

¹Diana Milena
Pacheco Ortíz

²Daniel A
Grajales-Gaviria

³Natalia María
Acevedo Prins

⁴Orlando C Cas-
tellanos-Polo

Curricular Strategies for the Achievement of Accounting Competence by Students in Cohorts of the First Accounting Course: Case Study in the Finance Department of the ITM



Abstract: - Aim/Purpose The article analyzes the impact of increased direct instruction hours and the inclusion of a standardized assessment on the scope of accounting proficiency.

Background The search for strategies to improve pedagogical practices is a fundamental aspect in the establishment of quality processes for the teaching of the different academic disciplines in university institutions.

Methodology The study methodology is an experimental analysis in two cohorts of students. Five variables were analyzed and the interrelation between them, before and after the curricular change. The sample taken were the students in cohorts of the first accounting course of the Finance Department of the ITM.

Contribution Research contributes to university education in the accounting area by proposing standardized tests as a quality mechanism in the teaching process.

Findings The study identified that the inclusion of the new curricular strategy has a positive impact on the learning of the competencies of the Fundamentals of Accounting subject.

Recommendations for Practitioners It is recommended that practitioners and researchers continue to study the incidence of direct teaching hours in the increase of learning from other perspectives such as virtual education and other levels of accounting studies.

Recommendations for Researchers The document becomes a space for reflection for the community by questioning whether or not direct instruction is necessary and whether or not standardized tests are relevant.

Impact on Society Contribution to training of new professionals under IFRS

Future Research It is recommended for future research to review other aspects such as didactics, support in ICT strategies for the optimization of autonomous work, the motivational capacity of the teacher and the commitment of the students in the classroom, as elements that also affect learning and that are not reviewed in this research.

Keywords: Standardized exam, face-to-face class hours, didactics, accounting learning, competition.

INTRODUCTION

The commitment to the continuous improvement of educational processes and learning results imposes new demands on university institutions, for which it is necessary to monitor, provide feedback and amend teaching strategies and methodologies to contribute to strengthening the competencies of students. future professionals, also to respond to the low levels of performance observed in the student population in the different academic disciplines.

In relation to low academic performance, there are three types of factors: 1) related to the student, 2) related to the teacher and 3) related to organizational issues (Tejedor, 2007); other authors categorize them into only two: factors related to the student and factors related to the institution (Melo, Ramos and Hernández, 2017). In this sense, university institutions must assume their task and be interested in gathering information that provides feedback for the process and that later allows them to make decisions aimed at improving curricular planning and improving the execution of methodological and evaluative processes in educational practices.

¹INSTITUTO TECNOLÓGICO METROPOLITANO ITM, MEDELLÍN, COLOMBIA

²INSTITUTO TECNOLÓGICO METROPOLITANO ITM, MEDELLÍN, COLOMBIA

³UNIVERSIDAD DE ANTIOQUIA, MEDELLÍN, COLOMBIA

⁴CORPORACIÓN UNIVERSITARIA AMERICANA, MEDELLÍN, COLOMBIA

¹DIANAPACHECO@ITM.EDU.CO

²DANIELGRAJALES@ITM.EDU.CO

³NATALIAAPRINS@GMAIL.COM

⁴OCASTELLANOS@AMERICANA.EDU.CO

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Throughout the 21st century, education coverage has visibly increased, both in basic education and in higher education, worldwide; In the Colombian case, higher education graduates have doubled since the turn of the millennium (Colombian Labor Observatory). Coverage has been a development objective at the global level and at the country level; in fact, satisfactory results have been obtained. However, the issue of quality has begun to worry and become part of the agendas; In this sense, each institution, in a particular way, must seek strategies to identify and work on solving problems related to the quality of teaching and learning, especially in institutions where the socio-economic conditions of students are unstable.

In particular, this article addresses the problem of developing accounting skills; subject that has been little explored if compared to other academic areas that have aroused greater interest throughout the history of teaching and learning, such is the case of mathematics and languages. The accounting method is extremely simple compared, for example, to mathematical methods, however, it usually presents quite a bit of difficulty for students due to its novelty; we mean that, when a student enters university education, they have already had a whole student life in contact with mathematical methods, but not with the accounting method, since normally the first time they are exposed to it is in the first or second semester of college.

The lack of structure of research in teaching accounting is natural, especially in a country like Colombia. On the one hand, it must be taken into account that, regularly, the accounting area is specific to business, accounting and finance schools, that is, it is not a basic and transversal area to all study programs; On the other hand, accounting professors are normally professionals in Accounting, without training in education, "except in the faculties of education, it is not frequent that university professors have pedagogical training prior to their involvement as teachers" (Hernández Escorcía, DR, 2019). Additionally, it must be taken into account that production in terms of research in accounting education at a national and international level is developed around public accounting curricula and not the specific area of accounting; Lastly, it is important to indicate that accounting training in Colombia has developed in isolation from the international community and, although it has had significant elements, the reflection on accounting education needs to be reconstructed (Paime, 2013).

This article aims to analyze the impact of the increase in direct teaching hours and the inclusion of a standardized evaluation in the scope of accounting competence by students in cohorts of the first accounting course of the Finance Department of the ITM. To achieve this objective, the following specific objectives are established:

Diagnose the current state of accounting competence in the first accounting course.

Increase direct instruction hours and implement a standardized test in order to improve the scope of accounting proficiency of accounting students.

To evaluate the impact of the strategy designed in the second cohort of the accounting course.

accounting competence

The accounting method of double-entry registration that is currently used was born more than five centuries ago and was initially known as the Venetian method. This method is an integral part of the accounting equation and the principle of duality that is based on:

the two-dimensional property of economic transactions that allows establishing specific connections between the different patrimonial elements and in the cause-effect relationship that occurs as an explanation of the variations between investment and financing. This implies that: 1) In an economic unit, a distinction is made, on the one hand, between assets and rights and, on the other, obligations. 2) In any economic event, a resource or origin of funds can always be identified, and a use or application of said funds (Ijiri, 1967, p. 101).

