

Validation of a questionnaire of attributions to the detection of coincidences in academic work

Validación del cuestionario de atribuciones para la detección de coincidencias en trabajos académicos

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Abstract

Plagiarism as a topic of research in the university context has not ceased to be a constant concern due to its multiple repercussions. This paper describes the process followed in the validation of the Questionnaire of attributions for the detection of coincidences in academic works (CUDECO), whose purpose is to evaluate the relevance that to cite correctly and to detect the causes that lead to commit plagiarism. From a sample of 2,331 students, an analysis of reliability as internal consistency and an exploratory factorial analysis (AFE) of the instrument is carried out. The analysis of reliability leads to propose a readjustment in the questionnaire initially designed. The factorial study suggests a structure configured by five factors: concept of plagiarism and its types (partial and total), causes that motivate the commission of it both internal (specific to the subject) and external (outside the subject) and the attitudes of the peer group towards plagiarism, findings in the line of research previous.

Keywords: Validation, factorial analysis, plagiarism, university students, dishonest practices

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Resumen

El plagio como tema de investigación en el contexto universitario no ha cesado de ser una preocupación constante debido a sus múltiples repercusiones. El presente estudio describe el proceso seguido en la validación del Cuestionario de atribuciones para la detección de coincidencias en trabajos académicos (CUDECO), cuya finalidad es evaluar la relevancia que tiene citar correctamente y detectar las causas que llevan a cometer plagio. A partir de una muestra de 2,331 estudiantes, se realiza un análisis de la fiabilidad como consistencia interna y un análisis factorial exploratorio (AFE) del instrumento. El análisis de la fiabilidad lleva a proponer un reajuste en el cuestionario inicialmente diseñado y el estudio factorial sugiere una estructura configurada por cinco factores: concepto de plagio y sus tipos (parcial y total), causas que motivan la comisión del mismo tanto internas (propias del sujeto) como externas (ajenas al sujeto) y las actitudes del grupo de iguales hacia el plagio, hallazgos en la línea de investigaciones previas.

Palabras clave: Validación, análisis factorial, plagio, estudiantes universitarios, prácticas deshonestas

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The presence in the academic and scientific field of dishonest practices is subject to controversy at the social level, due to its repercussions, and also a focus of legal, ethical and educational study (Ferreira & Persike, 2018). In this last area, Mavrinac et al. (2010) allude to the fact these practices include any type of deception that compromises the teaching-learning process and the academic

integrity of the institution, with plagiarism being the most perpetrated. Regarding this, there is no unanimity when defining it, due to its universality, multidimensionality, multicausality and its cultural determinants. This lack of consensus, in university education, is also motivated by its magnitude, ranging from small sentences without citation to the copying of a complete work (Bennett,

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2005), or as Hawley (1984) points out plagiarism covers a continuum between “sloppy paraphrasing to the intentional copying of someone else’s work verbatim without credit to the source” (p.35). In general, we can characterize it as the copy or paraphrase of a fragment of someone's work without citing the original (Park, 2003), including self-plagiarism, that is, returning academic works already evaluated (Bretag & Mahmud, 2009).

The magnitude of this phenomenon is reflected in its universality with studies in: United Kingdom (Bennett, 2005, Cheung, Stuppel, & Elander, 2017), Romania (Popoveniuc, 2018), Mexico (Guerrero Sánchez, Mercado Yebra, & Ibarra, 2017), United States (Martin, Rao, & Sloan, 2011), Australia (Devlin & Gray, 2007; Howard, Ehrich, & Walton, 2014), Iran (Amiri & Razmjoo, 2016; Poorolajal, Cheraghi, Irani, Cheragui, & Mirfakhraei, 2012), Turkey

(Akbulut et al., 2008), China (Hu & Sun, 2016), Spain (Gómez-Espinosa, Francisco, & Moreno-Ger, 2016; Sureda, Comas, & Morey, 2009; Sureda- Negre, Comas-Forgas, & Oliver-Trobat, 2015), ... where alarming figures are offered of having committed plagiarism at least once in life, ranging from 83% referenced by Bilic-Zulle, Frkovic, Turk, Azman , & Petrovecki (2005) to 38% that is found in the work of Pozoljal et al. (2012). Likewise, we find research that shows intercultural differences: comparisons between German and Slovenian students (Jereb et al., 2018), and Australian and Chinese (Ehrich, Howard, Mu, & Bokosmaty, 2016)

The multidimensionality and the multicausality of the subject is reflected in the attention paid to both contextual and individual factors in several investigations in which they have designed, applied and standardized measuring instruments focused on plagiarism (table 1).

