

Systematic Review and Initiation In Scientific Research: An Experience With Law Students

Yasmina Riega-Virú¹

Dirección de investigación e innovación
Universidad Privada del Norte
yasmina.riega@upn.edu.pe

Mario E. Ninaquispe Soto²

Departamento de Humanidades –Campus Virtual
Universidad Privada del Norte
mario.ninaquispe@upn.edu.pe

Rosa Luz Beltrán Ponce³

Facultad de Derecho
Universidad Privada del Norte
rosa.beltran@upn.edu.pe

Juan C. Oruna Lara⁴

Departamento de Ciencias
Universidad Privada del Norte
juan.oruna@upn.edu.pe

Abstract

The Northern Private University is committed to the development of research skills. The study aimed to determine the existence of a relationship between the development of systematic reviews and the initiation in scientific research of Law students at the Northern Private University, 2019 - 2020. One course was chosen for each cycle (8th, 9th and 10th), to develop a systematic review study as the final product of the course. This system was applied in 3 academic semesters 2019-2, 2020-1 and 2020-2. In order to measure the impact on the students, a questionnaire was applied to learn about their research knowledge and practice in systematic reviews, which was correlated with the learning about research. Some difficulties faced by students in conducting research at the University were identified. However, many strengths in the research training process were identified. It was found that 98% of the students consider that the development of research skills is perfect, while only 2% consider it poor. It was concluded that there is a significant relationship between the elaboration of the systematic review and the learning of scientific research.

Keywords

Research initiation, teaching learning, scientific research, systematic reviews

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Introduction

Miyahira (2009) analyzes the difference between formative research and research training provided to students at universities, stating that *the ability to do research is achieved by doing research*. The author argues that research training enables university students to produce new knowledge and develop the necessary skills that will enable them to perform productive activities associated with scientific research. While, formative research is a tool of the teaching-learning process developed by universities, where the professor directs students by using the research method. The author concludes by affirming that formative research is fundamental for research, because it allows students to develop the competence of critical thinking, developing the ability to propose solutions to the problems they face at the university and in their career. In this regard, Rubio, Torrado, Quirós and Valls (2018), found in their study on research skills, that according to final-year university students, the research courses taken have not helped them to consolidate their bibliographic search skills. Likewise, Montesi, Cuevas-Cervero and Fernández-Bajón (2017), in their questionnaire applied to students who completed their final master's degree work, found that they spoke of fear, uncertainty and concern; but especially, that they experienced difficulties in locating relevant documentation.

In the research by Toledo, Cruz T., Palomeque and Cruz Y. (2017), a survey was conducted to 80 students of the degrees of Educational Psychology, Physical Culture and Preschool Education, who were all between the second and seventh semester of studies, managing to identify the main obstacles that students have when facing the challenge of research: student researchers should start from a solid foundation in the field of reading, spelling, writing and use of English language. These authors argue that the lack of motivation of students to carry out scientific work is because the teacher does not correctly explain the benefits of research for the students and the university. It was noticed that students do not make a correct use of virtual tools in the research process, because they are not prepared to search in databases and make use of Google information that is more accessible to them without verifying its accuracy.

Research training is a priority objective (Montesi, Cuevas-Cervero, & Fernández-Bajón, 2017); training a professional without developing research skills is not conceivable. It is a cross-cutting and structural issue of higher education (Alfaro-Mendives & Estrada-Cuzcano, 2019), but its teaching is a challenge not only for the teacher but also for the student (Valladares, Espinosa, & Alfonso, 2019); which leads to ask for strategies to facilitate its learning. On the other hand, systematic review can be an experimental strategy of the writing-research-publication triad in engineering (Pérez, 2015). Systematic reviews, hereinafter SR, are suitable for initiation in scientific research because they require a rigorous methodology (Carrizo & Moller, 2018), from the problem statement, bibliographic search, checking the validity of the studies found, data extraction, analysis of results and synthesis (Molina, 2013). In addition, from a pedagogical sciences perspective, research skills try to reestablish the necessary and essential relationship between academia, life, work environment, theory, pre-professional and professional practice, as well as social performance (Álvarez, Orozco & Gutiérrez, 2011). Therefore, the contribution of research becomes indispensable for the solution of problems. The problem stated was: is there a relationship between the development of systematic reviews and the initiation in scientific research of Law students at the Northern Private University, 2019 - 2020? Therefore, the objective of this study was to determine the existence of a relationship between the development of systematic reviews and the initiation in scientific research of Law students at the Northern Private University, 2019 - 2020.