Although the accounting discipline has achieved significant development since its inception, advances have been made in terms of recognition and measurement methods, costing methods, advances in information systems, principles, concepts, policies, and regulation, among others. On the contrary, the recording method remains the fundamental principle of double entry.

The understanding of the principle of duality allows discerning, on the one hand, that the resources have an origin and an application, this is the accounting equation, which corresponds to an outline of the financial situation of

the business; On the other hand, it is also understood that businesses are established to take resources (assets), put them to production, obtain income and recognize costs and expenses, which are expected to be lower than income, in such a way that the business grows and therefore, the patrimony of the owners. Revenues (increases in equity) increase resources or decrease debt, and costs and expenses (decreases in equity) decrease resources or increase debt. The operation of the business is summarized in the results of the period.

$\text{Activo} = \text{Pasivo} + \text{Patrimonio}$

$\text{Activo} = \text{Pasivo} + \text{Patrimonio} + \text{Ingresos} - \text{Costos y Gastos}$

In the context of academic literature, when talking about accounting education or accounting skills, it generally refers to the education and skills that the professional in public accounting must develop; the studies focus on curriculum issues, core competencies, instructional approaches, among others (Apostolou, B., Dorminey, JW, & Hassell, JM 2020). However, for this study, it will be understood that the basic accounting competence is about the student's ability to develop an elementary accounting process from the understanding of the principle of duality.

Curricular strategies

The lack of consensus on various disciplinary concepts is a characteristic of educational theory; this lack of precision is explainable in the social disciplines. Reality is complex, it has singular points of view and, therefore, a variety of meanings. Díaz (2003) points out that precisely this lack of consensus occurs for the concept of curriculum, consequently, there is no unanimity in the precision of the meaning of curricular strategy. Therefore, the conception under which the curriculum and curricular strategies are understood in the framework of this work will be specified below.

The curriculum is a process of planning and executing a formative intention in a determined context and that seeks the alignment of the purposes with the demands of the environment, through the choice and sequencing of the contents, the implementation of methods, the use of resources and performance evaluation. In accordance with this statement, we will call curricular strategies all courses of action aimed at modifying the components of the curriculum in order to obtain a specific result.

Evaluation

Assessment is a fundamental component of the curriculum as it provides relevant information for decision-making. This occurs at all formalized levels, from government agencies, institutions and finally, within the classroom. Tyler, who made representative contributions to the theory of the curriculum, provided important theoretical foundations on educational evaluation, stated that the evaluation should serve to improve the quality of education and defined it as "the process to determine to what extent the educational objectives have been achieved" (Tyler, 1950 p. 69). Morales (2001) establishes a classification of the conceptions about the evaluation that has been held from Tyler onwards; In the first place, there are those that are based on the achievement of the objectives; then he mentions the approaches that are based on the realization of merit, thirdly, he cites the definitions that conceive evaluation as a process that provides information for decision-making; and finally alludes to the integrative conceptions that try to condense and unite the previous approaches, among which he cites Casanova who defines evaluation as:

Rigorous and systematic collection and information to obtain valid and reliable data about a situation in order to form and issue a value judgment regarding it. These assessments will allow the consequent decisions to be made in order to correct or improve the evaluated situation (p. 171).

The clarifications on the evaluation carried out in the previous sections indicate the fundamental role of this factor within the curricular process, for which it is a subject considerably studied from different angles: the purposes, the methods, the times, the participants, the instruments, among others. others. In accordance with the orientation of this work, we focus on the evaluation of learning, where the student is the subject of evaluation.

Pérez (2008) declares that student evaluation considerably influences learning, also indicating that various studies show that it is the evaluative practices chosen by teachers, rather than an official curriculum, that determine learning. It is the evaluative practices that determine the approach and the quality of learning; Students focus their learning according to how they perceive the requirement or demand of the evaluation, which is why it is important to raise awareness about these evaluation practices in line with the quality criteria.

On the other hand, the issue of quality in education established on the competency-based approach began to be part of the agendas of educational systems in the last decades of the previous century, with standardized tests as allied instruments, initially with an orientation towards measurement of results, subsequently adjusted through elements of relevance and relevance; the first element refers to the articulation of learning with the contexts and the second, to flexibility and diversity. Recently, emphasis has been placed on the improvement of basic skills and the link with working life (Patiño, 2017).

However, the mechanism used to gather information on the teaching and learning process in order to detect strengths and weaknesses are standardized objective tests, given that these "allow for comparisons to be made, to identify trends between different cohorts, to evaluate the performance of teachers, have timely information for decision-making and facilitate the design of curricular strategies" (Hernández, Ramírez and Gamboa, 2018). The authors also indicate that this type of test encourages continuous improvement, is useful as a performance predictor, predicts more accurately, does not show biases and is not influenced by the teacher's advice, and finally, provides the possibility of proposing remedial measures. . In addition,