Table 1 - Plagiarism and academic integrity measurement instruments

Instruments	Authoship	Number of Items	Dimensions/subscales
<i>Plagiarism Attitude Scale</i>	Harris (2001)	12 items	- One-dimensional instrument
<i>Student Authorship Questionnaire (SAQ)</i>	Pittam, Elander, Lusher, Fox, & Payne (2009)	18 items	- Confidence in writing - Reading comprehension - Knowledge to avoid plagiarism
<i>Attitudes Toward Plagiarism (ATP)</i>	Mavrinac, Brumini, Bilić-Zulle, & Petrovečki (2010)	29 items	- Positive attitudes to plagiarism - Negative attitudes - Subjective rules against plagiarism
<i>Survey on academic integrity among students at the University of the Balearic Islands</i>	Comas-Forgas & Sureda-Negre (2010)	41 items	- Causes attributable to characteristics or behavior of teaching staff and methodological aspects of the teaching-learning process - Causes atributable to characteristics, behaviours and students´ beliefs - Causas attributable to the ease of access offered by ICT and the Internet
<i>Knowledge, Attitude And Practice Questionnaire (KAP)</i>	Poorolajal, Cheraghi, Irani, Cheragui, & Mirfakhraei (2012)	26 items	- Questions concerning knowledge about plagiarism - Attitudes toward plagiarism - Attitudes toward the comisión of plagiarism
<i>Adaptation of Attitudes Toward Plagiarism (ATP)</i>	Howard , Ehrich, & Walton (2014)	36 items	- Factors that aggravate the plagiarism - Justification for plagiarism - Severity and sanctions
<i>Student Attitudes and Beliefs about Authorship Scale (SABAS)</i>	Cheung, Stuppel, & Elander (2017)	17 items	- One-dimensional instrument
-----	Cebrián-Robles, Raposo-Rivas, Cebrián-de-la-Serna, & Sarmiento-Campos (2018)	85 items	- Plagiarism and their motivations - Solutions to avoid plagiarism - Measures to be taken in case of plagiarism

One of the approaches focuses on its study using the Student Authorship Questionnaire (SAQ) of Pittam, Elander, Lusher, Fox, & Payne (2009), validated questionnaire of 18 items with three scales of measurement of attitudes toward authorship (confidence in writing, comprehension in writing and knowledge to avoid plagiarism). Subsequently, Cheung et al. (2017) built and validated a scale taking as reference the SAQ called Student Attitudes and Beliefs about Authorship Scale (SABAS) composed of 17 items grouped into three factors.

Bennett (2005) confirms two models of measure on the determinants of committing more or less plagiarism, these being: the ethical position, the effectiveness of personal study skills, attitudes towards plagiarism, academic performance, parental pressure, the financial situation, the orientation towards the objectives, the academic integration, the fear to the failure, the fear to the sanctions in the case of being detected and an excellent relation with the teaching staff. Going deeper, we find the study by Mavrinac et al. (2010) in which a questionnaire of attitudes towards plagiarism is validated (Attitudes Toward Plagiarism, ATP). The ATP is composed of 29 items divided into three factors: positive attitudes (approval and justification of behavior), negative attitudes (condemnation and disapproval) and norms subjective to plagiarism (common thought about its prevalence and acceptance). On the other hand, Howard et al. (2014) perform a validation of the modified version of the scale of Mavrinac et al. (2010) based on the Rasch model. Another standardized instrument is the Knowledge, Attitude and Practice Questionnaire (KAP) composed of 26 questions related to knowledge about plagiarism (9), attitudes towards it (9) and the commission of plagiarism (8). Finally, we find the one-dimensional scale of Ehrich et al. (2016) that, through 12 questions, analyzes attitudes toward plagiarism from the most permissive to the most restrictive ones.

