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The Impact Of The Calibration Judgements On Approach To Learning In Virtual Environments

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Abstract

E-learning gives students challenges inherent to the system which are reflected in the way these equate learning tasks. In this system, students need greater self-orientation and self-regulation to achieve their academic goals. Calibration is a measure of the relationship between the degree of confidence in the performance and accuracy in the same. This study aims to identify the association between the degree of calibration and a real grade in a evaluative task and analyse the causes given by students to their real grade and implications for their learning future. The participation of 62 undergraduate distance learning students of both sexes, with continuous evaluation, occurred in three specific times. After they know their results, they indicated the implications of this exercise according to how close, or not, they were from the real grade.The results point to a positive correlation between the ratings given by the students after completion of the test and its real grade. The content analysis revealed the existence of two categories - Causality and Consequences. Self-orientation for general or specific objectives, by students, is extremely important. This importance is increased when we are in online contexts where the emphasis is on students as they are responsible for their own learning process. To lead students to reflect on their learning strategy and to adequate their metacognitive strategies to achieve success in the task takes on great relevance.

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Keywords: Learning, calibration, metacognition, e-learning; adult learners;

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1. Main text

E-learning has inherent pedagogical and didactic changes, not only in the form of presenting the content, but also in how teachers position themselves according to their group / class. These changes also occur on the side of the student. The flexibility of time and space preconized by an online learning system requires structuring the contents to learn in a way that allows students to be autonomous in their learning. This autonomy implies self-control of learners' time and self-awareness of their way to position themselves in relation to learning tasks so they can achieve success. In the work presented, the focus will be on the side of the learner. We will seek to understand how the calibration task can help students to understand their learning process in a very particular system, as is the case of virtual learning spaces.

1.1. The e-learning: new learning scenarios

E-learning took form with the development of information and communication technologies. These have enabled new learning scenarios to earn their space - the virtual learning environments. This development and adherence to these scenarios was due to the successive changes in societies and the implications that this brings to grow the need for rapid and constant updating of knowledge and competencies.

E-learning allows students anywhere and anytime in the world to access the contents of their education and develop their work and their learning independently. These environments allow the adoption of different formats as a support to learning. For these virtual learning environments become real learning spaces is necessary that the strategies and proposed tasks are designed according to the different styles and approaches to learning of students who recourse to it. Teachers in this education system should have a role of facilitator of learning and of the interactions with the various participants in a particular virtual class. This facilitator role may be, for example, in how the teacher conceives formative tasks to enable the student to find the way that is most "comfortable" for the acquisition of underlying content [1]..

In all this transformation three key concepts to these virtual environments arise: adaptability, mobility and cooperation [2]. The student finds in this format a bigger flexibility, which allows them to reach goals that they couldn't reach in another way. The acquisitions are placed in different levels: At formal knowledge level and at personal level, in the last case, with the development of autonomy, of critical sense and of collaborative work.

The research work of Azevedo & Cromley (2004) [3] points to the implications the design of virtual learning environments has for the acquisition of knowledge. It follows, on one hand, the need of teachers being aware of this situation and look to train their students so they regulate their learning. On the other hand, at the environments' designers level so they conceive structures that allow students to proceed to their learning self-regulation. These capacities correspond to the development of metacognitive activities [4].

1.2. Brief review of the concept of calibration

The self-knowledge, the ability to reflect on your learning process, defining learning objectives, as well as the ability to develop a plan of self-regulation to achieve them are extremely important to achieve academic success. [5]. The understanding of learning activities and processes associated promotes understanding, retention and transfer of learning. The concept of metacognition, points to two poles: The knowledge about cognition and products of cognition and, also, metacognitive skills. Thus, the definition of metacognition not only covers the awareness of the processes of the learner, as well as the deliberate and conscious control of them.

Through the monitoring, the learner can check how their plans become actions and through introspection, which make to their achievements, learners can perceive discrepancies between what were their goals and objectives and what actually exists. The dynamics brought into play between monitoring and control can be illustrated by what is called *calibration*. This can be defined as a measure of the relationship between the degree of confidence in the performance and accuracy of the same [6].

The calibration plays an important role in the educational context. However, there are some factors that affect this meta-understanding. These include over-confidence or lack of confidence of the learner. While in the first case there may be a disinvestment by the student in the learning task, because they assume that they already know and so they do not need to pay much attention. In the second situation, the student may invest excessive time in the analysis of certain subjects / texts, without helping to understand the content and, therefore, to contribute to a better

performance.

1. Purpose of Study

This study aims to
a) identify the association between the degree of calibration and a real grade in an evaluative task
b) analyse the causes given by students to their real grade and implications for their learning future

2. Research Methods

2.1. Sample

The sample was a total of 62 undergraduate distance-learning students. They frequent the 3rd year of the degree in Education. About the gender of the subjects, 19,4% were male and 80,6% female. Their ages were between 26 and 54 years old, the average age is 47,8 years old.

2.2. Instruments

For data collection we built three small questionnaires. The first collected data was prior to the assessment test; the second data collection was immediately after the completion of the assessment test. The third data collection was made after the output of the results of the assessment test. The questionnaires were constructed in the virtual classroom.

2.3. Proceeding

The data was collected in the course of Senior Population: Problems and Prospects for Intervention.

Before starting, the study was placed with a message in the "News" forum about the purpose of the investigation and requesting the participation of the students. Whenever the device for collecting data was available was placed new message requesting the response of students.

