COGNITIVE LOAD THEORY: LIMITING THE GAP BETWEEN ACADEMICS AND STUDENTS IN ACCOUNTING AND AUDITING

*Anne M. Garvey**
*José Antonio Gonzalo-Angulo***
*Laura Parte****

Abstract: The objective of this paper is to investigate if academics and students share similar cognitive structures in relation to the True and Fair View (TFV) concept, a complex accounting principle, which has no official definition and is open to interpretation and professional judgement. A survey method was used to obtain data for this study. The survey allows us to explore academics and students cognitive structures in order to discover differences and the reasons for the variances if any.

Our results show that academics and students do not share similar cognitive structures in three areas of interest: i) compliance with accounting rules and the fulfilment of True and Fair View, ii) the need to provide a written definition of True and Fair View, and iii) the interpretation of True and Fair View. The evidence can be interpreted due to the fact that academics and students tend to use different cognitive schemes in problem solving at least in complex concepts such as TFV. The evidence is supported by the cognitive load theory (CLT).

We believe that useful financial information can be improved by understanding these differences and by subsequently implementing criteria in order to reduce the gap between

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* *anne.garvey@uah.es, Universidad de Alcalá-Spain* (Corresponding author)
** *josea.gonzalo@uah.es, Universidad de Alcalá-Spain*
*** *lparte@cee.uned.es, Universidad Nacional de Educación a Distancia (UNED)-Spain*

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academics and students in the area of information comprehension and presentation with the use of schemes, improvement in educational material and other assistance in the application and interpretation of written standards.

Keywords: True and fair view; Complex concepts; Cognitive Load Theory; Academics; Students; Survey.

1. Introduction

The objective of this research is to discover if there is a difference in the perception of a complex accounting concept between students and their instructors. If the differences found can be justified by the different cognitive learning structures of the two groups and finally a proposal is made in order to reduce this gap as early as possible in the learning process.

Financial accounting statements are intended to show a true and fair view (TFV) of a reporting entity's financial position and profit or loss for a period. The TFV is considered a complex accounting concept because it requires the use of judgement and decision making by the professional applying it in practice. The TFV has no definition and was introduced into Spanish legislation after Spain's adhesion to the European Union. It has an override clause which adds to its difficulty, this means that accounting standards should be overridden if the TFV is not reached by applying them.

The cognitive load theory (CTL) provides an exceptional framework to explain the effectiveness in assimilating and understanding complex concepts. The theory explains how users need more cognitive load to acquire, process and understand the information when the task complexity increases and users are students or novices. The theory also argues that reducing the task complexity, the way the information is presented and the guides provided to solve the task, reduce students' cognitive load and makes the learning and understanding of the complex item easier.

This paper extends this line of research by providing evidence on how users deal with different degrees of complex accounting concepts in assimilation and decision processes. In an experiment with students and instructors as participants, we investigate how the perception and

understanding of TFV varies with the academic level and experience using the CLT framework. Consistent with this line of thinking, we explain the importance of how the financial accounting information is structured and presented to facilitate the formation of schemes in the working memory and improve the ability of understanding and processing complex information.

The evidence shows differences between the two groups and questions the reasons for these differences. The identification of variances between groups on the perception of complex accounting concepts is very important for several reasons. Firstly, it is imperative to know why there are differences between students and those educating them. We will refer here to the CLT which will explain these differences to a large extent. Secondly, it is important to minimize and understand these differences in order to improve the quality of financial information. Thirdly, it is beneficial for standard setters and audit firms to take into account the change in the perception of complex accounting concepts due to maturity and academic level in order to improve our accounting systems in the future. By understanding how the cognitive structures operate, it is possible to put into action methods and techniques in order to reduce these differences.

The rest of the paper is structured as follows. The conceptual framework is developed in Section 2. The survey design and the sample used in the study are explained in Section 3. The results are reported in Section 4. Finally, the conclusions and the implications for future research are discussed in Section 5.