Methodology

Type and design of research

A nonexperimental, basic type of cross-sectional research was carried out at a correlational level between the variables: X. Systematic reviews and, Y. Initiation in scientific research. The study population consisted of students from the Law and Political Science degree program at the Northern Private University, Breña campus, and the sample consisted of 65 students from

three classes (8th, 9th and 10th semester), considering information from three academic semesters (2019-2, 2020-1 and 2020-2). The sampling was non-probabilistic by convenience, due to the proximity of the object of study to the researcher. (Otzen & Manterola, 2017)

Instrument:

In this study, a questionnaire was applied to collect data on the variables under study (17 questions referring to the measurement of variable X, and 6 questions for the measurement of variable Y), using a Likert scale, taking into account the following dimensions for each of them:

Variable	Dimensions
X: Systematic reviews	D11: Writing the context of the problematic situation of the study D12: Search for bibliographic references D13: Study findings D14: Discussions of the study
Y: Initiation in scientific research	D21: Initiation in scientific research

Procedure:

One course was chosen for each class (8th, 9th and 10th semester) to develop a systematic review study as the final product of the course, which would be graded and participate in a paper competition. This system was applied in 3 academic semesters 2019-2, 2020-1 and 2020-2, with the following activities:

1. Training of students and teachers in SR.
2. Advisory services for the development of SR.
3. Evaluation of SR in week 12 by using the rubric approved by the University for Systematic Reviews.
4. Analysis of all SRs for each semester by a team of faculty researchers in order to select the three best products to be awarded.

These previous activities allowed us to have evidence of the impact on the initiation in *Scientific Research* process, based on the knowledge acquired in conducting theoretical research, such as *systematic reviews*. Study hypotheses were proposed to validate the relationship or association between the variables:

H_0 : Systematic reviews are not related to the initiation in scientific research of Law students at the Northern Private University, 2019 - 2020.

H_1 : Systematic reviews are related to the initiation in scientific research of Law students at the Northern Private University, 2019 – 2020

In addition, the ANOVA test was applied to determine the significance of the dimensions of the variable X: Systematic reviews. Likewise, its univariate descriptive statistics were calculated, taking into account the rating scales: 1-Very poor, 2-Poor, 3-Good, and 4-Very good.

Findings

Relationship of systematic reviews to the initiation in scientific research.

Figure 1 shows that 58% of the students always write the problematic situation based on the background when developing their research; the writing of the problematic situation starts from the general to the specific (55%); 65% always include quotations in the writing of the problematic situation; 55% always state the research problem as a question; 68% always write

the objective based on the problem statement.

