programs from UPEM and IAC: psychology (25 students), law (thirteen students) and communication (twelve students). Demographic characteristics are illustrated in Table 1.

N	100
Gender	20% male
	80% female
Age	22.3
Civil Status	9% single
	91% married
Children	9% without children
	91% with children
SEL	30% low
	55% acceptable
	15% excellent
Area of Residence	75% rural
	25% urban
Level of Study	100% bachelor's degree
Type of University	100% private
Current Course: Degree / Methodology Seminar	100% Thesis Seminar

Source: compiled by the author (2021)

Table 1

Participants' Sociodemographic Data

Source: compiled by the author (2021)

To collect data from the content development project (school cycle 19/1) at IAC only, the analytical rubric was adapted to only eleven indicators, organized as follows: organization of table of contents, organization of information, search for information, analysis of the information, synthesis of the information (paraphrasing), building knowledge, research planning, decision-making, APA Style citation, integration of contents and self-learning.

The group of students was made up as follows: law (eight students), communication (ten students), pedagogy (fourteen students). Refer to Table 2.

N	32
Gender	25% male 75% female
Age	21.5
Civil Status	100% single
Children	100% without children
SEL	15% low 70% acceptable
Area of Residence	100% urban
Level of Study	100% bachelor's degree
Type of University	100% private
Current Course: Degree / Methodology Seminar	100% Building Content

Table 2
Participants' Sociodemographic Data. Content Development
Source: compiled by the author (2021)

To collect data at IAC in the Thesis Seminar subject (school cycle 19/3), the same analytical rubric used at CUIM was applied. The students' group was made up as follows: law (seven students), communication (ten students), pedagogy (twelve students) and psychology (fourteen students). Refer to Table 3.

N	43
Gender	16% male 84% female
Age	22.3
Civil Status	9% single 91% married
Children	100% without children
SEL	15% low 70% acceptable 15% excellent
Area of Residence	100% urban
Level of Study	100% bachelor's degree
Type of University	100% private
Current Course: Degree / Methodology Seminar	100% Thesis Seminar

Table 3
Participants' Sociodemographic Data. Thesis Seminar
Source: compiled by the author (2021)

Students that were part of the group at IAC in the subjects of content development and research methodology (school cycle 20/2), do not make a probabilistic sample because groups were allocated. The group had students from these four programs: law (12 students), communication (9 students), pedagogy (5 students) and psychology (6 students). Refer to Table 4:

Table 4
Participants' Sociodemographic Data. Research Methodology
Source: compiled by the author (2021)

N	32
Gender	37% male
	63% female
Age	20.2
Civil Status	97% single
	3% married
Children	97% with children
	3% without children
SEL	30% low
	55% acceptable
Area of Residence	100% urban
Level of Study	100% bachelor's degree
Type of University	100% private
Current Course: Degree / Methodology Seminar	100% Content Development – Research Methodology

Table 4

Participants' Sociodemographic Data. Research Methodology

Source: compiled by the author (2021)

Results

This article introduces the results of a methodology with research didactics which applied two analytical rubrics to measure research and digital competences in four temporary stages with four groups of students at different universities or from different programs at the same university. In the first stage, students at CUIM, UPEM and IAC in the school cycle 18/3. In the second stage, students were engaged in different programs in collaborative-based content creation, applying research in school cycle 19/l. The third stage consisted of diverse groups of students of the Thesis Seminar subject, in the cycle 19/3. In the fourth stage, students were freshmen in different programs, the group of Communication was paired with the Research Methodology subject, while the other groups were made up by students in different programs but building subject content based on collaborative research, in the school cycle 20/2. The results were as follows:

a) Frequency of the group at CUIM, UPEM and IAC 1st stage:

Items	Value 1	Value 2	Value 3	Value 4
1				
2			2%	
3			2%	
4				
5			2%	
6			2%	
7			2%	
8			6%	
9			2%	
10			12%	
11			10%	
12				
13			10%	

Table 5
Frequency of the Group at CUIM
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1			2%	98%
2			8%	92%
3			14%	86%
4			4%	96%
5			16%	84%
6			6%	94%
7		2%	6%	92%
8			24%	76%
9			12%	88%
10			2%	98%
11			14%	86%
12			14%	86%
13			2%	98%