At a national level, the study by Comas-Forgas & Sureda-Negre (2010), which

specifies the validation of the Survey on academic integrity among students at the University of the Balearic Islands, consists of 41 items that detail the causes of the plagiarism mainly in three aspects: "causes attributable to characteristics or behavior of teaching staff and methodological aspects of the teaching-learning process; causes attributable to characteristics, behaviors and beliefs of students, causes attributable to the ease of access offered by the Internet and ICT" (p. 220). In later publications, they validate instruments for the detection of plagiarism among Secondary and High School students (Sureda-Negre et al., 2015). Finally, Cebrián-Robles et al. (2018), based on previously validated instruments (Comas-Forgas & Sureda-Negre, 2010; Finn & Frone, 2004) design a questionnaire in order to determine the underlying model among the causes of plagiarism (concept, part, whole, internal locus, external locus and disinterest)

To sum up, it can be confirmed that the multitude of instruments designed to determine, to a large extent, the genesis of these ethical irregularities, taking into account different aspects that determine the commission of plagiarism among which we can find: "personal factors of students, institutional factors, factors linked to teaching and factors external to the educational practice" (Sureda et al., 2015, p.105).

Method

Objective

The objective of this work is validate the Questionnaire of attributions for the detection of coincidences in academic works (CUDECO) designed to evaluate the relevance that it has to cite correctly and to detect the causes that lead to commit plagiarism.

Sample

The non-probabilistic and intentional sample consists of a total of 2,331 students, 83.3% women and 16.7% men, with an average age of 21 years ($M = 21.68$, $SD = 3.79$), who attend during the academic year 2017 / 2018 undergraduate studies (92.4%) Master's degree

(7.3%) and Doctorate (0.3%) at the three public universities of the Galician University System (A Coruña, Santiago de Compostela and Vigo).

Instrument

Based on the review of the literature and the exhaustive analysis of validated instruments (Cebrián-Robles et al., 2018, Comas-Forgas & Sureda-Negre, 2010, Ehrich et al., 2016, Mavrinac et al., 2010) built the Questionnaire of attributions for the detection of coincidences in academic works (CUDECO) configured by a total of 59 questions, 9 referred to the variables of identification of the subject and 50 items of scale Likert type with 7 alternative answers (being 1 totally in disagreement and 7 totally agree) grouped into five dimensions.

The first dimension **How useful is it for you to quote?**, It is made up of 8 items, which assess the usefulness for the student to quote. The second **Throughout the race ...** (8 items), and third **Causes that have motivated you to perform the previous actions** (13 items) group a total of 21 items, with which we seek information about whether the student has committed plagiarism throughout the race and the causes that have motivated him. The fourth dimension, **The teaching staff ...**, comprises a total of 11 items related to the actions carried out by the teaching staff so that the students do not commit plagiarism. Finally, the 10 items that make up the dimension **I think my classmates** are related to the opinion of the students about their perception of the performance of dishonest practices by their classmates.

The questionnaire was submitted to validation by six expert judges in the area of Research Methods and Diagnosis in Education and applied to a pilot sample of 128 students from the Faculty of Educational Sciences of the University of A Coruña (Rebollo-Quintela, Espiñeira-Bellón, & Muñoz-Cantero, 2017).

Data collection and analysis procedure

The administration of the questionnaires to the participants was through two ways: a) in paper format through pollsters who attended the classrooms of the different Bachelor's and Master's degrees at the beginning of the 2017/2018 academic year, and b) in electronic format through the online version of the instrument for doctoral students.

The information was processed with the statistical package IBM SPSS Statistics in its version 24.0. To carry out the validation of the instrument, reliability was calculated through the analysis of internal consistency by means of the Cronbach's Alpha coefficient and the analysis of the discrimination capacity of the items through the homogeneity index. The study of the validity was carried out by means of an exploratory factorial analysis (AFE) with extraction of main components and subsequent Varimax rotation.

Results

Reliability analysis

The Cronbach's Alpha coefficient, based on the average inter-element correlation, assumes that the items measure the same construct and are highly correlated (Cronbach, 1951). In this case, the value obtained from reliability is high since the Cronbach's Alpha coefficient is equal to .879.