2. Conceptual framework: the assimilation of complex concepts

2.1. The True and Fair View and the learning approach

The TFV concept has never been formally defined and many authors argue that a strict definition is not desirable. According to Garvey (2012) it not possible to offer guarantees and stability through a definition of TFV. However, the requirement that financial statements have to provide a TFV of the company's assets, liabilities,

financial position and profit or loss is contemplated in the IV European Directive and transferred to generally accepted accounting principles (or practices) in European local GAAP. The special characteristics attached to the TFV concept explain why accounting standard setters, professionals and academics have different opinions.

The above arguments justify that some authors consider the TFV as one of the most complex concepts in accounting (see e.g. Garvey et al., 2014). In this section we provide some explanations from educational, psychological and accounting studies with the intention of understanding better the difficulties of assimilating and understanding the TFV concept.

In the education field, some studies have focused on the connections between learning outcomes and learning approaches in higher education students (see e.g. Marton and Säljö, 1976; Trigwell and Prosser, 1991; Jackling, 2005). The literature distinguishes two learning approaches namely surface and deep approach. A surface approach is when students learn by rote to reproduce the content subsequently. A deep approach is when students seek the meaning to understand the concept (Marton and Säljö, 1976; Trigwell and Prosser, 1991).

In this context, we consider that the assimilation of TFV requires a deep learning approach to reach a good understanding of it and consequently, a correct application in practice. The accounting literature supports the above argument because several studies reveal that TFV is an accounting concept that requires a certain grade of expertise to correctly understand it. For example, Houghton (1987, 1988) considers that subjects with a level of knowledge or sophistication about accounting information exhibit a certain degree of cognitive complexity. When the author examines the meaning and interpretation of TFV by professional users (accountants and shareholders), the results show that both share different cognitive structures in the meaning of TFV (Houghton, 1987). It is also possible to find differences in the interpretation of TFV by non-professional users due to educational level and maturity (Garvey et al., 2014).

2.2. The Cognitive Load Theory

The CLT provides an interesting framework in our study. This psychological theory observes that the working memory of an individual has a limited capacity and the make-up of the cognitive load and the presentation of the information will affect an individual's understanding of it (Ginns, 2006; Ragland, 2016). According to the theory there are three groups of cognitive load: they are intrinsic load, extraneous load and lastly the germane load.

The intrinsic load is related to the complexity of the information to be understood. This area is affected by the nature and complexity of the subject matter and the individual's prior knowledge or experience of it (Kalyuga and Sweller, 2004). According to Van Gerven et al. (2000), Van Merrienboer and Sweller (2005), this load can be lowered only by an individual having more knowledge of the material or by reducing the complexity of the information in some way.

The second area is referred to as the extraneous load and centres on the presentation of the information. Depending on how information is presented will affect the capacity of an individual to understand and interpret it. This load can be reduced by presenting the information in ways that is easier to understand and interpret by users. In financial reporting the presentation of information should be given special attention in order to achieve the objective of financial information, which is to provide quality information which is effective for decision making.

The third section is called the germane load. This area of the cognitive structure is designed for knowledge acquisition. Here the data is processed, constructed and placed into schemes inside the memory. According to Kirschner (2002) the construction of suitable schemata is of upmost importance in dealing with complex concepts because they demand more effort to be assimilated.

We propose the freeing up of space in the working memory to improve the efficiency of information assimilation. By improving information presentation and including the data to be acquired into schemes we can free up space in the working memory and

this additional area can be used for a more efficient assimilation of the material. This would help to narrow the difference between the perception of complex accounting concepts between instructors and their students.

There are many previous studies providing evidence as to the effectiveness of using the knowledge acquired through CLT in redesigning the information to be acquired by individuals. For example, when CLT was used to restructure an introductory programming class taken by mechanical engineering students, an important positive impact was found on student's evaluation of teaching effectiveness and course satisfaction. In this case there was also an increase in examination complexity and number of assignments to be completed, however there was no significant difference in the grades obtained by students (Impelluso, 2009). Another example is the case of a Bavarian vocational school which used CLT in bookkeeping courses where an improvement in conceptual and procedural knowledge was noted (Stark, 2004).

