

Effects Of Scholarly Communication And Research Attitudes In College Students

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ABSTRACT

The increase in the number of publications of scientific articles has also generated some unethical behaviors during the development of research, such as avoiding giving credit to the authors cited in their research, abusing the use of self-citations, plagiarism and self-plagiarism are some of the most frequent. In this context, the objective of this research was to determine the effects of the "APA Standards" program on academic communication in university students. The design is quasi-experimental, because there was no random assignment or matching, the groups were formed naturally. The design of related groups is intrasubject, with pre-test and post-test, one experimental and the other control. The results determined that there are statistically significant differences in academic communication after the application of the "APA Standards" program in favor of the experimental group when compared to the control group, with an effect size of moderate magnitude.

Keywords: *Scientific attitudes, Scientific literacy, Scientific literacy, Digital literacy, Scientific competences, Digital competences.*

1. Introduction

An university is an academic and scientific community that has research as one of its main purposes and through it to generate scientific and technological knowledge. Therefore, it is important to develop in students the formative research that involves learning to prepare for research and the research activity of teachers and students in order to improve learning through research (Epiqueñ, et al., 2023), likewise, the development of research skills should be present in the academic training as a transversal component that should be present from the initial training to the completion of any profession.

Scientific knowledge requires an academic demand that allows exploring those gaps that have not been investigated (Salaiza et al., 2022), being necessary that students develop research attitudes that are "... a way of responding to a situation, so that the skills in research training

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constitute a unit, that every skill implies attitude and every attitude leads to the acquisition of a skill, which is achieved in practice, through the process of learning to learn and learning to do..." (Diaz and Cardoza, 2021. p.414). Research attitudes and skills are linked to the performance, academic communication and ethics of the researcher and should be developed permanently throughout university education (Ruiz, 2014). Scholarly communication contemplates a wide range of activities linked to the way in which authors publish the results of their research and disseminate them through various information systems, preserved and analyzed, considering respect for authorship, analysis, and retrieval of information (Codina, et al, 2023).

The Peruvian government has been promoting research in public and private universities for the last decade, with much more emphasis since the enactment of the University Law No. 30220 (El Peruano, 2014), which in its Article 48 states that "...Research is an essential and mandatory function of the university, which promotes and carries it out, responding through the production of knowledge and development of technologies to the needs of society..." (p.26). Thus, at the end of 2015, the first phase of university licensing began (SUNEDU, 2015), a mandatory procedure in which eight basic quality conditions are established, highlighting among them the lines of research, which is a mandatory process that all Peruvian universities must comply with.

The policies implemented by the Peruvian government have been yielding positive results. There are currently 97 licensed public and private universities. In addition, there is a considerable increase in publications of scientific articles in high impact journals, going from 1542 indexations between the years 2013-2014 to 5432 between the years 2019-2020 (SUNEDU, 2021). This is a great advance compared to publications prior to institutional licensing, however, we are still far from being part of the academic and scientific excellence classification of the Shanghai Ranking.

The advance of scientific publications has also brought to the surface the lack of a research and ethical culture that leads to misconduct in the elaboration of theses, publications of scientific and academic articles by students, teachers, and researchers. These bad practices such as plagiarism with or without intention is punished according to the Peruvian Penal Code art. 219, in which it is considered a serious infringement of copyright (Luna and Rojas, 2022). The APA Standards (American Psychological Association), aims to facilitate clear and precise academic communication in the citation and referencing of academic publications, essays, theses, research papers and scientific articles (Moreno and Carrillo 2019). However, the increase in the number of references from sources not consulted (Santana, 2016) and the abuse of self-citations (Vázquez, 2016) is of concern. These are just some of the most frequent practices, as Nieto (2021) argues, of the lack of academic rigor, the incorrect use of APA Standards and the lack of knowledge to gather information, which leads to poor theoretical references on their research topic.

Among the main causes of unethical conduct in universities are the pressure exerted by some universities on their researchers to keep publishing (Tudela and Aznar, 2014), institutional and economic recognition, and the lack of ethical and intellectual integrity. While, within students, it is due to the lack of knowledge of the publication regulations and the lack of rigor in the presentation of academic papers. In this regard, Ronda-Pérez et al. (2016) consider it essential to establish adequate mechanisms to prevent, detect and sanction these bad habits. On the other hand, Zúñiga (2019) considers that ethics should be addressed in higher education in a permanent and transversal way through case studies on the writing and publication of academic manuscripts, even more so considering that in Latin America publications in high impact journals related to the educational field are scarce (Murillo and Martínez-Garrido, 2019).

In this context, the purpose of this research is to determine the effects of the implementation of a program on the APA Standards 7th edition.