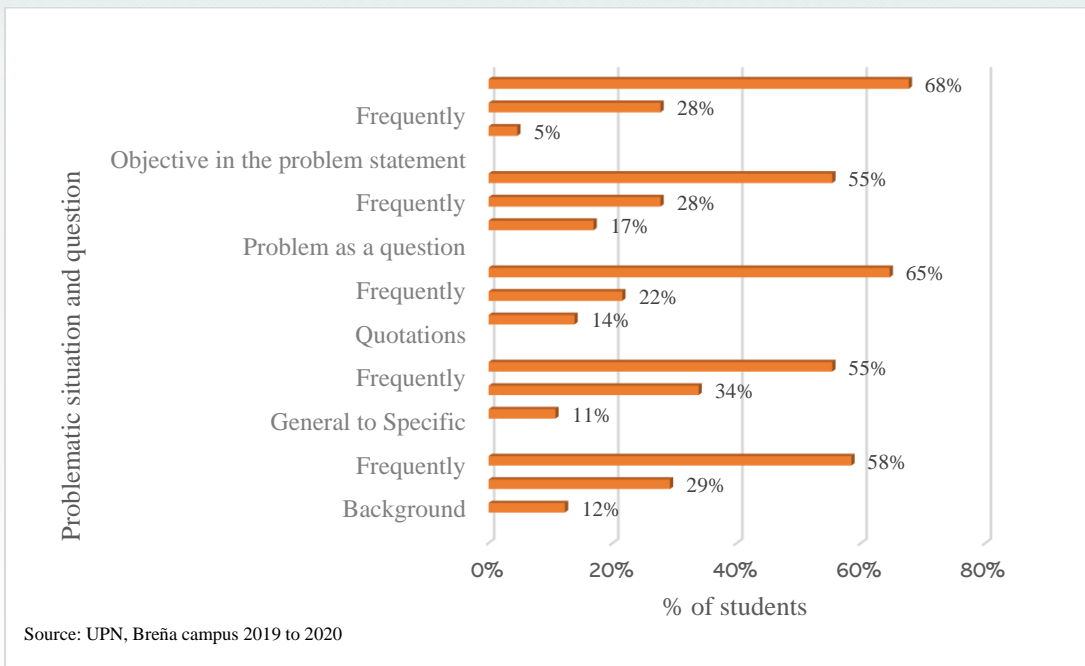


Fig. 1. Distribution of students according to problematic situation, problem and research objective.

Figure 2 shows that 65% of students always organize the information search process they use in their research; 83% always use academic search engines such as Dialnet, Google Scholar, Scielo, etc., as data collection tools; 60% always determine the inclusion and exclusion criteria in their review search process.

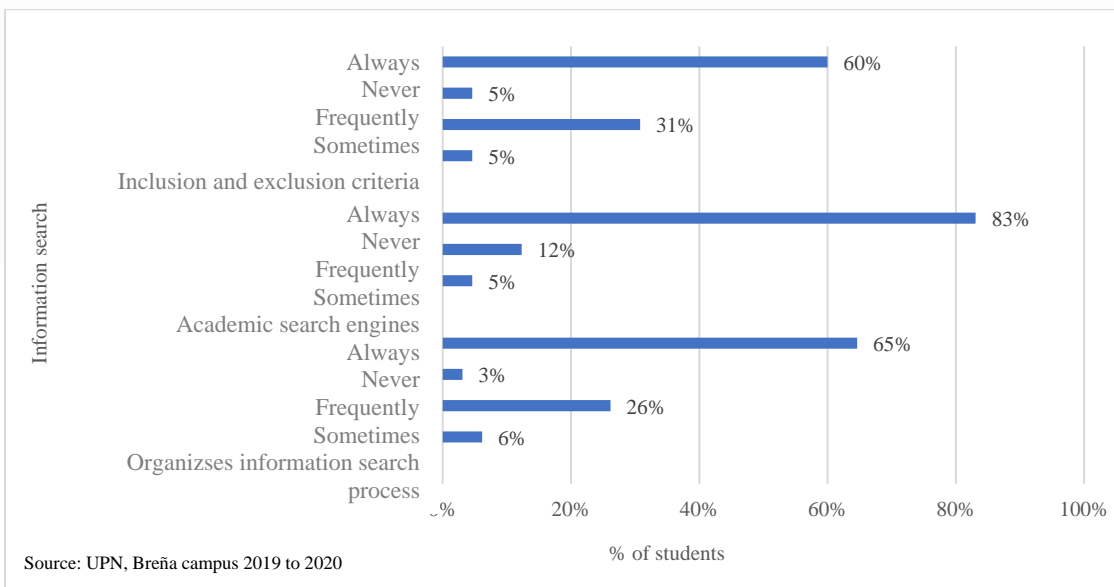


Fig. 2. Distribution of students according to information search

Figure 3 shows that 68% of students always organize the articles and/or references that will be used in the study within a matrix; 45% always present the findings of their study through tables and figures; 55% always consider that the results of the study are their own creations; 55% always show evidence of the achievement of the stated objective; 46% always base their research works on preliminary results presented by the authors of articles and background used in their

study; 48% always consider that the results of their research allow comparisons with the references of the study.