In recent decades, the number of standardized tests and the amount of information on student educational performance has increased. Despite the discussion regarding its relevance, research on the subject explains its validity. Kim, YL, & Lee, J. (2012), show two successful cases in Korean schools, which successfully respond to their objective of obtaining good scores on standardized tests and yet manage to maintain diverse and creative curricula for a comprehensive education. . On the other hand, Beuchert, L., Eriksen, TLM, & Krægpøth, MV (2020) state that it is economists who often argue in favor of systematic standardized tests as tools to facilitate better learning and academic performance, while other researchers (mainly in psychology and education) argue that tests decrease students' motivation to learn, especially among low-achieving students. However, in the results of their study, they show that the implementation of the tests improves the future academic performance of students regardless of their location in the performance distribution. Likewise, Im, H., Kwon, KA, Jeon, HJ, & McGuire, P. (2020) recently published the positive effects of students undergoing this type of test; the benefits also extend to teachers, educational policy makers and researchers. especially among low-achieving students. However, in the results of their study, they show that the implementation of the tests improves the future academic performance of students regardless of their location in the performance distribution. Likewise, Im, H., Kwon, KA, Jeon, HJ, & McGuire, P. (2020) recently published the positive effects of students undergoing this type of test; the benefits also extend to teachers, educational policy makers and researchers. especially among low-achieving students. However, in the results of their study, they show that the implementation of the tests improves the future academic performance of students regardless of their location in the performance distribution. Likewise, Im, H., Kwon, KA, Jeon, HJ, & McGuire, P. (2020) recently published the positive effects of students undergoing this type of test; the benefits also extend to teachers, educational policy makers and researchers. H., Kwon, KA, Jeon, HJ, & McGuire, P. (2020) recently published the positive effects of students taking this type of test; the benefits also extend to teachers, educational policy makers and researchers. H., Kwon, KA, Jeon, HJ, & McGuire, P. (2020) recently published the positive effects of students taking this type of test; the benefits also extend to teachers, educational policy makers and researchers.

Other recent studies in relation to standardized tests correspond to works that focus on the construction, improvement and implementation of tests. Crescentini, A., & Zanolla, G. (2014) published a study on the construction of tests to assess mathematical skills. Suwatthiponga, C., Thangkabutaa, T., & Lawthongb, N. (2015) for their part, disclosed a model for construction of tests by means of computer. Garcia Laborda, J. (2015) worked on the standardization of language tests. Finally, Blackford, B., & Shi, T. (2015) showed the relationship between a business simulation strategy and the results in standardized tests.

Hours of direct teaching and hours of autonomous work

Direct teaching hours and independent work are directly linked to the notion of academic credit. Restrepo (2005) endorses its origin to Harvard University. Scientific and technological development, access to information, specialization and linkage of knowledge and the new world context defined as a global village, require higher education institutions to respond appropriately for this new mass of much more critical and independent students. . The credit system is a mechanism created to help universities in this purpose.

It was implemented in Europe in the last two decades of the previous century and its initial priority was to respond to the transfer of students. In Latin America and the Caribbean, the rise of internationalization began in the 1990s and, together with the diversification of educational modalities, marked university flexibility; It is in this context that the credit system gains strength. For Colombia, the process begins with the approval of Law 30 of 1992 through the creation of the National Accreditation System that enables subsequent advances in relation to the credit system. Throughout the decade,

Finally, in Colombia, Decree 808 was signed in 2002, which established academic credit as a mechanism for quality evaluation, student transfer, and inter-institutional cooperation, and was followed by Decree 2566 of 2003, which established the minimum quality conditions for programs. academics. The decree indicates that a credit is made up of 48 hours of academic work, this includes hours of direct guidance from the teacher and hours of independent work. Although the decree establishes two hours of independent work for every hour of face-to-face work in undergraduate programs, it also indicates that this proportion may be different under the autonomy of the universities.

The background of the comprehensive credit system is oriented towards the search for quality, "it implies institutional and cultural adaptations that generate an educational environment focused on learning and the responsibility of the actors" (Rodríguez, 2015). Doubts arise about how articulated the credit system of higher education institutions in Colombia is with the cultural and socioeconomic context of the student population.

On the efficiency of the hours of independent work, there are no known studies for the Colombian case. There are some Spanish studies (Palou and Montaña, 2008, Sánchez and others, 2008, Cernuda and others, 2005, Gisbert and others, 2015), most of them published in the period immediately following the implementation of the credit system in Europe where it is stated that the hours of independent work are overvalued and that it is difficult to achieve the learning objectives if a directed effort is not made to establish methodologies that account for the autonomous work of the students.

Other international studies show the importance of the teacher's accompaniment hours in the development of professional skills. One of these is the work presented by Caner, M. (2010) in which he expresses that the teacher's accompaniment improves the teaching practice in education students. On the other hand, Bennett, MP, Lovan, S., Hager, K., Canonica, L., & Taylor, B. (2018) show how a one-hour teaching intervention can improve nursing care for patients in the final stage of his life. The study concludes that students need help to recognize the correct answer for the patient.

At the same time, papers have been published in which the importance of the hours of direct accompaniment by the teacher for the development of academic competences is confirmed, additionally, they explain that the trend of decreasing hours of direct teaching has not improved student performance. Ngesi, N., Landa, N., Madikiza, N., Cekiso, MP, Tshotsho, B., & Walters, LM (2018) confirm that increasing contact hours with the teacher through mobile phones improves teacher skills. language in students from South Africa. Kinnari-Korpela, H. (2015) shows that currently, the resource of direct contact time with the teacher for the development of mathematical skills is insufficient, and that a more personalized contact is also needed. On the other hand, Brožová, H., & Rydval, J. (2014) analyze the decrease in learning results obtained in the subject of Mathematics Applied to Computer Science and within the discussion they also state that one of the variables that can generate this worsening is the decrease in seminar hours. Finally, Dzvapatsva, GP, Mitrovic, Z., & Dietrich, AD (2014) expose the challenge faced by Information Technology teachers in South Africa due to the lack of adequate contact hours for the course; Based on the use of strategies for autonomous work, they confirm that the reduction in hours works if there is an adequate context for independent work; this idea is also exposed by Solovova, EN (2013). Finally, Dzvapatsva, GP, Mitrovic, Z., & Dietrich, AD (2014) expose the challenge faced by Information Technology teachers in South Africa due to the lack of adequate contact hours for the course; Based on the use of strategies for autonomous

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METHODOLOGY

The study carried out corresponds to an experimental investigation, it evaluates the performance in the Fundamentals of Accounting subject with respect to the effect produced by the implementation of a new curricular strategy made up of two aspects, firstly the increase in the number of hours of direct teaching, secondly, the application of a standardized test-objective, all of the above to evaluate the best apprehension of the accounting competence in the students of the first accounting course at the Instituto Tecnológico Metropolitano ITM.