The data collection was done in three stages. Before completing the assessment test was provided information about the type of work being undertaken and students were asked to indicate what mark they expected to obtain (Predicted scores). Immediately after finishing the test was again asked to indicate the mark they expected to obtain (Postdicted Score). Finally, after the results came out was placed another question. Students were asked to indicate whether their marks, taking into account their prediction, were good, bad or regular. Furthermore, what would be the implications for their study method.

3. Results

After collecting the data, we found that the number of students who responded to the second part (postdicted) was higher than those who responded to the first part (predicted). Given the discrepancy between the data collected on the 1st and the 2nd moment, we have decided to put the focus of our study on data postdidect. Since the data obtained in postdidect does not have a normal distribution, we could not use this parameter to complete the missing data was so it was replaced by the average of the group.

- Paired Samples test : The test results obtained are shown in Table 1

Table 1. Paired samples test

Variable	Test	Value	df	Sig. (2-tailed)
<Postdidect><actual>	Paired sample test	2,697	61	.009

The result of the t test suggests that the observed difference is statistically significant for $\alpha = .009$ (bilateral). Figure

1 gives account of the distribution of students relatively to the classifications reported in postdidect values and actual values.

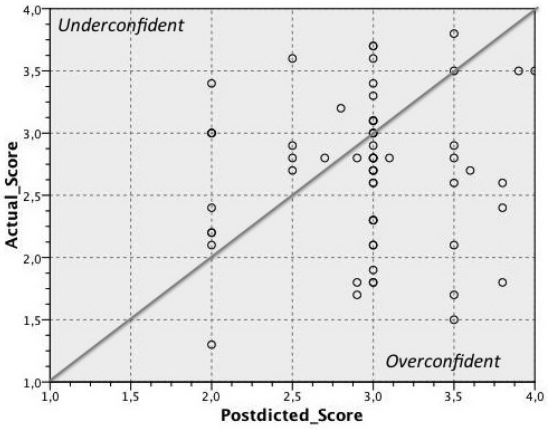

Fig.1. Actual scores vs postdidect scores

The diagonal line represents the ideal calibration. That is, the mark obtained corresponds to the mark that they self-reported. As also can be seen from Figure 1, the number of students who estimated rating values greater than the values obtained is high.

- The value of Pearson correlation coefficient (0.069) between postdidect scores and actual scores is not statistically significant, however, it is positive.
- The results of the regression are positive but not statistically significant.

Table 2. Regression values

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,065	,586		3,525	,001
	Postdidect	,026	,155	,022	,170	,866
	Sex	,019	,194	,013	,096	,923
	Age	,014	,010	,177	1,346	,184

a. Dependent Variable: Actual Scores

According to the results shown in Table 2, for each point in the scale Actual Scores, students estimated additional 0.022 points in the scale Postdidect. The same applies relatively to age and sex. To age, for each year older, students estimated 0,177 more points on the Postdidect scale. Finally, female students estimated over 0,013 points on the Postdidect scale.

The content analysis of the answers given by the students to the question after the results came out (actual scores) allowed us to establish the following categories and sub-categories, regardless of the dimension in question - Table 3

Table 3. Categories and sub-categories

Dimensions	Categories	Sub-categories
Good/ Regular / Bad	***Causality*** Statements related to the cause of the difference in scores	*Internal*
		External
	Consequences Statements related to the implications of this difference in terms of future	*Without consequences*
		Motivation
		Method

The analysis of the distribution of the records for the items lead us to the distribution as found in Table 4.

Table 4. Analyse of contend: n. of occurrences

Dimensions	Categories	Sub-categories	N. Occurrences
Good 21	*Causality* 7	*Internal*	5
		External	2
	Consequences 14	*Without consequences*	1
		Motivation	5
		Method	8
Regular 18	*Causality* 6	*Internal*	3
		External	3
	Consequences 12	*Without consequences*	5
		Motivation	2
		Method	5
Bad 26	*Causality* 14	*Internal*	6
		External	8
	Consequences 12	*Without consequences*	2
		Motivation	2
		Method	8

As we can see by the results presented, there are occurrences in all categories and sub-categories, independently of the dimension under analysis. However, we found that the focus on the dimensions Good and Regular is primarily on the consequences; in the dimension Bad occurrences are divided between the two categories, but there was an increase in the category Causality, sub-categories External.

4. Syntheses

Leading students to reflect on their learning strategy and tailor their metacognitive strategies to achieve success in the task is of great relevance [7] [8].

This importance is increased when we are in online contexts where the emphasis is on the student as they are responsible for their learning process. Self-orientation, for general or specific objectives, by students, is extremely important [9].

Calibration is a strategy to help students reflect on their learning process and thus adapt their working modes to their goals. Calibration is particularly important in the cycle of self-regulation, as the confidence that students have in their learning, expressed through their judgments, can help them to review their strategies and to understand why

they are not achieving success.

Thus, a self-regulated student is the one who can understand what he knows and what he does not know and can express it through his self-assessment [10].

The results obtained in our investigation do not allow us to find a strong association between self-assessment of students and their actual ratings. That is, the processes of self-regulation do not seem to be present when performing a specific task. This aspect may be related to the percentage of students who present a high degree of self-confidence in performing a specific task. As we said earlier, this high self-confidence may have implications in how the task is approached and how it is perceived. To reinforce this idea we found the results obtained through content analysis, the question related to how explain / justify the discrepancy between self -reported grade and real grade. Most justifications of Bad Dimension are in the category Causality with the sub-category external. That is, it seems to be here is a disclaimer on the causes and on the control of the learning process.

Our research will continue to deepen the knowledge about how these students, in online system, measure against the tasks of learning and assessment, and how it helps them to reflect on their processes of self-regulation and therefore achieve success.

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