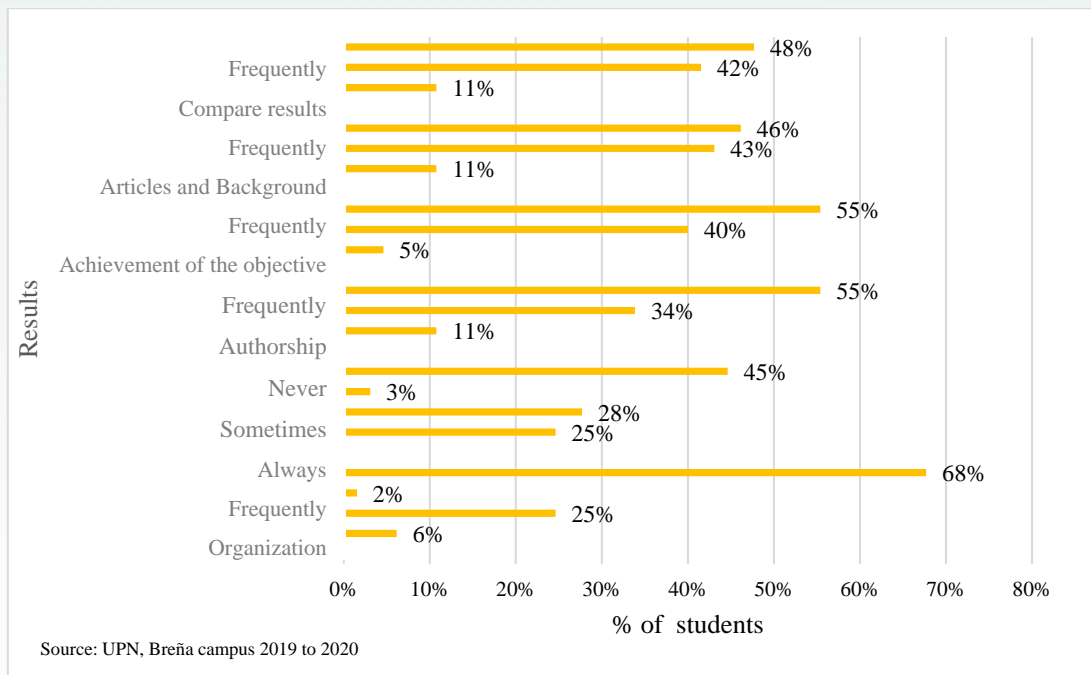


Fig. 3. Distribution of students according to results

Figure 4 shows that 69% of students always consider that the conclusions of their study are related to the stated objectives; 46% always consider that the discussion of their research work is carried out taking into account the results; 54% often consider in the writing of discussions certain differences and similarities with the study references.