For this analysis, a diagnostic test was carried out for the students who finished the Fundamentals of Accounting subject in the first class session of the Resource Accounting subject (second year of accounting), and a second test with the second cohort of students who They also completed the Fundamentals of Accounting subject after being submitted to the new curricular strategy and starting the Accounting of Resources subject.

Curriculum strategy

Increase in direct teaching time for the Fundamentals of Accounting course in the Technology in Cost Analysis and Budgets program.

With the purpose of strengthening accounting competence and within the framework of a curricular redesign process, as of 2019, the first accounting course of the program presents the following change:

Table 1 Curriculum strategy.

Lógica Contable			Fundamentos de Contabilidad		
3	6	3	4	5	3
48	96		64	80	

Source: self made.

- The name change is due to the approval with the same course in the public accounting program.
- The number of credits stays the same – three credits (bottom right box).
- The hours of direct accompaniment by the teacher increase from three hours a week and 48 semesters to four hours a week and 64 semesters (boxes on the left).
- The hours of independent work decreased from six hours per week and 96 semesters to five hours per week and 80 semesters (central boxes).

1. Implementation of a standardized objective test

The Fundamentals of Accounting course states as a competence that, at the end of the course, the student must "develop the basic accounting process within the Colombian business context, considering the fundamental concepts of the accounting discipline and the current regulatory frameworks" (ITM, 2019). . To achieve the competition, four thematic units are proposed as follows: 1) the company, 2) accounting, 3) financial statements and 4) the accounting cycle. The first three units are mostly of a conceptual type and the last one is more procedurally oriented. Logically, these procedures are developed from the understanding and clarity of the conceptual structure. Thus, a standardized objective test was implemented once the first three thematic units were completed.

The test was structured as follows:

- At the beginning of the semester, the teachers of each of the Fundamentals of Accounting courses were informed about the scope of the test and they in turn communicated it to their students.
- A bank of multiple-choice questions with a single answer was prepared based on each of the performance indicators established in the curricular microdesign.
- For each of the performance indicators, from six to 18 questions were prepared in order to randomly choose from one to three questions per indicator for each evaluated (see table 1), this guarantees that students are evaluated in all categories and with the same criteria given that they must carry out the same tasks from different questions while safeguarding their integrity.
- The question bank was collected on the Moodle platform and reviewed by a thematic expert and a methodological expert.
- All student groups took the assessment in B-Learning rooms in a scheduled time of 70 minutes in total.

Table 2 Distribution of questions by performance indicator.

Main theme	Yo						II								II						TOTAL
	ID1	ID2	ID3	ID4	ID5	ID6	ID1	ID2	ID3	ID4	ID5	ID6	ID7	ID8	ID1	ID2	ID3	ID4	ID5	ID6	
perfor- mance indi- cator																					
total built	6	6	6	6	6	6	6	6	6	6	6	18	6	12	12	6	6	6	7	6	145
Total per exam	one	one	one	one	one	one	one	one	one	one	one	3	one	2	2	one	one	one	one	one	24

Source: self made.

Analysis of the results of the two cohorts

The performance of the students is measured by means of a qualitative scale, of five positions, with which a comparative analysis between cohorts was carried out, for five variables: 1) Recognition of the elements and accounts for the elaboration of the statement of results -REER , 2) Identification of the elements and accounts for the preparation of the statement of financial position- ICESF, 3) Understanding of the principle of duality -PD, 4) Preparation of the income statement- EER and 5) Preparation of the statement of financial position EESF.

Data analysis

In order to find changes between the two cohorts, we proceed to analyze the data collected in the standardized tests through frequency analysis, this due to the quality of categorical variables that prevent further statistical relationships. In this way, it is intended to support the problematizing question which, in this case, is based on the following hypotheses:

*Ho:*The students of the second cohort of the first accounting course do not have a better performance in the identified variables.

H1: The students of the second cohort of the first accounting course have a better performance in the identified variables.

Through the frequency analysis, it will be possible to identify if there were significant changes between the two periods evaluated, 2019-2 without the implementation of the strategy and 2020-1 with the implementation. The analyzes were supported by the statistical software SPSS from IBM, and the methodologies described in(Visauta Vinacua, 1997), for this simple and crossed frequency tables were used. When the test instrument was developed,

the evaluation scale described above was implemented, so that the data take on a nominal characteristic, for which the transformation of the variables was carried out on a scale of 1 to 5, as shown in the *Table 3*.

Table 3 Rescaling of the values of the categorical variables.

Variable values	Scale
with all concepts	5
With most concepts	4
Partially	3
With very few concepts	2
in no way	one

Source: self made.

RESULTS

In the first analysis of the variables, some of the descriptive statistics that can provide general information about the behavior of the variables were taken. Table 4 shows the descriptive statistics of the 2019-2 group, which is assumed as the control group, and the descriptive statistics of the 2020-1 group on which the treatment was applied.

Table 4 Descriptive statistics of the variables.

2019 -2		REER	ICESF	P.S.	ERE	EESF
No.	Valid	296	296	296	296	296
	lost	0	0	0	0	0
Half		<u>2.7162</u>	<u>2.6757</u>	<u>2.3345</u>	<u>2.1351</u>	<u>2.0608</u>
Standard error of the mean		.10209	.09444	.08901	.08724	.08392
Median		2,0000	2,0000	2,0000	1,0000	1,0000
Fashion		<u>1.00</u>	<u>1.00</u>	<u>1.00</u>	<u>1.00</u>	<u>1.00</u>
2020-1		REER	ICESF	P.S.	ERE	EESF
No.	Valid	242	242	242	242	242
	lost	0	0	0	0	0
Half		<u>3.4835</u>	<u>3.3636</u>	<u>2.9669</u>	<u>2.9876</u>	<u>2.8595</u>
Standard error of the mean		.11037	.10294	.10603	.11660	.10965
Median		4,5000	4,0000	3,0000	3,0000	3,0000
Fashion		<u>5.00</u>	<u>5.00</u>	<u>5.00</u>	<u>1.00</u>	<u>1.00</u>

Source: self made.