Table 6
Frequency of the Group at UPEM and IAC
Source: compiled by the author (2021)

Results are in values 4 and 5, but the highest percentage takes place at strategic level, this means that research strategies were constantly applied to problem-solving as the research progressed, without losing sight of collaborative accountability as part of the group's ethic performance, i.e., understanding what toe group does, plans and examines, identifying good moves, limitations and problems that occur throughout the project, in addition to appreciating accomplishments and correcting mistakes (Roa, 2016).

b) Frequency of groups at IAC 2nd stage:

Items	Value 1	Value 2	Value 3	Value 4
1	25%	37%	38%	
2	25%	37%	38%	
3	12%	37%	51%	
4	37%	51%	12%	
5	37%	25%	38%	
6	13%	87%		
7	25%	37%	38%	
8		37%	63%	
9	24%	63%	12%	
10		37%	12%	
11	25%	75%		

Table 7
Frequency of the Group at IAC 2nd of Law
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1	10%	10%	80%	
2	10%	10%	80%	
3	10%	10%	80%	
4	10%	10%	80%	
5	10%	10%	80%	
6	10%	10%	80%	
7	10%	10%	80%	
8	10%	10%	80%	
9	10%	10%	80%	
10	10%	10%	80%	
11	10%	10%	80%	

Table 8
Frequency of the Group at IAC 5th of Communication
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1	14%	58%	28%	
2	14%	58%	28%	
3	14%	58%	28%	
4	14%	58%	28%	
5	14%	58%	28%	
6	14%	58%	28%	
7	14%	58%	28%	
8	14%	58%	28%	
9	14%	58%	28%	
10	14%	58%	28%	
11	14%	58%	28%	

Table 9
Frequency of the Group at IAC 8th of Pedagogy
Source: compiled by the author (2021)

None of the academic groups achieved the strategic level, however, if values in decisive and autonomous levels are grouped, it can be said that they are ideally in the process of reaching the last level. Being in these two levels implies that students are advancing in making decisions as a team, confronting with the aim of evincing what they wish to learn with the analysis of collected information; and second, that there is an intention to justify the core ideas of each topic according to the analysis categories, forming concepts and a logical structure based on theory (Sanchez, 2019).

c) Frequency of groups at IAC 3rd stage:

Items	Value 1	Value 2	Value 3	Value 4
1		57%	43%	
2		57%	43%	
3		57%	43%	
4		57%	43%	
5		57%	43%	
6		57%	43%	
7		57%	43%	
8		57%	43%	
9		57%	43%	
10		57%	43%	
11		57%	43%	
12		57%	43%	
13		57%	43%	

Table 10
Frequency of the Group at IAC 2nd of Law
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1	14%	58%	28%	
2	14%	58%	28%	
3	14%	58%	28%	
4	14%	58%	28%	
5	14%	58%	28%	
6	14%	58%	28%	
7	14%	58%	28%	
8	14%	58%	28%	
9	14%	58%	28%	
10	14%	58%	28%	
11	14%	58%	28%	
12	14%	58%	28%	
13	14%	58%	28%	

Table 11
Frequency of the Group at IAC 5th of Communication
Source: compiled by the author (2021)

Illustrates the findings and data of the analysis of data previously introduced in the methods, which have to be coherent and ethical regarding the proposed research question.

Items	Value 1	Value 2	Value 3	Value 4
1	14%	58%	28%	
2	14%	58%	28%	
3	14%	58%	28%	
4	14%	58%	28%	
5	14%	58%	28%	
6	14%	58%	28%	
7	14%	58%	28%	
8	14%	58%	28%	
9	14%	58%	28%	
10	14%	58%	28%	
11	14%	58%	28%	
12	14%	58%	28%	
13	14%	58%	28%	

Table 12
Frequency of the Group at IAC 7th of Pedagogy
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1	14%	58%	28%	
2	14%	58%	28%	
3	14%	58%	28%	
4	14%	58%	28%	
5	14%	58%	28%	
6	14%	58%	28%	
7	14%	58%	28%	
8	14%	58%	28%	
9	14%	58%	28%	
10	14%	58%	28%	
11	14%	58%	28%	