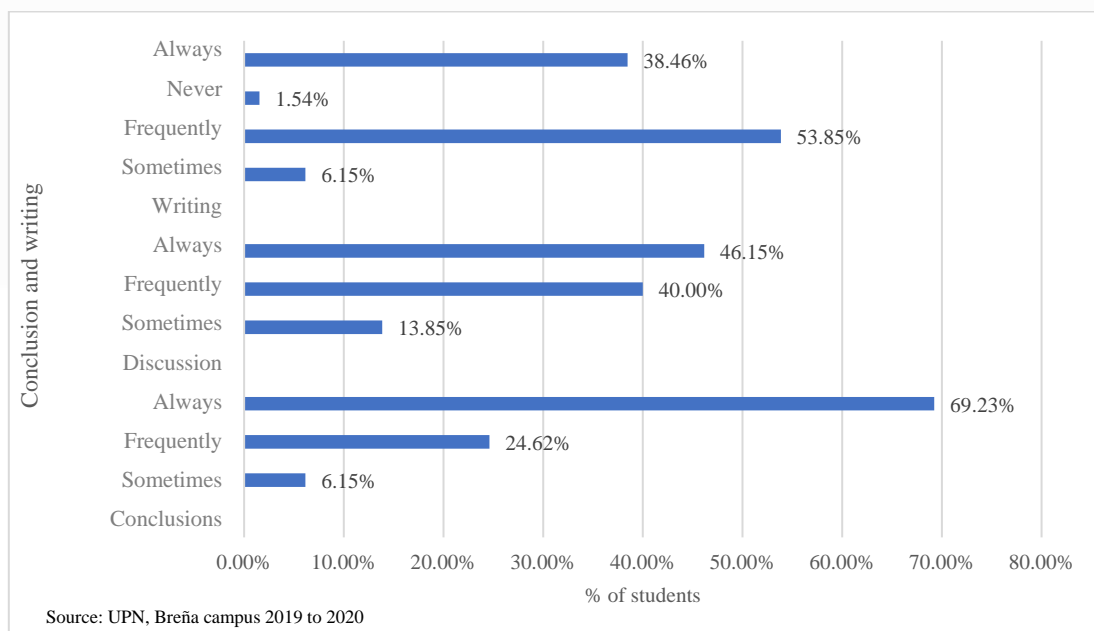


Fig. 4. Distribution of students according to conclusion, discussion and writing of results.

Figure 5 shows that 86% of students consider systematic review to be very good, compared to 3% who consider it to be deficient.

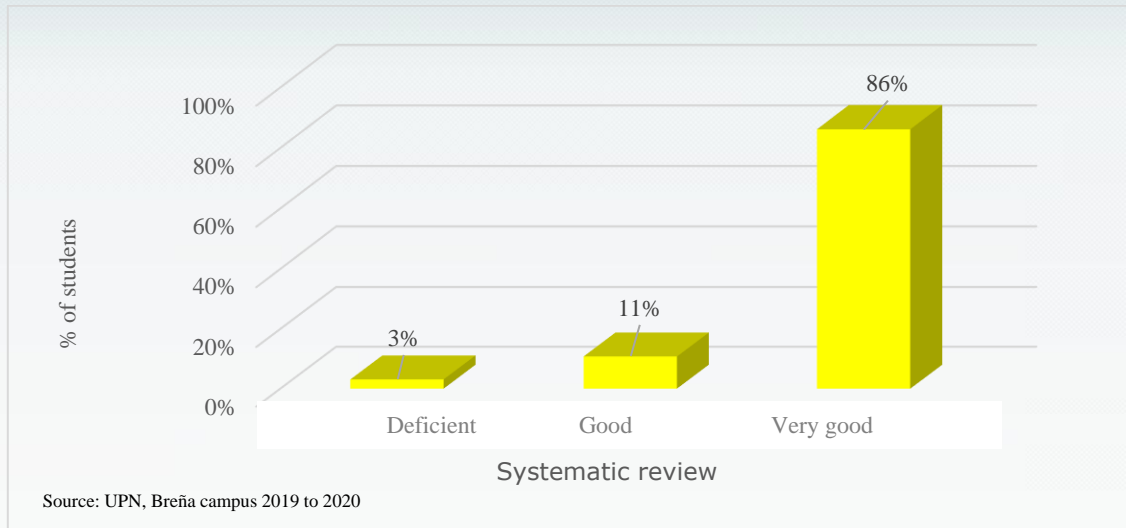


Fig. 5. Distribution of students according to systematic review

Figure 6 shows that 98% of students consider the initiation in research to be good or very good, while only 2% consider it to be deficient.