Subsequently, we proceeded to the analysis of the discrimination capacity of the items, through the calculation of the homogeneity index, defined as the Pearson correlation coefficient between the score in the item and the sum of the scores in the remaining items. As a result, 17 were eliminated that showed values lower than .2 (table 2), that is, the item I consider it a challenge to the teaching staff, to the authority of the dimension **Causes that have motivated you to perform the previous actions** and all the corresponding to the dimension **How useful is it for you to quote?**, and **The teaching staff ...**

Table 2 - Values of the homogeneity indexes of each item and the reliability index of the questionnaire

	Corrected Item-Total correlation	Cronbach's α if item deleted
HOW USEFUL IS IT FOR YOU TO QUOTE?		
It serves as a necessary requirement in the accomplishment of academic works	.085	.880
It serves to demonstrate that I have learned adequately	.085	.880
It serves to give a scientific nuance to my works	.146	.879
It serves to recognize the merit of the original authors	.091	.880
It serves to refer to the original sources	.119	.879
It serves to support my arguments	.099	.879
It serves to generate discussions or debates based on the aforementioned	.067	.880
It serves to demonstrate that I can generate new information or ideas from the aforementioned	.099	.880
THROUGHOUT THE RACE		
I have delivered some work done by others in previous courses	.302	.877
I have copied parts of work delivered in previous courses for a new job	.418	.875
I have copied from web pages fragments of texts and, without quoting, those that incorporated to the work that I had written	.505	.874
I have copied fragments of printed sources (books, newspapers, magazine articles, etc.) and, without citing them, I have incorporated them into the work I had written	.502	.874
I have delivered as my own some complete work downloaded from the Internet, without modifying it	.229	.878
I have done some work entirely from fragments copied literally from web pages	.382	.876
I have done some work entirely from printed sources, without putting the authors	.392	.876
I have used fragments of the teacher's notes to elaborate some work, without citing them	.440	.875
CAUSES THAT HAVE MOTIVATED YOU TO PERFORM THE PREVIOUS ACTIONS		
It is a "shortcut" accepted by all	.571	.873
My classmates do it	.440	.875
Access to material via Internet is easy and convenient	.156	.879
It allows me to obtain better academic results	.549	.873
I was unaware of the existence of regulations in my university that would penalize	.538	.873
The sanctions are serious	.304	.877
I did not know that I had to always quote	.284	.877
Lack of precise instructions on how to do the job	.323	.877
Lack of motivation	.394	.875
Lack of time	.470	.874
Work overload	.519	.873
What is on the Internet is common property	.496	.873
It is a "shortcut" accepted by all	.383	.876
THE TEACHING STAFF		
It gives me precise instructions to elaborate the work	.112	.879
It gives me the basic rules to quote properly	.134	.879
Follows the evolution of the work taking into account the citation of sources	.125	.879
It offers individualized attention in the classroom during the preparation of the work	.132	.879
It offers individualized attention in the tutorials during the elaboration of the work	.177	.879
Evaluate the correct citation of the incorporated documentary sources	.147	.879
Ask essentially theoretical works	.143	.879
Ask for essentially practical jobs	.127	.879
Manages tools for detecting fragments copied in jobs	.074	.880
It adjusts the work load to the time available for each subject	.139	.879
Coordinates with other teachers to avoid overloading students with work	.093	.879
I THINK MY CLASSMATES		
They have delivered a work done by a partner in previous courses	.489	.874
They have copied parts of the work they have delivered in previous courses for a new one	.556	.873
They have copied from web pages fragments of texts and, without citing, they have incorporated them to the work that they had written	.627	.871
They have copied fragments of printed sources (books, newspapers, magazine articles, etc.) and, without citing them, they have incorporated them into the work they had written	.601	.872
They have delivered a complete work downloaded from the Internet, without modifying it, as their own	.465	.874
They have done a job entirely from fragments copied literally from web pages	.548	.873
They have done a job entirely from printed sources	.507	.874
They have used fragments of the teacher's notes to make a work, without citing them	.521	.873
They copy more in classroom work than in the TFG/TFM	.423	.875
Admit as appropriate the method of "cut" and "paste" when presenting a job	.531	.873

Thus, after the elimination of these items, the questionnaire is reduced to a total of 30 compared to the initial 50 and three dimensions **Throughout the race ...** (8 items), **Causes that have motivated you to perform the previous actions** (12 items) and **I think my classmates ...** (10 items). This considerable reduction in the number of items is coherent with the theoretical framework on plagiarism since the dimensions and items that have been eliminated, although they are related to the construct to be studied, do not allude specifically to plagiarism, but to other related elements, such as actions to avoid

committing plagiarism and the importance of citing.

With this new configuration, the reliability of the instrument was calculated. In this case, Cronbach's Alpha coefficient is .924, which implies an increase in two points compared to the previous reliability analysis. When studying the indexes of homogeneity of all the items (table 3), it is verified that all have scores higher than .2, reaching most of the correlations values close to or above .5, which shows that the questionnaire, once made the previous modifications, has a good internal consistency.