To test whether the strategy has a significant effect on the means of each variable, t-tests for comparison of means are performed. The statistic used is the following:

Table 5 test resultst for comparison of means.

	REER	ICESF	P.S.	ERE	EESF
Statistical	-5,092	-7,259	-2,149	-5,965	-6,277
p-value	0,000	0,000	0.032	0,000	0,000

Source: self made.

Table 5 presents the results of the hypothesis test that compares the mean of the control group and the mean of the treatment group for the five variables analyzed. For the REER, ICESF, EER and EESF variables, the null hypothesis is rejected, therefore, it is accepted that there is a significant effect on the means. For the PD variable, the significant difference is accepted only for significance levels of 5% or higher.

In order to identify those variables in which low performance is still evident, an individual analysis of the percentages of each one of the cohorts was carried out, and the percentage changes between the two periods evaluated were identified for each of them. The

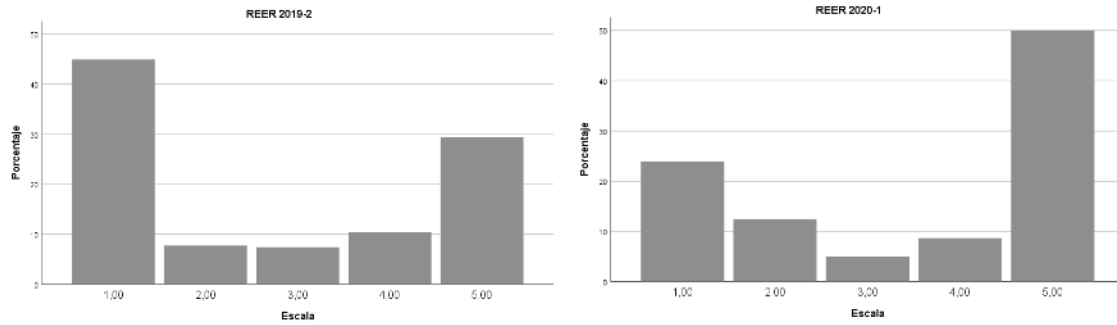


Figure 1. Percentage by assessment of Recognition of elements for the preparation of the income statement., shows the improvement in the results of this variable, between the periods. It is observed that, between 2019-2 and 2020-1, rating 1, that is, -In no concept- that exceeded 40%, dropped to 24% and rating 5 -With all concepts- went from a 29.4% to 50%.

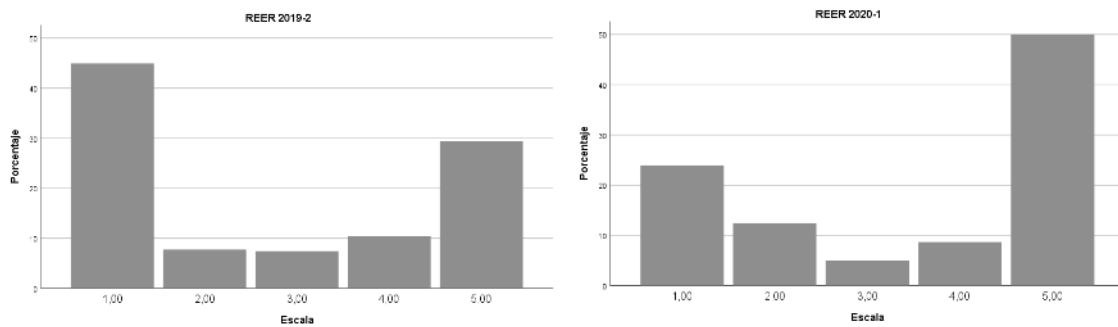


Figure 1. Percentage by assessment of Recognition of elements for the preparation of the income statement.

Source: self made.

For its part, the ICEFS variable also presents an improvement between the extreme assessment scales, in which

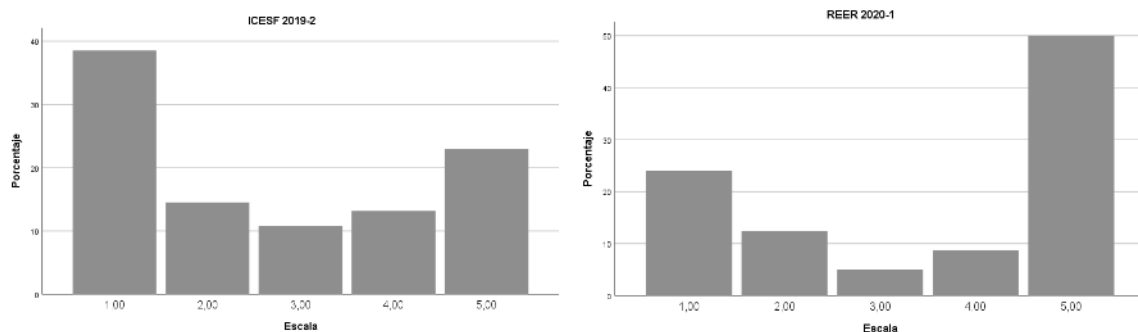


Figure 1, a situation similar to that evidenced in the REER variable is presented, where the percentage of students who were valued as -in no way- for 2019-2 it was 38.5% and in 2020-1 it went to 20.2%, and with respect to the assessment scale 5 -with all concepts- an improvement is evident from 23% in 2019-2 to 50% in 2020-1.