Table 13
Frequency of the Group at IAC 7th of Psychology
Source: compiled by the author (2021)

Percentages focus on both decisive and autonomous levels, as in the second stage; this means that in terms of information handling, they still depend on each other to be able to make decisions about the research project and the construction of the theoretical framework reflecting the object, subject and context of the study by confronting ideas, knowledge, new concepts and even suggesting improvement proposals (Sanchez, 2019). It is noteworthy that percentages' constancy is caused by the level of groups' integration, despite working in teams, groups had constant communication, as well as the assistance of responsibility for the other, typical of the socio-formative taxonomy in place.

c) Frequency of groups at IAC 4th stage:

Items	Value 1	Value 2	Value 3	Value 4
1		40%	28%	40%
2		20%	28%	20%
3	20%	20%	28%	40%
4		20%	28%	20%
5		20%	28%	40%
6		60%	28%	40%
7		60%	28%	40%
8		60%	28%	40%
9		60%	28%	40%
10		20%	28%	80%
11		20%	28%	80%

Table 14
Frequency of the Group at IAC 2nd of Pedagogy
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1		29%	42%	29%
2	14%	14%	72%	
3	28%	15%		57%
4		57%	43%	
5	14%	14%	44%	28%
6	14%	14%	58%	14%
7	14%		14%	72%
8	14%		43%	43%
9			44%	29%
10			44%	29%
11			44%	29%

Table 15
Frequency of the Group at IAC 2nd of Psychology
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1		33%	50%	17%
2	7%		34%	59%
3	7%	34%	59%	
4		7%	59%	34%
5	7%		69%	24%
6	8%	8%	17%	67%
7			34%	66%
8		17%	25%	58%
9		9%	50%	41%
10		9%	50%	41%
11		33%	50%	17%

Table 16
Frequency of the Group at IAC 2nd of Law
Source: compiled by the author (2021)

Items	Value 1	Value 2	Value 3	Value 4
1		55%	33%	12%
2	20%	12%	34%	34%
3		33%	55%	12%
4	22%	45%	22%	11%
5	10%	45%	45%	
6		33%	45%	
7	22%	22%	34%	22%
8		33%	45%	22%
9		33%	45%	22%
10	11%	22%	67%	22%
11	11%	22%	67%	

Table 17
Frequency of the Group at IAC 2nd of Communication
Source: compiled by the author (2021)

Results of each group vary; in fact, the three first groups show more consistency in placing the results around the two last levels of proficiency, i.e., in the autonomous and strategic levels. For students in their first four-month period, they show willingness to develop the suggested competences and to develop self-regulated learning. The last group show some inconsistencies, especially in the application of the APA Style, but it is understandable to an extent, because this lack of awareness will lead them to their learning goals.

Discussion and Conclusion

Each research stage, from application to evaluation, goes hand in hand with the researcher teacher's role, which leads to the following takeaways that intertwine with formative research:

1. 1. Drive as a virtual research space acted as means and mediator to the suggested strategy in order to integrate new knowledge based on an individual accountability for other people, which resulted in collaborative learning work.
2. Drive as means of communication enabled a constant feedback between peers, mistakes were not considered limitations, but steps towards attaining the learning goals in each mid-term, mostly because self-evaluation, co-evaluation and hetero-evaluation took place on their own, focusing on the process and not on the product; i.e., conceptual, procedural and attitudinal contents were applied depending on the development of the research projects and on the production of content as part of self-regulated learning.
3. Drive served as a virtual research space that unlocked an environment of trust, integrating affective and cognitive aspects as a result of applying empathy to identify learning difficulties, to accompany, to provide feedback with the aim of improving. In that sense, students understood that upon each

feedback provided, they had to review, modify and share to prepare for a new review.

4. Drive was linked with scientific repositories used in the information search, as well as the APA Style to produce academic documents following scientific methods and qualitative methodologies, which fulfilled their objective: developing research competences as well as digital competences according to the digital demands of knowledge society.

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