Table 3 - Values of the homogeneity indexes of each item and the reliability index of the questionnaire after the elimination of the items

	Corrected Item-Total correlation	Cronbach's α if item deleted
THROUGHOUT THE RACE		
I have delivered some work done by others in previous courses	.329	.924
I have copied parts of work delivered in previous courses for a new job	.476	.923
I have copied from web pages fragments of texts and, without quoting, those that incorporated to the work that I had written	.594	.921
I have copied fragments of printed sources (books, newspapers, magazine articles, etc.) and, without citing them, I have incorporated them into the work I had written	.574	.921
I have delivered as my own some complete work downloaded from the Internet, without modifying it	.238	.925
I have done some work entirely from fragments copied literally from web pages	.438	.923
I have done some work entirely from printed sources, without putting the authors	.432	.923
I have used fragments of the teacher's notes to elaborate some work, without citing them	.496	.922
CAUSES THAT HAVE MOTIVATED YOU TO PERFORM THE PREVIOUS ACTIONS		
It is a "shortcut" accepted by all	.656	.920
My classmates do it	.466	.923
Access to material via Internet is easy and convenient	.604	.921
It allows me to obtain better academic results	.609	.921
I was unaware of the existence of regulations in my university that would penalize	.343	.924
The sanctions are serious	.318	.924
I did not know that I had to always quote	.390	.924
Lack of precise instructions on how to do the job	.523	.922
Lack of motivation	.590	.921
Lack of time	.622	.920
Work overload	.608	.921
What is on the Internet is common property	.465	.923
I THINK MY CLASSMATES		
They have delivered a work done by a partner in previous courses	.531	.922
They have copied parts of the work they have delivered in previous courses for a new one	.598	.921
They have copied from web pages fragments of texts and, without citing, they have incorporated them to the work that they had written	.677	.920
They have copied fragments of printed sources (books, newspapers, magazine articles, etc.) and, without citing them, they have incorporated them into the work they had written	.641	.920
They have delivered a complete work downloaded from the Internet, without modifying it, as their own	.481	.922
They have done a job entirely from fragments copied literally from web pages	.583	.921
They have done a job entirely from printed sources	.527	.922
They have used fragments of the teacher's notes to make a work, without citing them	.549	.922
They copy more in classroom work than in the TFG/TFM	.451	.923
Admit as appropriate the method of "cut" and "paste" when presenting a job	.574	.921

Exploratory factor's analysis

In order to estimate the construct validity of the questionnaire, a factor analysis was carried out with extraction of the main components and subsequent Varimax rotation.

Before carrying out the factor analysis, the Kayser-Meyer-Olsen test (KMO) and the Bartlett's sphericity test were applied to check the sample adequacy of the questionnaire indicators (Muñoz Cantero, Casar Domínguez, & Abalde Paz, 2007). The value close to 1 of the KMO test = .916 and the statistically significant result of the Bartlett sphericity test: $\chi^2_{435} = 31680.841$ ($p < .001$) confirm the relevance of performing the factorial analysis, which was subsequently carried out in order to determine the dimensional structure of the questionnaire and check whether it coincides with the postulated theoretical structure (Bryman, 2016). For the extraction of factors, the main component extraction method has been used, an iterative method that, as De Winter & Dodou (2012) points out, is based on

the successive extraction of factors that explain most of the common variance.

In order to obtain a factorial solution as simple as possible, it was used as a method of rotation varimax, orthogonal character that minimizes the number of variables that have a saturation factor or component on a variable, thus stressing those that have it higher.

As it can be seen, in Table 4, which shows the percentages of the total variance of the model before and after the rotation, there have been no changes in the total variance explained for the first five components, being in both cases 59.164%, with values higher than 1. However, there are changes in the part explained individually for each component or factor, since, as a result of the rotation, the 31.919% corresponding to the first factor without rotating, goes to be of 19.667%, 11.965% of the second factor to 15.761%, 6.391% versus 8.934% of the third factor and 4.732% and 4.157% of the fourth and fifth factor goes to 8.722% and 6.080% of the matrix rotated respectively.