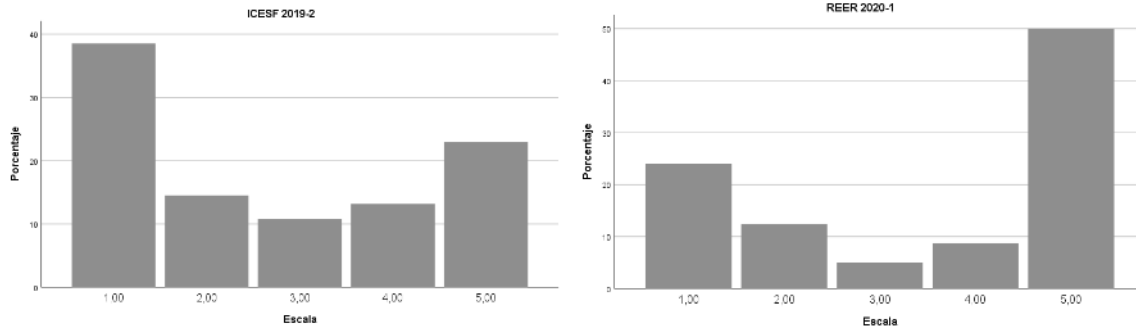


Figure1. Percentage Identification of the accounts for the preparation of the statement of financial position, by valuation scale.

Source: self made.

Regarding the PD variable, the changes that are evident between the two periods evaluated, for scales 2 to 4, are not notable, because they are less than 10%; however, for scale 1 and 5 there are changes of -15.4% and 14.3%. They show a reduction in bad evaluations and an increase in the best ones. Figure 3 shows the changes for the scales described.

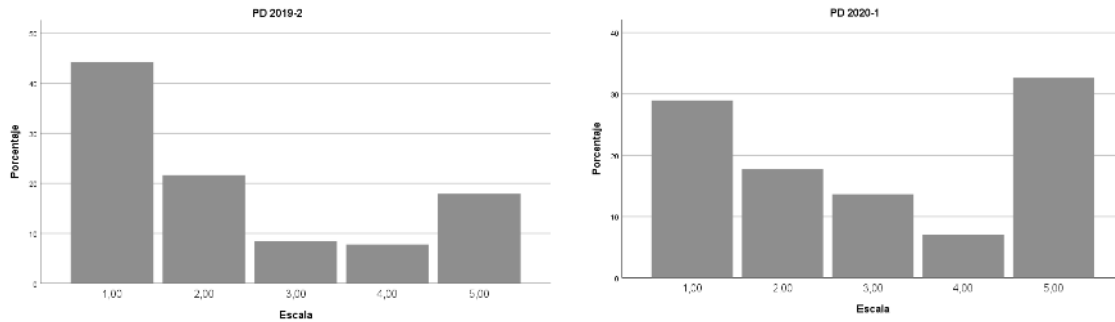


Figure2. Percentage Principle of Duality by assessment scale.

Source: self made.

In the variables of preparation of financial statements, improvements are also observed in the global percentages; Likewise, a high percentage is maintained in scale 1, however, the improvement is evident in scale 5 for the EER variable (**Error! Reference source not found.**(a) and (b)) where the percentages go from 13.2% to 38% between the periods evaluated, in addition, assessment scale 1 has a reduction of 15.7%, while the other scales Intermediate valuation values, like the previous variables, remain without significant changes. For the EESF variable (**Error! Reference source not found.**(c) and (d)), a similar reduction behavior is observed in scale 1, and an increase of 19% in scale 5.

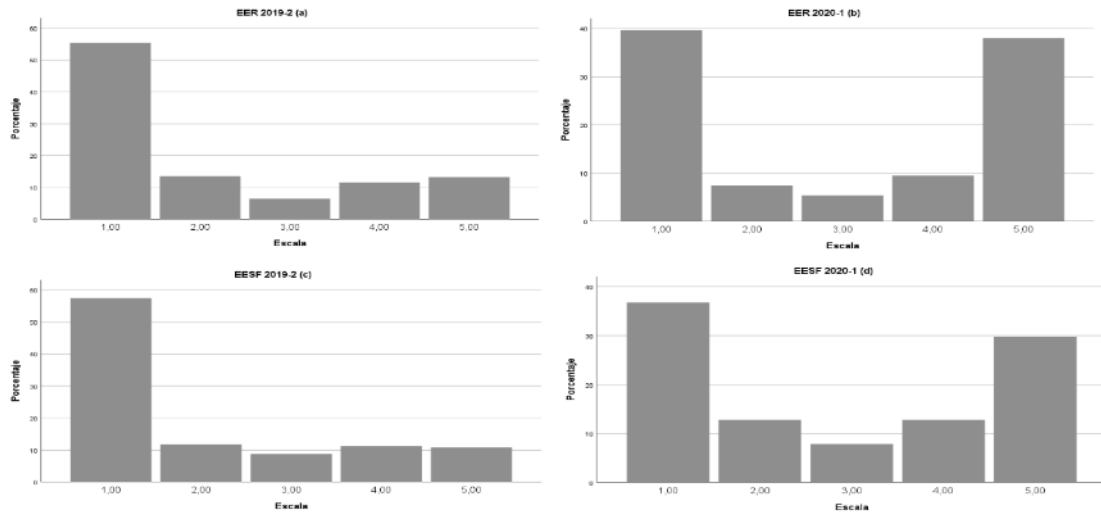


Figure 4. Percentages for the variables "Preparation of the income statement" and "Preparation of the financial situation statement", by valuation scale.

Source: self made.

In order to go into the detail of the relationship between the variables, the comparative analysis of frequencies between the variables that theoretically can be related is carried out, the Table 6 shows the relationship between the assessment scales of the REER and EER variables; because if the student recognizes the elements, the possibility of constructing an income statement correctly could be greater; which is evident for both the 2019-2 and 2020-1 periods, where it is observed that 81% of the people who did not respond well to the recognition of the elements were not able to adequately construct the income statement, similarly for In the 2020-2 period, 60% of the students who did not recognize elements did not build the results statement either, and of those who did, 98% were able to build it, additionally the improvement is seen in the reduction of 21 % on scale 1; for scale 5 there are 98% of people who recognize and build the income statement.

