DEVELOPMENT OF RESEARCH COMPETENCES OF UNDERGRADUATE STUDENTS WITH CIT SUPPORT

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Abstract

In the Bachelor Program in Spanish Language in English, formative investigation courses are offered. During the years 2015 and 2016, this work’s authors have taught said classes with little use of the newer technologies. As a consequence, an investigation for the new cycle (2017-2019) was designed, with the purpose of making better pedagogical use of the CIT in favor of the development of research skills. The experience is developed in two classrooms. Both cases must pose problems, determine objectives, formulate hypothesis or scientific questions, recover information and synthesize, diagnose, design proposals, and discuss results. All these steps are accompanied by a strong preparation in investigation methodology. In addition, one of the groups addresses subjects in regard to teaching Spanish as a foreign language; the other group addresses the theoretical assumptions of critical pedagogy and the construction of alternative pedagogic proposals. The methodology used is research-action. As a result, a pedagogical strategy is implemented that incorporates and evaluates the research process carried out by students with various computer resources: Brightspace (mailbox, forums, rubrics and checklist); Office 365 Platform (Microsoft Teams, Yammer, Microsoft Forms); Turnitin, Atlas Ti. The integration of these tools favors teamwork, critical thinking and self criticism through various forms of evaluation, academic integrity by avoiding plagiarism, and software application for qualitative research. At the same time, students are trained on the pedagogical use of new technologies for their subsequent performance.

Short title: Formative research and CITs.

Keywords: research skills, action research, formative research, ICT.

1 INTRODUCTION

In the Bachelor Program in Spanish Language in English, formative investigation courses are offered that prepare students in research and promotes reflection on scientific topics in the area of educational sciences. During the years 2015 and 2016, this work’s authors have taught these classes to two groups with little use of the newer technologies, and thus, limited use of the possibilities these offer to optimize the teaching-learning process. Consequently, an investigation for the new cycle (2017-2019) was designed, with the purpose of making better pedagogical use of the CIT in favor of the development of research skills, that the authors regard as: execute research processes to transform the teaching practice through the use of intervention proposals and produce diverse types of texts to expose the research results and conclude in their socialization in events and scientific articles.

In the 2017-2019 cycle, beside the development of investigative skills, one of the groups approaches the students teaching Spanish as a foreign language (SFL). Due to the shortage of materials that take into account the linguistic and sociocultural features of Colombia, as evidenced on the bibliographic search carried out of previous studies, as well as existing material, (Agray Vargas, Nancy 2008) (Díaz López, Sandra Milena) and in conferences and papers presented at the 4to Encuentro Internacional de español como Lengua Extranjera held in Bogotá, Colombia, 2015 (Montero, Castro & Nieves, 2015), the development of materials was proposed for these purposes.

In the other group, according to Lederach (2008) when he states that peace is a construction that transits through unexplored paths and places in which nothing can be predicted, alternative pedagogic practices are developed are developed to build post conflict peace in official institutions of primary and secondary education in Bucaramanga, from the need for the School to become a social institution that contributes to the peace process in Colombia.

Both cases must pose problems, determine objectives, formulate hypothesis or scientific questions, recover information and synthesize, diagnose, design proposals, and discuss results. All these steps are accompanied by a strong preparation in investigation methodology and subjects concerning teaching Spanish as a foreign language, such as curricular design, material development, the construction of alternative pedagogic proposals and the theoretical assumptions of critical pedagogy.
The student’s research is qualitative of ethnographic character, and use theoretical (historic-logic, analysis-synthesis & systemic-structural), and empiric methods and techniques (documental analysis, social cartography).

On the second cycle (2017-2019), access to the Aula de apoyo CIT is incorporated, defined by the Universidad Cooperativa de Colombia as “a virtual space created on the University’s educational platform for face-to-face programs, so that the professor innovates in his teaching activity, given the amount of tools made possible in this space, and for students to enhance their learning process.

The methodology used in this process, still in development, is action-research.

2 METHODOLOGY

As it is known, the action-research method in the classroom makes it possible to study the activities carried out by professors and, in general, the different areas that help the teaching-learning process for its betterment. According to Lomax (1990), professional practice is only intervened to better it.

Lewin (1946) shows the need of three indispensable elements for professional development: investigation, action and formation, that must unite for the benefit of all three elements.

Whitehead (1995) proposes a very appropriate model for the to improve the educational practice:

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Feel or experiment the problem

Imagine a solution for the problem

Implement the imagined solution

Evaluate the results of the actions undertaken

Modify the practice in light of the results
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The present investigation followed Kemmis’ model (1998), that sees the process as a spiral, whose phases are: planning, action, observation and reflection.