Table 4 - Total variance explained. Extraction method: Principal Components Analysis

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of variance	% Cumulative	Total	% of variance	% Cumulative	Total	% of variance	% Cumulative
1	9.576	31.919	31.919	9.576	31.919	31.919	5.900	19.667	19.667
2	3.590	11.965	43.884	3.590	11.965	43.884	4.728	15.761	35.428
3	1.917	6.391	50.275	1.917	6.391	50.275	2.680	8.934	44.362
4	1.420	4.732	55.007	1.420	4.732	55.007	2.617	8.722	53.084
5	1.247	4.157	59.164	1.247	4.157	59.164	1.824	6.080	59.164

The analysis of the communalities, shows that most items are well explained by the factorial structure, except for the fact I have delivered some work done by others in previous courses (commonality = .462), The penalties are not serious (commonality = .297), What is on the Internet is common property (commonality = .430), Copies more in classroom works than in the TFG / TFM (commonality = .422) that have values lower

than .50. These five items are eliminated because they lack a sufficient explanation and should not be considered in the final interpretation of the analysis (Zamora, Monroy, & Chávez, 2009), leaving the questionnaire configured for a total of 26 items, a second was carried out Factorial analysis to confirm its behavior in the established dimensions.

Table 5 - Extraction method: Principal Components Analysis. Items with communalities lower than .50

	Initial	Extraction
I have delivered some work done by others in previous courses	1.000	.462
The sanctions are serious	1.000	.297
What is on the Internet is common property	1.000	.430
They copy more in classroom work than in the TFG/TFM	1.000	.422

As in the first factorial analysis, sufficiently solvent values were observed both in the sample adequacy test $KMO = .907$, somewhat lower than the previous analysis, which showed a value of .916, as in Bartlett's sphericity test: $\chi^2_{325} = 29590.124$ ($p < .001$).

The exploratory factor analysis involved the maintenance of the number of factors, five, with eigenvalues greater than 1, which are able to explain 63.351% of the total variability, which can be considered as an acceptable value and superior to the first factorial

analysis. It can be seen that, as in the first factorial analysis and as a consequence of the rotation, the percentage of the total variance explained is maintained and only changes occur in the part explained individually for each component or factor, that is, decreases the weight of the first and second factors and increases the weight of the last three (table 6). After studying again the value of the commonality of the items, now all of them are superior to .50 and therefore no factor is affected its suitability or suitability for its definitive presentation.

Table 6 - Total variance explained. Extraction method: Principal Components Analysis

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of variance	% Cumulative	Total	% of variance	% Cumulative	Total	% of variance	% Cumulative
1	8.813	33.897	33.897	8.813	33.897	33.897	5.454	20.976	20.976
2	3.301	12.697	46.594	3.301	12.697	46.594	4.230	16.270	37.246
3	1.815	6.979	53.573	1.815	6.979	53.573	2.673	10.281	47.527
4	1.357	5.220	58.793	1.357	5.220	58.793	2.270	8.731	56.258
5	1.185	4.559	63.351	1.185	4.559	63.351	1.844	7.094	63.351

The graphical representation of the factorial structure in five factors and the eigenvalues (figure 1), shows that the slope change of the

curve occurs from the fifth factor, accumulating 63.351% of the total variance.