Table 6

Cross table, between the variables "Recognition of the elements for the preparation of the Income statement" and "Preparation of the income statement".

REER*EER crosstab													
2019-2							2020-2						
		ERE					Total	ERE					Total
		one	2	3	4	5		one	2	3	4	5	
REER	Count	133	0	0	0	0	133	58	0	0	0	0	58
	% within REE	100%	0%	0%	0%	0%	100%	100%	0%	0%	0%	0%	100%
	% within EER	<u>81%</u>	0%	0%	0%	0%	Four. Five%	<u>60%</u>	0%	0%	0%	0%	24%
	% of the total	Four. Five%	0%	0%	0%	0%	Four. Five%	24%	0%	0%	0%	0%	24%

REER*EER crosstab														
2019-2							2020-2							
	Count	ERE					Total		ERE					Total
		one	2	3	4	5	one		2	3	4	5		
2	Count	18	4	one	0	0	23		25	5	0	0	0	30
	% within REER	78%	17%	4%	0%	<u>0%</u>	100%		83%	17%	0%	0%	<u>0%</u>	100%
	% within EER	eleven%	10%	5%	0%	<u>0%</u>	8%		26%	28%	0%	0%	<u>0%</u>	12%
	% of the total	6%	one%	0%	0%	<u>0%</u>	8%		10%	2%	0%	0%	<u>0%</u>	12%
3	Count	5	12	5	0	<u>0</u>	22		5	4	3	0	<u>0</u>	12
	% within REER	23%	55%	23%	0%	<u>0%</u>	100%		42%	33%	25%	0%	<u>0%</u>	100%
	% within EER	3%	30%	26%	0%	<u>0%</u>	7%		5%	22%	23%	0%	<u>0%</u>	5%
	% of the total	2%	4%	2%	0%	<u>0%</u>	7%		2%	2%	one%	0%	<u>0%</u>	5%
4	Count	one	9	10	eleven	<u>0</u>	31		5	2	7	5	<u>2</u>	twenty-one
	% within REER	3%	29%	32%	36%	<u>0%</u>	100%		24%	10%	33%	24%	<u>10%</u>	100%
	% within EER	one%	23%	53%	32%	<u>0%</u>	eleven%		5%	eleven%	54%	22%	<u>2%</u>	9%
	% of the total	0%	3%	3%	4%	<u>0%</u>	eleven%		2%	one%	3%	2%	<u>one%</u>	9%
5	Count	7	fifteen	3	23	39	87		3	7	3	18	<u>90</u>	121
	% within REER	8%	17%	3%	26%	Four. Five%	100%		3%	6%	3%	fifteen%	<u>74%</u>	100%

REER*EER crosstab														
2019-2							2020-2							
	ERE	one	2	3	4	5	Total	ERE	one	2	3	4	5	Total
% within EER		<u>4%</u>	<u>38%</u>	<u>16%</u>	<u>68%</u>	<u>100%</u>	<u>29%</u>		<u>3%</u>	<u>39%</u>	<u>23%</u>	<u>78%</u>	<u>98%</u>	fifty%
% of the total		2%	5%	one %	8%	13%	29%		one %	3%	one %	7%	<u>37%</u>	fifty%
Count		164	40	19	3.4	39	296		96	18	13	23	92	242
% within REER		55%	14%	6%	12%	13%	100%		40%	7%	5%	10%	38%	100%
% within EER		100%	100%	100%	100%	100%	100%		100%	100%	100%	100%	100%	100%
% of the total		55%	14%	6%	12%	13%	100%		40%	7%	5%	10%	38%	100%
Total														

Source: self made

With an analysis similar to the one exposed, the ICESF and EESF variables were crossed, in this case, the results of the Table 7 once again support the existing relationship between the identification of the accounts and the components of the financial statement and its preparation, since by 2019-2 100% of the people who responded adequately to the identification of the accounts also correctly constructed the statement of the financial situation and of those that did not, only 66% did not build it. And for 2020-1 the situation remains similar without finding significant improvements. What does stand out are the increases in the percentages of the intermediate scales, although after the implementation of the strategy the changes between the extreme scales are not were high, improvements can be observed for the intermediate scales.

Table 7 Cross table between the variables "Identification of the accounts of the financial situation statement" and the "Preparation of the financial situation statement".

ICESF*EESF crosstab														
2019-2							2020-1							
	EESF	one	2	3	4	5	Total	EESF	one	2	3	4	5	Total
% within		98%	2%	0%	0%	0%	100%		100%	0%	0%	0%	0%	100%

ICESF*EESF crosstab													
2019-2							2020-1						
	EESF					Total	EESF					Total	
	one	2	3	4	5		one	2	3	4	5		
ICEER	% within EESF	<u>66%</u>	6%	0%	0%	0%	39%	<u>55%</u>	0%	0%	0%	0%	twenty%
	% of the total	38%	one%	0%	0%	0%	39%	twenty%	0%	0%	0%	0%	twenty%
2	Count	31	12	0	0	0	43	27	12	0	0	0	39
	% within ICEER	72%	28%	0%	0%	<u>0%</u>	100%	69%	31%	0%	0%	<u>0%</u>	100%
2	% within EESF	18%	3.4%	0%	0%	<u>0%</u>	fifteen%	30%	39%	0%	0%	<u>0%</u>	16%
	% of the total	elevn%	4%	0%	0%	<u>0%</u>	fifteen%	elevn%	5%	0%	0%	<u>0%</u>	16%
3	Count	fifteen	13	4	0	<u>0</u>	32	7	14	3	0	<u>0</u>	24
	% within ICEER	47%	41%	13%	0%	<u>0%</u>	100%	29%	58%	13%	0%	<u>0%</u>	100%
3	% within EESF	9%	37%	fifteen%	0%	<u>0%</u>	elevn%	8%	Four Five%	16%	0%	<u>0%</u>	10%
	% of the total	5%	4%	one%	0%	<u>0%</u>	elevn%	3%	6%	one%	0%	<u>0%</u>	10%
4	Count	6	6	twenty-one	6	<u>0</u>	39	3	3	14	14	<u>one</u>	35
	% within ICEER	fifteen%	fifteen%	54%	fifteen%	<u>0%</u>	100%	9%	9%	40%	40%	<u>3%</u>	100%