There is also previous research which shows that where the complexity of the information increases then there is a consequential drop in the use of this information by decision makers (Earley, 1985; Plumlee, 2003).

As we are examining an area relating to financial accounting and auditing it is important to examine previous research in this area and also in the education psychology field where it can be observed that there are theories that indicate that the complexity of information and how that information is actually presented affects an individual's decision making and judgement capacity (Van Gerven et al., 2000; Maines and McDaniel, 2000; Van Merrienboer and Sweller, 2005; Libby and Emett, 2014; Alissa et al., 2014). There is also evidence which indicates that different mental strategies are used for obtaining solutions to problems depending on the expertise of the individuals involved, whether they are novices or experts (Simon and Simon, 1978; Larkin et al., 1980).

The CLT is based on psychology theory, however previous studies indicate that the findings in this area can be useful in the field of accounting and auditing. There is an absence of CLT in accounting research (Mostyn, 2012). If the overall objective of financial information is to provide useful information to be used for decision making purposes, then it would make sense to focus on advanced psychology research which could have a very important impact on that final goal.

The problem solving theory can also be an appropriate framework in our study. Daft and Macintosh (1981) explain that non-routine situations require greater information processing than routine situations. Also, routine situations are easier to analyse and summarize using quantitative information while non-routine situations require the use of qualitative information to be analysed, processed and summarized together with qualitative information.

The huge differences between educational level and degree of experience in the accounting field between the participants of our study (instructors and students) make the problem solving theory very interesting in our project. Students as inexpert users need to use all the knowledge learnt to find a solution to the problem. As Sweller (1988) explains, they evaluate the problem to be solved and go back by setting sub goals. Their mental schemes are in formation and consequently they need to apply all the knowledge learnt until they find the solution to the question which requires the use of huge amounts of memory space.

Instructors as qualified users present a different profile. Their high academic level and routines acquired to solve accounting problems during their professional career lead them to use different alternatives to find a solution. The accumulation of years of experience allows them to possess clear schemes in the Germane load section which are readily available for use to solve problems. These cognitive structures or schemes help individuals to classify the problem as belonging to a particular unit which then enables them to identify the solution to the case (Sweller, 1988).

3. Survey design and sample

This study is based on the primary data. We use a questionnaire designed to gather the understanding and perception of TFV by accounting students and academics. The survey was also reviewed by prestigious academics and researchers before its distribution. The questionnaire comprises three sections to assess the opinions of TFV by respondents:

- The distinction between the strict compliance with accounting rules and the fulfilment of True and Fair View.
- The need to provide a written definition of True and Fair View.
- The interpretation of True and Fair View.

The survey consisted of 15 closed-form questions. Participants were asked to mark their opinions on a 5-point Likert scale basis (1= strongly disagree; 5 = strongly agree). The survey was conducted between the years 2006 and 2008. The selection of the period is not arbitrary. The TFV was formally included into Spanish accounting legislation by the law 19/1989 on the 25 of July. The influence of mandatory TFV has been important in Spain since 1988 both in accounting/auditing practice. In 2007 Spain approved a new General Accounting Plan bringing it closer to the International Accounting Standards (IASB). Consequently, we use this unique transition period when the TFV is a rooted concept.

Responses were collected from two groups: non-professional users (accounting students) and professional users (accounting university teachers). Students filled out a paper version of the survey that was placed on their chairs. We used this approach in an attempt to obtain a large response rate. A total of 324 usable responses were obtained. The responses from academics were gathered through the most prestigious association of accounting university teachers in Spain (ASEPUC). They distributed the survey to the accounting teachers across the country. A total of 99 usable responses were obtained from all the Universities. Consequently, the results of the study were compiled on the basis of opinions from 423 respondents

(324 students and 99 academics). In order to analyse the data, parametric and non-parametric statistical tools are used.