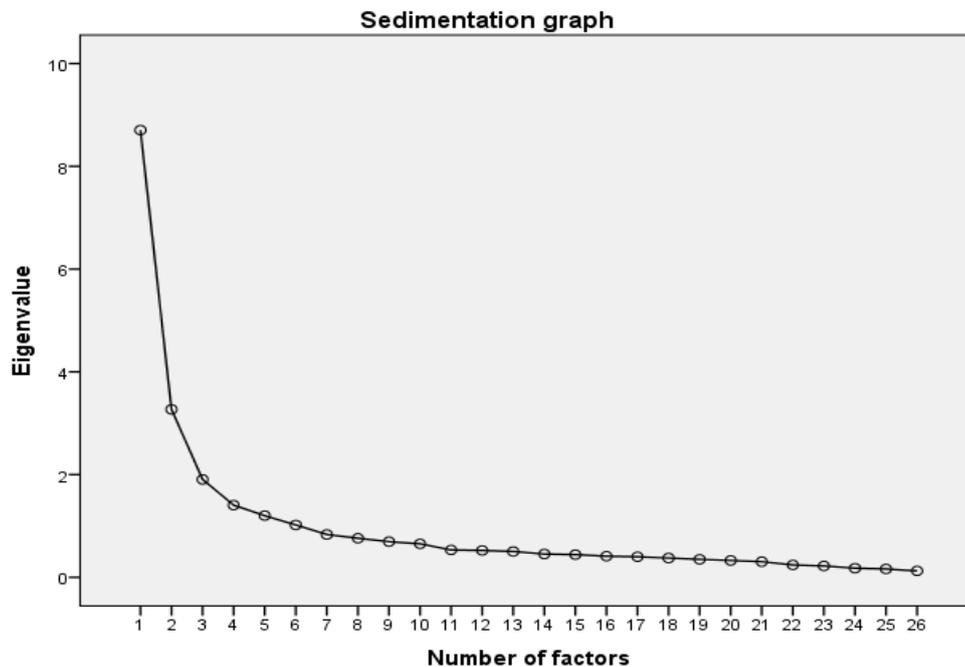


Figure 1. Graphic representation of the sedimentation of the eigenvalues according to each of the exposed components corresponding to the initial factorial analysis

The factorial model is formed by good indicators of the construct to be studied, since as we can see, no item with factorial loads in absolute value of .40 is appreciated (table 7).

The first factor explains 20.976% and includes a total of nine items and it includes all those that were included in the initial questionnaire under the denomination **I think my classmates ...**, with the exception of the item Copy more in classroom work than in the TFG / TFM eliminated in the previous analysis, related to the opinion of the students about the performance of dishonest practices by their peers, that is, the attitudes of the peer group towards plagiarism.

The second one explains 16.270% of the variance and comprises seven items: *It is a "shortcut" accepted by all; My classmates do it; Access to material via the Internet is easy and convenient; It allows me to obtain better academic results; Lack of motivation; Lack of time and work overload*, corresponding to the causes dimension that have motivated you to perform the previous actions, which, based on their content, could be grouped under the internal causes dimension of plagiarism.

The third factor groups four items that allude to partial plagiarism and explains 10.281% of the variance, corresponding to the block of the initial questionnaire **Throughout the career ...** I have copied parts of work delivered in previous courses for a new job; I have copied fragments of texts from web pages and, without citing them, I have incorporated them into the work I had written; I have copied fragments of printed sources (books, newspapers, magazine articles, etc.) and, without citing them, I have incorporated them into the work I had written and I have used fragments of the teacher's notes to elaborate some work without citing them.

The fourth one that explains the 8.731% of the variance is composed of three items with respect to total plagiarism, block **Throughout the race ...** I have delivered as mine some complete work downloaded from the Internet, without modifying it; I have done some work entirely from fragments copied literally from web pages and I have done some work entirely from printed sources, without putting the authors.

The fifth factor, which explains the 7.094% of the variance, groups some items of the

block **Causes that have motivated you to carry out the previous actions:** I did not know the existence of regulations in my university that penalized it; He did not know

that he had to quote always and lack of precise instructions on how to do the work. These items can be included under the category external causes of plagiarism.

Table 7 - Extraction method: Analysis of main components to 5 extracted components

	FACTOR				
	1	2	3	4	5
I have copied parts of work delivered in previous courses for a new job			.353		
I have copied from web pages fragments of texts and, without quoting, those that incorporated to the work that I had written			.718		
I have copied fragments of printed sources (books, newspapers, magazine articles, etc.) and, without citing them, I have incorporated them into the work I had written			.715		
I have delivered as my own some complete work downloaded from the Internet, without modifying it				.726	
I have done some work entirely from fragments copied literally from web pages				.724	
I have done some work entirely from printed sources, without putting the authors				.648	
I have used fragments of the teacher's notes to elaborate some work, without citing them			.666		
It is a "shortcut" accepted by all		.608			
My classmates do it		.495			
Access to material via Internet is easy and convenient		.606			
It allows me to obtain better academic results		.573			
I was unaware of the existence of regulations in my university that would penalize					.707
I did not know that I had to always quote					.805
Lack of precise instructions on how to do the job					.579
Lack of motivation		.797			
Lack of time		.845			
Work overload		.842			
They have delivered a work done by a partner in previous courses	.768				
They have copied parts of the work they have delivered in previous courses for a new one	.785				
They have copied from web pages fragments of texts and, without citing, they have incorporated them to the work that they had written	.796				
They have copied fragments of printed sources (books, newspapers, magazine articles, etc.) and, without citing them, they have incorporated them into the work they had written	.788				
They have delivered a complete work downloaded from the Internet, without modifying it, as their own	.742				
They have done a job entirely from fragments copied literally from web pages	.821				
They have done a job entirely from printed sources	.753				
They have used fragments of the teacher's notes to make a work, without citing them	.629				
Admit as appropriate the method of "cut" and "paste" when presenting a job	.704				

Discussion

Dishonest practices, as a phenomenon of international magnitude, have been the subject of numerous investigations in recent decades, focusing their efforts on the study of plagiarism as a fraudulent activity of greater prevalence. As we have seen, the remarkable manifest repercussion is largely due to its legal, ethical and educational implications.