ICESF*EESF crosstab													
2019-2							2020-1						
		EESF					Total	EESF					Total
		one	2	3	4	5		one	2	3	4	5	
5	% within EESF	4%	17%	81%	18%	<u>0%</u>	13%	3%	10%	74%	Four . Five %	<u>one %</u>	fifteen%
	% of the total	2%	2%	7%	2%	<u>0%</u>	13%	one%	one %	6%	6%	<u>0%</u>	fifteen%
	Count	6	2	one	27	<u>32</u>	68	3	2	2	17	<u>71</u>	95
	% within ICEER	9%	3%	2%	40%	<u>47%</u>	100%	3%	2%	2%	18%	<u>75 %</u>	100%
	% within EESF	4%	6%	4%	82%	<u>100%</u>	23%	3%	7%	eleven %	55%	<u>99 %</u>	39%
	% of the total	2%	<u>one %</u>	<u>0%</u>	9%	<u>eleven %</u>	23%	one%	<u>one %</u>	<u>one%</u>	7%	<u>29 %</u>	39%
Total	Count	170	35	26	33	32	296	89	31	19	31	72	242
	% within ICEER	57%	12%	9%	eleven %	eleven %	100%	37%	13%	8%	13%	30%	100%
	% within EESF	100%	100 %	100%	100%	100%	100%	100%	100 %	100%	100 %	100 %	100%
	% of the total	57%	12%	9%	eleven %	eleven %	100%	37%	13%	8%	13%	30%	100%

Source: self made.

CONCLUSIONS

The study shows a specific low performance in the development of the competence of the students who have completed the first accounting course, manifested in the difficulty to identify the elements and the preparation of the income statement and the statement of the financial situation, likewise, in the lack of clarity of the principle of duality. However, it is evident that the implementation of a new curricular strategy supported by the increase

in direct teaching hours and the implementation of a standardized exam, has a positive impact on the acquisition of competence in the Fundamentals of Accounting subject.

This article shows that the accompaniment and advice of the teacher are important for the improvement of the performance of the students in the acquisition of the basic accounting competence and, as a consequence, in the improvement of their professional competences, thus providing empirical support to the work carried out by Caner, M. (2010), Bennett, MP, Lovan, S., Hager, K., Canonica, L., & Taylor, B. (2018) and Ngesi, N., Landa, N., Madikiza, N., Cekiso, MP, Tshotsho, B., & Walters, LM (2018).

On the other hand, it is necessary to underline that it has been the application of standardized tests that has allowed to identify the problem of low performance of the students of the first course of accounting and the subsequent treatment and analysis of the results presented in this work. Obviously, this is one of the benefits that can be obtained through the use of these evaluation instruments, while its systematic application also generates positive effects on academic performance.

This implies that those in charge of educational policies should review in greater detail the benefits of standardized tests, not only as an accountability mechanism but as instruments that allow the collection of context information (process) in a much more efficient way for the decision making and curriculum intervention.

One of the products derived from this work, which arises to support teachers and students of the Fundamentals of Accounting course, is the new academic text Taking Notes. Accounting Logic (Pacheco and Sánchez, 2020); The text is nourished by the problems evidenced in the study in order to deliver a new proposal for the development of basic accounting skills, based on the deductive method.

It is necessary to review other aspects such as didactics, support in ICT strategies for the optimization of autonomous work, the motivational capacity of the teacher and the commitment of the students in the classroom, as elements that also affect learning and are not reviewed in this investigation, which remain as aspects for a second phase of investigation.

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BIOGRAPHY



Diana Pacheco is a university professor in the areas of Accounting and Financial Mathematics. She has a degree in education, is a Public Accountant, a specialist in Finance and a Master's in Mathematics Teaching. She has worked for more than 10 years in activities related to the improvement of teaching and learning processes and performance evaluation issues. She is an International Financial Reporting Standards Advisor, certified by the Association of Chartered Certified Accountants based in London.



Daniel Alberto Grajales Gaviria Experience in the educational system in the analysis of micro curricula, group management, support in the formulation of training projects, experience as a professor in higher education institutions. Experience as a research professor in the university institution ESCOLME and in the Instituto Tecnológico Metropolitano ITM, leader in research processes and formation of university research groups. Teaching experience in postgraduate seminars such as Risk Management and Financial Risk Management. Experience in the evaluation of the institutional educational project (PEI) at university level and in the relevance and coherence of the curriculum.



Natalia María Acevedo Prins. holds a Bachelor of Engineering (B.Eng.) in Administrative Engineering, Master of Science (M.Sc.) in Industrial Engineering, and doctoral candidate in System Engineering. Currently, she is Associated Professor at the Universidad de Antioquia (UdeA), Medellín, Colombia. She can be contacted at email: natalia.acevedop@udea.edu.co



Orlando Carmelo Castellanos Polo. Public Accountant; with emphasis in Statutory Auditing, Internal Auditing, External Auditing, Financial Analysis, Taxation, Office Administration, and External Audit, Financial Analysis, Taxation, Office Administration, personnel management and University personnel management and university teaching. With high experience in Auditing and Accounting under IFRS (IFRS), evaluation of controls and procedures, Integral advisories to companies and team work.