4. Results and discussion

4.1. Distinction between the strict compliance with accounting rules and the fulfilment of True and Fair View

The first section of the questionnaire explores the distinction between the strict compliance with accounting standards and the fulfilment of TFV. Five questions conform this Section.

Q1. The true and fair view is always obtained by following the accounting standards.

Q2. The true and fair view should sometimes include more than the compliance with the accounting standards in vigour.

Q3. In the case where more than one true and fair view can be obtained, the one that is closer to the accounting standards is the one that should prevail.

Q4. In reality, the accounting standards would have to be abandoned only in exceptional cases in order to show a true and fair view.

Q5. The non-compliance with the true and fair view in cases where the accounting standards have been strictly complied with shouldn't be subject to a fine.

Question Q1 was expressly included to explore their opinion on the override condition of TFV. If one or several accounting standards need to be overridden in order to show a TFV when the TFV objective is not achieved using the accounting standards. The expected result would be that participants disagree with the question but Table 1, Panel A reveals that the mean is not different from 3 and there is high dispersion in the responses (*t-statistics = -0.42, p-value > 0.05*).

Considering the two groups of participants, we could advance some differences in their responses. It is feasible that teachers disagree with the question because of their high level of knowledge and

experience. However, it could be possible that students characterised by lower level of knowledge consider that TFV is always reached by strictly following the accounting standards. We consider that this question requires a high level of expertise and knowledge in order to be answered.

Table 1, panel B, shows that the percentage of disagreement by academics is 59.60% (and the mean is statistically different from 3). The evidence suggests that academics consider that TFV is not always reached by strictly following the accounting standards. The knowledge acquired by students presents a different perspective. The percentage of disagreement is 40.74% and the percentage of agreement is 47.53% (the mean is not statistically different from 3). The last column of Panel B shows statistically significant differences between both groups (*t-statistics = 3.753* and *Z = -3.665*).

Question Q2 was introduced to investigate if TFV should sometimes include more than the compliance with the accounting standards in vigour. We find a high level of agreement in this question (89.83%) and the unconditional average has a value of 4.23 being different from 3 (*t-statistics = 32.01, p-value < 0.00*).

Table 1, Panel B, reveals that the mean of this question is quite similar between groups (4.20 for students and 4.30 for academics). No statistical differences exist between academics and students (*t-statistics = -1.098*). Also, academics and students agree in the case where more than one TFV can be obtained, the one that is closer to the accounting standards is the one that should prevail (63.89% for students, and 72.73% for academics). The mean of this question (Q3) is similar between groups (3.60 for students and 3.57 for academics). No statistical differences exist between academics and students (*t-statistics = -0.237* and *Z = -0.655*).

The results can be interpreted as academics wanting to find the objective in the accounting standards in vigour at the time. Getting as close to the accounting standards as possible provides security for preparers of financial information but it is not necessarily the best way of showing the TFV and it would be convenient to examine each

individual case in order to be certain. For this reason, we would have expected a negative answer to this question. At the same time, the answer is not surprising because individuals tend to lean towards the most rational professional behaviour, which would be to keep to the most secure, which is to follow diligently the standards in operation at the time of the preparation of the financial statements. This is demonstrated by the results obtained in question Q1.

Question Q4 indicates that the accounting standards would have to be abandoned only in exceptional cases in order to show a TFV. Table 1, Panel A, shows that the unconditional average is 3.43 being different from 3 (*t-statistic = 7.09, p-value < 0.00*). Table 1, Panel B, reveals that the question reaches an agreement of 58.34% for students and 70.71% for academics. The last column of Panel B shows statistically significant differences between the opinion of academics and the acquired knowledge gathered for students (*t-statistics = -1.852 and Z = -2.079*). It seems like abandoning the accounting standards in exceptional cases could introduce imprecision for students when solving the problem. According to the CLT, the complexity of the task renders space in the working memory to find the solution. It is more comfortable to follow the accounting standards without exception. However, academics are able to skip the accounting standards when it is necessary to achieve the TFV. Their mental schemes and skill abilities reached during the academic career allow them to be prepared to process different alternatives to find a solution.