Based on the problems described above, the following question is posed:

What are the effects of "Academic Communication - APA Standards" on research attitudes in students of the Faculty of Administration of a public university?

- Objectives

The general objective of this research is to determine the effect of the program "Academic Communication - APA Standards" on research attitudes in students at the School of Administration of a Public University.

To finalize this objective, the specific objectives are as follows:

- To determine the effect of the program "Academic Communication - APA Standards" on research attitudes in students of the Faculty of Administration of a Public University.
- Identify the level of knowledge of APA Standards 7th edition before the application of the program.
- To identify the level of knowledge of APA Standards 7th edition after the application of the program.
- To compare the level of knowledge of scholarly communication (APA Standards 7th edition) in students at a public university, before and after the application of the program.
- To determine the relationship between research attitudes and attitudes towards APA Style, 7th edition (ESAEA).

2. Method

The research responds to a quantitative approach of an applied type, since it is oriented to the solution of practical problems and to improve the effectiveness of processes in the educational field (Bisquerra, 2009). The design is quasi-experimental, given that neither random assignment nor matching was performed; on the contrary, the research was conducted with the groups that were naturally formed (Hernández et al., 2014). In this study, we seek to determine the effects of the "APA Standards" Program on academic communication. The design of related groups is intrasubject, with pre-test and post-test of intact groups, one experimental (n= 20) and the other control (n=21).

- Instrument

The following instruments were used to collect information on research attitudes and attitudes towards the APA Style: Attitudes Toward APA Style Scale, 7th Edition (ESAEA) - (Córdova and Mendoza, 2020), which has content validity tests through Aiken's V (0.83); and reliability, through McDonald's Omega coefficient, which yielded internal consistency indexes of (0.892), considered adequate. For the Research Attitude Scale (EACIN-R) (Hidalgo, et al, 2023), the confirmatory factor analysis and Horn's parallel analysis were performed, confirming the internal structure of the instrument, the trifactorial model and the number of items in each subscale. On the other hand, Cronbach's Alpha index yielded a value of (0.898).

- Procedures

The APA Standards program was implemented in the Microsoft Teams Platform through learning sessions, in which strategies and activities designed from the identification of difficulties, doubts or lack of knowledge of students on the correct use of the APA Standards 7th edition were used. The program consisted of ten sessions, one of which lasted 90 minutes

each. A test was administered to both groups, which served to verify the initial equivalence between them; subsequently, the experimental group received the experimental treatment, and the control group did not receive any treatment. After finishing the experimental treatment, the post-test was administered to both groups. During the development of the treatment, three students left the experimental group and three left the control group, leaving (n=17) and (n=18) respectively.

3. Results

First, the descriptive analysis is presented, followed by the inferential analysis and finally the complementary analyses.

3.1. Descriptive statistics

Table 1 Description of the variable before program application

Variable	M(SE)		Score			
	Experimental	Control	Minimum		Maximum	
Academic Communication - APA	(n=17)	(n=18)	5	5	12	13
	7,26 (2.11)	8,00 (2.03)				

M = Mean, SE (standard deviation)

The pre-test averages before the application of the "APA Style" program are presented for the experimental group (n=17) and the control group (n=18). The results show that the mean of both ranges from 7.26 to 8.00 respectively, these values show a uniform trend in both groups. Regarding the minimum and maximum scores, no major differences were observed.

Table 2 Variable description after the program

Variable	M(SD)		Score			
	Experimental	Control	Minimum		Maximum	
APA Style 7th edition	(n=17)	(n=18)	7	5	17	14
	11.38 (2.85)	8,89 (2.35)				

The post-test averages after the application of the "APA Style" program in the experimental group (n=17) and the control group (n=18) show that the mean of both ranges from 11.38 to 8.89 respectively. These values show an upward trend in the experimental group in relation to the control group. Likewise, greater differences are observed regarding the minimum and maximum scores.

3.2. Inferential analysis

The normality test is presented first, followed by hypothesis testing.

3.2.1. Normality Test

To determine the normality of the data, the Kolmogorov-Smirnov test was used. The distribution was normal only in the control group $p > 0.05$ Sig= ,101. Meanwhile, in the experimental group, it was $p < 0.05$ Sig= ,004. The same analysis was performed for the scores after the application of the "APA Style" program, in both groups a normal distribution was found, control $p > 0.05$ Sig.= ,200 and experimental $p > 0.05$ Sig= ,200.

3.2.2. Testing of specific hypotheses

Table 3 Academic communication level - before the application of the "APA Style" program.

Level	f	%
Low	14	82,4
Moderate	3	17,6
High	0	0

The results indicate that there is a low level (82.4%) of knowledge of the APA Standards 7th edition before the application of the intervention program.