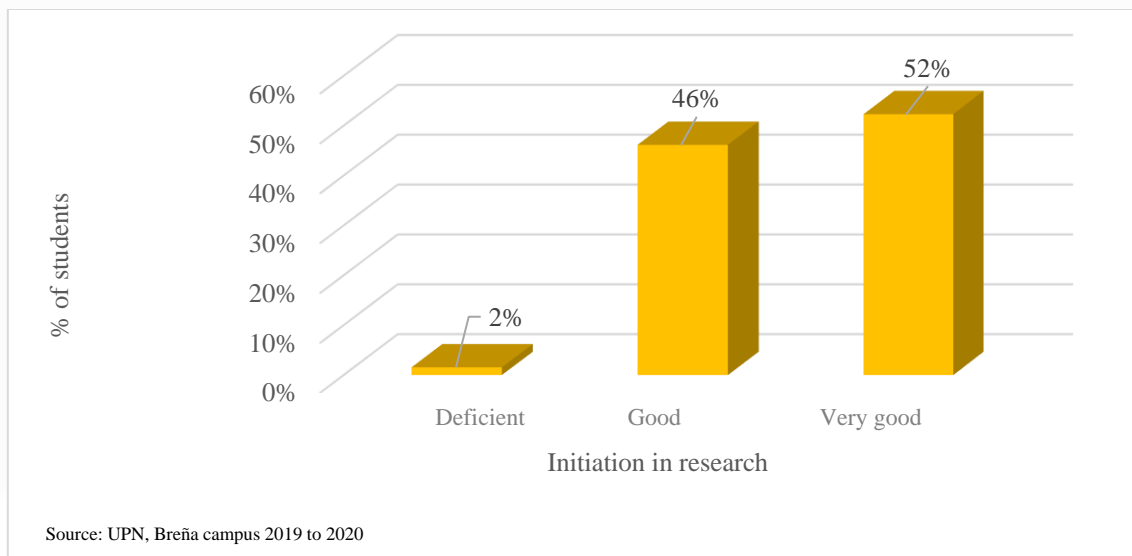


Fig. 6. Distribution of students according to initiation in research

Hypothesis test

H_0 : Systematic reviews are not related to the initiation in scientific research of Law students at the Northern Private University, 2019 - 2020.

H_1 : Systematic reviews are related to the initiation in scientific research of Law students at the Northern Private University, 2019 - 2020.

Determine if systematic reviews

Table 1

Non-Parametric Correlations according to Systematic Review and Initiation in Research

			Systematic review	Initiation in research
Spearman's Rho	Systematic review	Correlation Coefficient	1,000	,693**
		Sig. (bilateral)		0,000
		N	65	65
	Initiation in research	Correlation Coefficient	,693**	1,000
		Sig. (bilateral)	0,000	
		N	65	65

** . The correlation is significant at level 0.01 (bilateral).

Since the value of P – Value or Sig = 0.000 < 0.01 is highly significant, the null hypothesis is rejected and the alternative hypothesis H1 is accepted. At 1% level of significance, it is concluded that Systematic reviews are significantly related to the initiation in scientific research of Law students at the Northern Private University, 2019 – 2020.

Analysis of the dimensions of variable X: Systematic reviews

The univariate descriptive analysis of the scores and the Anova for the dimensions of the Systematic Reviews variable are presented:

Table 2

Systematic Reviews in the Initiation in Scientific Research.

X: Systematic Reviews	Initiation in Scientific Research			
	Median	Sd	F	Sig
Writing the context of the problematic situation of the study.	3,77	0,463	7,179	0,009
Search for bibliographic references	3,80	0,477	6,645	0,012
Study findings	3,73	0,542	24,942	0,000
Discussions of the study	3,69	0,560	28,062	0,000

Source: UPN, Breña campus 2019 to 2020

Table No. 02 shows that the dimensions of the Systematic Reviews variable present values higher than 3 points (from good to very good) on a scale of 0 to 4 with deviations close to 0.6. Likewise, the dimensions are highly significant ($p < 0.05$), so it is concluded that the dimensions of systematic reviews influence the initiation in research.

Results And Discussion

The development of SRs by 8th, 9th and 10th semester Law students of the Northern Private University was directed by the teachers of each course, who taught the students how to search for information in databases, process it and develop the structure of a SR, so that the application of a formative research can be appreciated. Based on this, the students contributed new knowledge by developing the competence of critical thinking, proposing solutions to current legal problems through scientific research, which shows that they have gone through the process of training for research. This proves what Miyahira (2009) affirms: formative research is fundamental to achieve research training.

Figure 2 shows that a significant percentage of 8th, 9th and 10th semester students of the UPN

Law degree program always use as data collection tools, academic search engines such as Dialnet, Google Scholar, Scielo, etc., which shows a difference from the students who were part of the research conducted by Toledo, Cruz T., Palomeque & Cruz Y. (2017), in which it was detected that students make use of Google information that is more accessible to them without verifying the veracity, due to the fact that they are not prepared to conduct research in databases.