Table 1. Compliance with accounting standards and fulfilment of TFV

Panel A: Overall. Unconditional averages

	N	%agree	%disag	Mean	S.D.	H0: Average = 3	Expected	Results
Q1	423	44,68	45,15	2,98	1,17	t = -0,42	Disagree with the question	X
Q2	423	89,83	4,26	4,23	0,79	t = 32,01 ***	Agree with the question	✓
Q3	423	65,96	16,55	3,59	1,10	t = 10,97 ***	Disagree with the question	X
Q4	423	61,23	25,77	3,43	1,25	t = 7,09 ***	Agree with the question	✓
Q5	423	30,50	50,35	2,70	1,28	t = -4,83 ***	Disagree with the question	✓

Panel B: Results by participants

	Students (1)					Academics (2)					Differences (1) - (2)	
	N	%agree	%disag	Mean	S.D.	N	%agree	%disag	Mean	S.D.	t-statistic	z
Q1	324	47,53	40,74	3,09	1,13	99	35,35	59,60	2,60 ***	1,24	3,753 ***	-3,665 ***
Q2	324	89,82	3,71	4,20 ***	0,76	99	89,90	6,06	4,30 ***	0,89	-1,098	-1,969 **
Q3	324	63,89	15,12	3,60 ***	1,06	99	72,73	21,21	3,57 ***	1,25	0,237	-0,655
Q4	324	58,34	26,24	3,37 ***	1,26	99	70,71	24,24	3,64 ***	1,22	-1,852 *	-2,079 **
Q5	324	24,69	53,09	2,57 ***	1,21	99	49,49	41,41	3,11	1,43	-3,391 ***	-3,343 ***

Note: The table reports summary statistics on the sample where % agree corresponds to strongly and moderately in agreement (4 or 5 in the Likert scale). % disagreement corresponds to completely and moderately in disagreement (1 or 2 in the Likert scale). S.D corresponds to standard deviation.
In panel A, the asterisks of the mean figure measure the probability that this average is significantly different from 3. In Panel B, the last two columns show the t-statistic from the differences in the t-tests and Z value from Wilcoxon - U-Mann Whitney test.
*, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

Finally, question Q5 was included to detect academics and students opinions on whether non-compliance with the objective of the TFV having followed the accounting standards should be punished with penalties, compensation or fines. We expect disagreement to this question because if the TFV is not obtained then the objective of the financial information has not been reached regardless of whether the standards were followed or not. If the objective is not reached we suppose that a negative consequence should be imposed if not the aim is simply to follow the accounting standards. Companies wouldn't be interested in overriding accounting standards to show a TFV if there was no consequence by simply following them even where the TFV was not achieved. Table 1, Panel A, reveals that most participants disagree with the question.

However, the analysis of the responses by participants indicates interesting results. Students disagree (53.90% that with the non-compliance of the TFV in cases where the accounting standards have been strictly complied with shouldn't be subject to a fine). The opposite response is found in the academics group (41.41% of disagreement and 49.49% of agreement). In this question we find statistical differences between participants depending on their professional status (*t-statistics = -3.391* and *Z = -3.343*).

In sum, the set of questions relating to the distinction between the strict compliance with accounting standards and the fulfilment of TFV involves a high level of complexity from a theoretical perspective as well as from its application in practice. The answers reveal that at early stages of accounting studies more cognitive effort is required to understand the problem and to find a solution. Consequently, they prefer to follow the accounting standards without exception to make the task easier. However, academics are more predisposed to study the problem and apply different alternatives to find the best solution. Their flexibility is justified by their academic level and accumulated experience during their professional career.