2.1 Planning Phase

The Bachelor program in Spanish and English offers various courses dedicated to formative research. On the fourth semester, students approach the investigation’s design; on the fifth, they make the preliminary project; on the sixth and seventh, they carry out the investigation and develop their proposal (evaluated by a peer reader); on the eighth, they revise the proposal according to the peer’s observations, present a completed article and socialize the process. The students tackle the research for the first time, and, also, posses deficiencies regarding redaction skills, such as lack of unity, cohesion and clarity on their texts; they don't know the characteristics of scientific writing. The issue is how to favor the development of research skills on students of the program.

On the fourth semester a diagnosis was made through participating observation of the student’s performance in class, and the interaction between members of the work team that were formed. Another method was the documental analysis of their written works.

2.2 Strategic Action Phase

To answer the posed problem, a strategic action was designed, that includes the use of computer resources available to the University and the organization of collaborative work to develop research skills on students of the program. The proposed objective was Structure a pedagogical strategy, supported be the use of new technologies, to favor the development of research skills on students of the Bachelor program in Spanish and English.

During the proposal’s implementation, to evaluate if it was effective and contributed to achieving the objective, various methods were employed, such as observation for oral presentations, class
participation and teamwork; and document analysis to study the written works (projects, theoretical framework, foundation of research). Important is self-evaluation and co-evaluation, that make possible the knowledge of the development of student’s research skills and their level of self-criticism and critical thinking. A systematic debate of results and evaluation of possible alternatives is made.

The alternative pedagogical proposals for the improvement of the coexistence in the educational institutions of Bucaramanga, are developed from the analysis of readings of the social relation that occur in the institutions, which the different actors that intervene in them have. From social cartography, the institution’s social situation, conflicts and relations with the territory are characterized. Groups of students, professors and directives, in coordination with the student researchers, analyze and record on maps of the institution how they interpret their conflicts, the relationships that exist between the different actors, and the resources they have.

From the maps, and with support from the qualitative analysis software Atlas.ti, the researchers characterize coexistence, the values that dictate their acting and the way how communication processes are made in the institution.

The different actors, students, professors and administrators, elaborate maps of the institution’s physical plant, in which, coordinated by student researchers, they graph with words and images the knowledge they have of the territory, their imaginaries, the relationships that happen between them, and the way in which their communication processes occur: they identify words, images or relationships that are relevant for analysis, group the data into codes the characterize specific subjects, add comment that might be useful to the analysis process, group the comments and codes into families (as their called in the program) to make broader abstraction processes and establish links between the different codes and families, and explain their relationships.

The program allows visualization of the network views that reduce information, complex in principle, to an information graph of the relationships given in the social group.

From this view the student researcher identifies: symbolisms built in the institution from the social relationships given in different spaces; perceptions of spaces, security and the environment; the meaning of actions made in those spaces; social relationships, values and the way communication processes are given.

3 RESULTS

As a result, a strategic action plan that incorporates and evaluates different computer resources to the research process made by the students is implemented. Next, the computer resources used are explained.

3.1 Brightspace

It’s a Learning Management System (LMS), a flexible, smart and easy-to-use online teaching-learning platform. The resources used so far are:

Inbox: through it, students upload their works to the program; in this case, drafts, theoretical frameworks, presentations, etc. Each task includes a rubric or checklist made by the professor, consulted with the students, that guides them about what must be achieved; with them, the works are evaluated and the degree of success in every aspect can be appreciated. The evaluation is complemented with comments from the professor.

Forum: With this resource, also called debate, students express their thoughts on topics related to their research.

Rubrics and checklists: their objective is to evaluate an activity or element according to a set of predefined criteria, or the present and absence of certain elements.

3.2 Microsoft Office 365 Platform

Microsoft Teams: this web application allows its users to create a “work area” that favors productivity and effectiveness of common work. The member of the groups have access to instant chat to discuss the decisions to be made, the possibility of using other Office 365 tools, and share important content in real-time. It allows making or scheduling reunions, with integration to Skype.
Microsoft Yammer: an application that eases the shared use, creation and edition of content from within the same application. All groups receive a shared set of resources to manage documents, show content, share notes and organize responsibilities.

Microsoft Forms: an application that allows the creation of questionnaires and surveys, and easily visualize the results. As they are sent, the built-in analysis can be used to assess the answers. The data on the form, like the questionnaire results, are easily exported to Excel for further analysis or adding notes.

### 3.3 Turnitin

A web app that offers services to mitigate the risk of academic and professional plagiarism, as well as some tools to support the learning-teaching process.

### 3.4 Atlas.Ti

A software for qualitative data analysis, whether on text or multimedia.