In the field under study, the review of the literature shows the existence of different instruments focused on plagiarism, which seek to delimit the various aspects of a multidimensional phenomenon, although there is no unanimity in the key factors on which the Measurement of the construct. However, the published studies agree on the important implications of plagiarism in the training of university students. In fact, there has been a growing demand for the need for an ethical education as an inherent aspect of curricula and university learning contexts. Martínez & Esteban (2005), point out that "the learning of ethical competences is especially relevant in the learning of citizenship and, especially, in the learning of citizenship for social inclusion" (p.75).

Based on these considerations, the need arises to design instruments capable of analyzing this phenomenon with a holistic perspective. For this, it is crucial to put the point of view in the students, since the evaluation of their perception is "the first step to understand the situation and plan educational programs to reduce and prevent the commission of plagiarism" (Poorolajal et al., 2012, p.57).

In this article, the construction of the Questionnaire of attributions for the detection of coincidences in academic works (CUDECO) has been carried out, based on the exhaustive analysis of different validated instruments (Cebrián-Robles et al., 2018, Comas-Forgas & Sureda- Negre, 2010; Ehrich et al., 2016; Mavrinac et al., 2010). As a result of this procedure, the initial questionnaire was elaborated, which after being submitted to expert judgment, was

definitively configured for a total of 59 questions, 9 referring to the variables of identification of the subject and 39 items of Likert scale grouped in five dimensions. **How useful is it for you to quote?, Throughout the race ..., Causes that have motivated you to perform the previous actions, The teaching staff ... and I believe that my classmates ...**

In view of the proposed objectives, the reliability and validity of the instrument were studied in order to determine its suitability. The result of the analysis of internal consistency and reliability statistics for the elements that make it up has led to the modification of the original instrument that was configured for a total of 28 items, presenting high reliability after this adjustment.

For its part, the structure through exploratory factor analysis shows a model of five factors that refer to the concept of plagiarism and its types (partial and total), the causes that motivate the commission of it both internal (own of the subject) and external (alien to the subject) and the attitudes of the peer group toward plagiarism, findings in the line of previous research (Bennett, 2005, Cebrián-Robles et al., 2018, Comas-Forgas & Sureda-Negre, 2010, Mavrinac et al. , 2010). Likewise, the resulting factors have been addressed in qualitative works such as Ashworth, Bannister, & Thorne (1997), through interviews; Ochoa & Cueva (2016) in open questionnaires and Devlin & Gray (2007) and Gullifer & Tyson (2010) through7 discussion groups. However, this questionnaire offers a vision more inclusive than the previous instruments in terms of the studied dimensions, analyzing not only the internal and external factors that motivate the plagiarism, but also allows us to know which is the perception regarding the role that teachers play in that process, given that, since the paradigm shift as a result of the development of the European Higher Education Area, this variable has not been analyzed. On the other hand, the vision provided by this questionnaire is in some

measure innovative in such studies, to verify the perception of the subjects with respect to their pairs is a valid and reliable dimension to be able to explain the problem.

The results obtained confirm the validity of an instrument, useful and reliable for the detection of coincidences in works in the university context. On the other hand, it is considered a valuable tool to carry out a diagnosis of the plagiarism behaviors by the students, as well as to determine the underlying causes that motivate them to commit it. All this will enable the adoption of measures of a preventive nature aimed at making these dishonest behaviors stop being a habitual practice.

Finally, it would be of interest in future research, broaden the field of action, and cover the stages of Secondary Education and Baccalaureate, in order to determine the genesis of plagiarism from its first manifestations. Likewise, it would be convenient to adapt and validate the instrument for this population, which will allow us to check to what extent the items adjust to the proposed dimensionality to study the reference construct in other different realities (Bryman, 2016).

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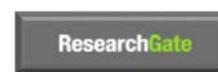
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