4.3. A need for a written definition of True and Fair View

The next set of questions explore the need for a written definition of TFV. It is important to remember that the accounting standards do not provide a definition of TFV. This issue has provoked an important debate by academics and professionals over the years (see e.g. Houghton, 1987 & 1988; Walton, 1993; Evans, 2003). The answers to this section give us an insight into the opinion of academics in having a wording with the description of the TFV. Also, the opinion of students is gathered. Four questions comprise the Section.

Q6. A detailed definition of the true and fair view would take away from the efficiency in its application.
Q7. The creation of a definition of the true and fair view in relation to the annual accounts is a very difficult task.
Q8. The true and fair view has an absolute quality that makes it unnecessary to define.
Q9. It is necessary to have a definition of the true and fair view.

Question Q6 asks if a detailed definition of the TFV would take away from the efficiency in its application. The expected answer here would be that the surveyed participants were in agreement with the question given that the TFV is a concept that can vary due to socio-economic and environmental changes, and a definition could constrict

it too much. Table 2, Panel A, exhibits high dispersion in the responses by participants (32.39% of agreement and 39.72% of disagreement, mean = 2.87). Consequently, it is necessary to review the results by participant.

The hypothesis wasn't fulfilled in this question for both subsamples. Table 2, panel B, shows that 30.86% of students agree (moderately or strongly), 37.66% disagree (moderately or strongly). Again, we observe a high dispersion in the responses to this question. Also, 37.46% of academics agree (moderately or strongly) and 46.46% disagree (moderately or strongly). The results seem to indicate that academics would prefer to have a detailed definition to introduce into their schemes, giving a more readily available outline to finding a solution. The same interpretation could be applied to students.

Question Q7 asks whether the creation of a definition of the TFV in relation to the annual accounts is a very difficult task. The unconditional average has a value of 3.53 (*t-statistic = 9.74, p-value < 0.00*). The positive response is in line with the expected result. Most academics (67.68%) believe that it is difficult to create a definition of the TFV (see Table 2, Panel B). A low level of agreement is reached by students (56.79%). The mean shows a value of 3.48 for students and a value of 3.70 for academics. The statistical tests show differences between academics and students (*t-statistics= -1.737* and *Z = -2.067*). This is justified by the fact that students with less base knowledge are unaware of the complexity involved in defining a term which may alter depending on socio-economic changes.

Question Q8 investigates if the TFV has an absolute quality that makes it unnecessary to define. We expected that participants would agree with the question but the hypothesis wasn't fulfilled. The unconditional average is 2.71 being statistically different from 3 (*t-statistics = - 5.41, p-value < 0.00*).

Academics do not provide a clear response due to the similar percentages of agreement and disagreement obtained. The answer reveals that the TFV does not gather a unanimous opinion by

academics (see Table 2, Panel B). The percentage of disagreement (moderately or strongly) for students is 50.61% vs a percentage of agreement (moderately or strongly) near to 21%. We observe statistically significant differences in the question depending on the group of participants (*t-statistics= -2.177* and *Z = -2.186*).

Table 2: Definition of TFV

Panel A: Overall. Unconditional averages

	N	%agree	%disag	Mean	S.D.	H0: Average = 3	Expected	Results
Q6	423	32,39	39,72	2,87	1,15	t = -2,33 **	Agree with the question	X
Q7	423	59,34	21,28	3,53	1,11	t = 9,74 ***	Agree with the question	✓
Q8	423	25,77	47,75	2,71	1,11	t = -5,41 ***	Agree with the question	X
Q9	423	65,25	16,55	3,65	1,10	t = 12,23 ***	Disagree with the question	X