The following Fig. 2 resumes the objectives proposed on the strategic action and how computer resources contribute to the process.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Activity</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss the opinions of colleagues about topics related to research.</td>
<td>Forum</td>
<td>Debate</td>
</tr>
<tr>
<td>Design the preliminary research project taking into account the requirements raised in the rubric.</td>
<td>Design of the research project</td>
<td>Inbox, Rubric (hetero-evaluation), Turnitin</td>
</tr>
<tr>
<td>Systematize the theoretical references of the research.</td>
<td>Bibliographic search and elaboration of the theoretical framework</td>
<td>Inbox, Checklist (hetero-evaluation), Turnitin</td>
</tr>
<tr>
<td>Sustain the research project.</td>
<td>Oral Presentation</td>
<td>Questionnaire (Microsoft Forms para coevaluación); Share point</td>
</tr>
<tr>
<td>Explain the theoretical framework of the investigation.</td>
<td>Oral Presentation</td>
<td>Questionnaire (Microsoft Forms para coevaluación); Share point</td>
</tr>
<tr>
<td>Determine the index of similarity in elaborated works, paying special attention to the adequate citation.</td>
<td>Bibliographic search and elaboration of the theoretical framework</td>
<td>Turnitin (in this case the student has access to Turnitin to self-evaluate and correct their work in terms of similarity and citations)</td>
</tr>
<tr>
<td>Elaborate in groups the documents requested in class.</td>
<td>Collaborative writing of the documents</td>
<td>Microsoft Teams</td>
</tr>
<tr>
<td>Identify pertinent information through document analysis.</td>
<td>Document Analysis</td>
<td>Atlas.Ti</td>
</tr>
</tbody>
</table>

### 3.5 Discussion

In the course of the process it can be pointed out as a strength that the incorporation of resources, adjusted to the proposed objectives, contributes to a continuous development of research skills, evidenced by making the preliminary project, the theoretical framework, information gathering and result analysis. It is a continuous exercise, since each work is evaluated again and again, using self-assessment, coevaluation and hetero-evaluation. Rubrics and checklists contribute to this process, as well as the questionnaires used for the evaluation of oral presentations, and the Turnitin software to identify the citation errors very frequent in the students.

Teamwork, which takes place in and outside class (through Microsoft Team) favors collaboration and collective responsibility towards the results, although in this sense the expected level has not been reached, yet.
A weakness is that, being new at the University, some necessary tools lack activation, such as the electronic portfolio (e-portfolio). On the other hand, feedback is not available in Turnitin, very useful for reviewing written works.

In the remaining two semesters, a proposal should be prepared by each team, integrating the final report for each project and a written article to publish in a journal.

The group whose research topic is Spanish as a Foreign Language designed a macro-research: “Comprehensive Academic Proposal for Teaching of SFL at A2 level”. It has as a distinctive feature: the incorporation of linguistic and sociocultural features of the Santander region and Colombia. The program has already been prepared and the preliminary projects of the team that integrate the macro-research were structured to develop the materials: textbook, graduated reading manual, virtual materials, didactic sequences for the development of conversational competence and the song manual.

The group that submits alternative pedagogical proposals to generate spaces of peaceful coexistence, uses theater, music, painting and literature as mediators for the development of Life Skills proposed by the World Health Organization in 1993: cognitive skills (self-knowledge, creative thinking, critical thinking, decision making), emotional skills (empathy, feelings or emotion management, stress management) and social skills (assertive communication, interpersonal relationships, problem or conflict solving).

4 CONCLUSIONS

The competence development of Executing research processes to transform the teaching practice through intervention proposals and produce texts of different types to disseminate the results of the research and conclude in their socialization in events and scientific articles in future teachers should contribute to the improvement of their pedagogical practice, because it enables them to understand the problems that arise and propose interventions for their solution. To this end, 6 courses are offered in the Bachelor program of Spanish and English as Foreign Languages, that range from theoretical preparation to the preparation of pre-projects, their execution and their socialization.

In order to optimize the process, a research process was carried out that culminated in a pedagogical strategy in which various resources are integrated through the ICT Support Room: Brightspace platform, with its benefits; Office 365, with its applications: Turnitin and Atlas.Ti.

Such integration favored teamwork, criticism and self-criticism through the various forms of evaluation, academic integrity by avoiding plagiarism, and the application of software to qualitative research. At the same time, students are trained in the pedagogical use of new technologies for their subsequent performance.

It is clear then that the use of virtual tools in research processes allows the relationship of students with their development to be of collaborative nature; that is, to be assumed as a commitment for which everyone is responsible.

Considering this is a research in development, adding more tools is intended, to evaluate their impact on the student’s formative process.

REFERENCES