The decision of developing SR as a means to generate learning of scientific research in Law students has been favorable, which confirms what Kitchnham and Charters (2007) pointed out, that, when elaborating a SR, in its process, it requires identifying, evaluating and interpreting many available research works that are relevant to answer a research question, as shown in Figures 1 to 4, where it is evident that students value and put into practice such processes for the development of their SR. Therefore, those who follow this process *naturally* acquire research practices that are as rigorous as those required for the development of scientific research.

Development of systematic reviews

The results confirm that SRs influence on the initiation in scientific research of students, with a highly significant correlation; which is explained by Ferreira, Urrutia and Alonso-coello (2011), when stating that a SR is also scientific research, whose unit of analysis are the original primary studies. Therefore, when developing their SRs, students were carrying out research activities.

Initiation in scientific research

When analyzing the results on the students' appreciation of SR, and finding that 86% consider it to be very good, it should be considered what Rojas and Méndez (2016) pointed out, that the attitude towards research is a tool for analyzing the quality of education linked to the scientific dimension, since students value research training and the academic requirement to carry it out. As shown in Figure 5, students were initiated in research by developing SRs in their courses of the Law and Political Science degree program. Writing of the problematic situation: The writing of the problematic situation in a research work, according to Espinoza (2019), begins by identifying a difficulty for which it has not been found a solution yet and must be specified and valued in order to study it. This skill was acquired by the students who participated in the study when they elaborated their SR, since this is a similar activity that takes place when the students formulate the specific question through a systematic and explicit process (Arévalo R., Ortuño and Arévalo D., 2010); as it can be seen in Figure 1 of this research work. Search of information: Starting from the research question, it is necessary to make an adequate selection of keywords or search terms to be used in the bibliographic search engines (Pardal-Refoyo & Pardal-Peláez, 2020). This practice is clearly evidenced by dimension 2 of variable X, and figure 2 of the study. Any research work requires knowledge of the state of the art, which is thoroughly covered when the student develops a SR, while the location and selection of articles of relevant studies requires knowledge and access to databases applying inclusion and exclusion criteria, resulting in proactive learning by students, as stated by Sanchez-Meca (Sánchez-Meca, 2010).

Presentation of results:

It follows a systematic and structured process for using the collected information, for which it is necessary to apply tools and data processors that allow to demonstrate the achievement of the study objective, and to answer the research question (Manterola, Pineda, Vial, & Grande, 2007). Figure 3 shows the importance that students give to these processes, for the writing of results, where they must process data taking into account review articles as units of analysis.

Writing of discussion and conclusion:

As mentioned in the previous section, the results obtained in SR can be presented in tables, figures and text. Obviously, they can be discussed as in any scientific research, taking into account that they must be concise, reasonable, and also taking into account the evidence shown in the results of the study, so as to comment on the most relevant element or elements of them (Manterola, Pineda, Vial, & Grande, 2007).

The development of SR is then a tool for learning scientific research, since, similar to what Reynosa, Serrano, Ortega-Parra, Navarro, Cruz-Montero and Salazar (2020) concluded in their research on didactic strategies for learning research, it has allowed students to develop critical thinking about complexity, contributing to their research training. Likewise, it facilitates research learning, which avoids the findings of Loli, Sandoval, Ramírez, Quiroz, Casquero and Rivas (2021) regarding the fact that both the elaboration and presentation of a research project are moments full of tension and are perceived as traumatic, difficult and complicated.

Conclusion And Future Directions

Finally, it is concluded that the development of systematic reviews influences the initiation in research of Law students at the Northern Private University. It has been seen that formative research, in which the professor guides the students in research methods so that they can develop a SR, is a fundamental piece to achieve research training in university students who make contributions and give solutions to current legal problems, developing critical thinking. It is evidenced that the teaching of research through the development of systematic reviews could be an option in the teaching practice, since it can be implemented as part of the contents established for the subject. Likewise, the study shows the importance of teachers identifying difficult situations in the teaching-learning process and proposing activities that contribute to the development of students' research skills according to their specialty.

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