Table 4 Level of academic communication after the application of the "APA Style" program.

Level	f	%
Low	7	41,2
Moderate	8	47,1
High	2	11,8

The results indicate that there is an increase in the moderate level (from 17.6% to 47.1%), as well as in the high level (11.8%) of knowledge of the APA Standards 7th edition after the intervention program.

Table 5 Differences between the experimental and control groups after the application of the "APA Style" program.

Variable	Experimental M.	Control M.	Statistical	Value	P	D
"APA Style" Program	11.38	8.88	W	-2,727 ^b	,006	0.460

Note: M = Mean, D = effect size

The results indicate that there are statistically significant differences in academic communication after the application of the "APA Style" Program in favor of the experimental group when compared to the control group. Besides, the effect size is of a moderate magnitude. Therefore, it is affirmed that there are statistically significant differences between the experimental group and the control group.

3.2.3. Testing the general hypothesis

Table 6 Comparison of scholarly communication using APA Standards 7th edition between the experimental and control groups.

Group	n	Minpre	Minpos	Maxpre	Maxpos	Mpre	Mpos
Experimental	17	5	7	12	17	7.26	11.38
Control	18	5	5	13	14	8,00	8.88

Note: Mpre: mean of the pretest, Mpos: mean of the posttest.

The application of the "APA Style" program has a significant influence on the experimental group, which consisted of students from the Faculty of Administration of a public university, which differentiates it from the control group.

3.3. Correlational analysis

The results show that there is a direct, positive, and significant relationship between the different dimensions, which at a theoretical level constitute attitudes towards APA Style, 7th edition (ASE) and attitudes towards research, at Spearman's $Rho = .402$, with a value of $p = .017$.

Table 7 Correlation between the variables Attitudes towards APA Style and Attitudes towards research.

			AEA	AI
Rho de Spearman	Attitudes towards APA Style, 7th edition	Correlation coefficient	1,000	,402*
		Sig. (bilateral)	.	,017
		N	35	35
	Attitudes towards research	Correlation coefficient	,402*	1,000
		Sig. (bilateral)	,017	.
		N	35	35

*. The correlation is significant at the 0.05 level (bilateral).

4. Results and discussion

The results of the application of the "APA Style" program in students of the career in Administration of a public university determined that there is a significant improvement among the experimental group in relation to the control group after the implementation of the program, showing progress in the presentation of academic papers and in the elaboration of the thesis, on the other hand, the correct use of citations, references and respect for authorship is highlighted. These findings coincide with those of Mucha (2023), in which an educational module on the APA Standards was applied, concluding that it significantly influenced the learning of students in the last year of the Faculty of Medical Technology in Radiology. Along the same lines, Córdova-González and Franco-Mendoza (2021) affirm that there are favorable effects on the knowledge and attitudes about the APA Style in the students who participated in the experimental group, being more evident in the citation of sources.

However, universities have an ethical commitment to truth and knowledge, and ethical knowledge (deontological), based on virtues and morals that should be put into practice from the beginning of academic training and transversally in all subjects, to reduce plagiarism with

or without intention. In this regard, Villacreses (2021) conducted a study in which students consider academic plagiarism as a negative action for their learning and that staggered sanctions should be established for those who fall into these bad practices.

Finally, research attitudes have a moderate relationship with attitudes towards the APA Style, it is observed that these findings coincide with the results obtained after the application of the intervention program, where a moderate improvement is observed after the application of the APA Style program.

5. Conclusions

The objective of this research was to determine the effects of the "APA Style" program on the knowledge of academic communication in university students at a public university in Lima. Before the application of the intervention program, the low level of academic communication predominated; however, after the implementation of the program, the low level decreased, while the moderate and high level increased. The results of the APA Standards program are encouraging; however, respect for authorship should continue to be instilled as a permanent practice in all academic activities, since it is routine to use information from other authors' sources as "...support for interpretations or conclusions or theoretical support for new research projects..." (Miyahira, 2022, p.225).

Considering, in addition, that nowadays technology provides students with a wide range of digital tools that facilitate the automatic listing of the references of research (Messaudi, 2024), among these, there are computer tools such as Zotero and Mendeley that allow the compilation, organization, citation and elaboration of references (García-Puente, 2020).

Finally, research attitudes and skills are not only found in Research Methodology courses but in all disciplines and subjects through the identification, analysis, and reflection of the problems of the social environment and the development of collaborative and multidisciplinary research. In the future, studies could be carried out to include other variables, such as academic performance in subjects related to research, technological competencies and research competencies of both teachers and students. Increase the population should be done to be able to extrapolate the results to larger populations.

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