Panel B: Results by participants

	Students (1)					Academics (2)					Differences (1) - (2)	
	N	%agree	%disag	Mean	S.D.	N	%agree	%disag	Mean	S.D.	t-statistic	z
Q6	324	30,86	37,66	2,87 **	1,10	99	37,37	46,46	2,87	1,30	0,012	-0,152
Q7	324	56,79	21,60	3,48 ***	1,09	99	67,68	20,20	3,70 ***	1,17	-1,737 *	-2,067 **
Q8	324	21,92	50,61	2,64 ***	1,07	99	38,38	38,38	2,92	1,23	-2,177 **	-2,186 **
Q9	324	67,90	14,82	3,73 ***	1,04	99	56,57	22,22	3,40 ***	1,24	2,355 **	-2,179 **

Note: The table reports summary statistics on the sample where % agree corresponds to strongly and moderately in agreement (4 or 5 in the Likert scale). % disagreement corresponds to completely and moderately in disagreement (1 or 2 in the Likert scale). S.D corresponds to standard deviation.

In panel A, the asterisks of the mean figure measure the probability that this average is significantly different from 3.

In Panel B, the last two columns show the t-statistic from the differences in the t-tests and Z value from Wilcoxon - U-Mann Whitney test.

*, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

Finally, question Q9 explores the need to have a definition of the TFV. As we said before, this issue has captured the attention of academics and professional bodies (Houghton, 1987 & 1988; Walton, 1993; Evans, 2003). We expected participants to disagree with the question because the concept is dynamic and needs to capture economic changes. For this reason a definition would take away from its flexibility and clearly by having a definition of TFV there would be less need for the use of professional judgement to achieve a TFV. An exact or strict definition would be very difficult to achieve so a

possibility would be to consider guidelines that would help preparers to reach a TFV of the financial information.

Table 2, Panel A, displays a percentage of agreement near to 65% and the unconditional mean is 3.65 being different from 3 (*t-statistic = 12.23, p-value < 0.00*). Considering the opinion of participants, this question reaches an agreement (moderately or strongly) of 56.57% for academics and 67.90% for students. The percentage of disagreement (moderately or strongly) is 22.22% for academics and 14.82% for students. We observe statistically significant differences in the question depending on the group of participants (*t-statistics= 2.355* and *Z = -2.179*). There is definitely a desire to have a definition of TFV regardless of whether this would be difficult to obtain or not.

In summary, the need for a written definition of TFV shows different views between academics and students. Academics are more concerned about the difficulties of creating a definition and their responses are more sceptical about the necessity to have a written definition. In this set of questions, we find that the opinions and philosophical thinking of professors is very difficult to transfer to students.

4.4. The interpretation of True and Fair View

Table 3 shows the responses associated with the interpretation of TFV. Six questions are asked to academics and students:

Q10. It is possible to obtain more than one true and fair view from the same Financial Statements.

Q11. The objective to be obtained by using true and fair view is more important than the term in itself.

Q12. The true and fair view is different from a mere diligent accounting practise.

Q13. The true and fair view is usually interpreted with the literal meaning of the expression.

Q14. The financial accounts will show a true and fair view if the information is sufficient to satisfy the users' expectations.

Q15. The true and fair view is a way of protecting the users of the financial statements.

Question Q10 explores if it is possible to obtain more than one true and fair view from the same Financial Statements. The unconditional average is 2.84 (see Table 3, Panel A). The percentage of agreement (moderately or strongly) is 50.51% for academics and 34.26% for students. We observe statistically significant differences in the question depending on the group of participants (*t-statistics= -1.769* and *Z = -1.880*). We would have expected a higher level of agreement here in both cases but especially in the case of academics. There can be more than one TFV of the financial statements; accounting professionals have to use their professional judgement to include the best one.

Question Q11 captures the opinion about whether the objective to be obtained by using TFV is more important than the term in itself. This question reaches high levels of agreement (more than 75%). The unconditional mean is 4.05 being different from 3 (*t-statistic = 23.29, p-value < 0.00*). However, academics opinions (mean = 4.34) are much clearer than those of students (mean = 3.97). We find statistically significant differences in the responses (*t-statistics= -3.579* and *Z = -3.798*). Once again, the expected answer here is in agreement with the question. Both groups seem to have understood that the words used are of less importance than the actual objective to be obtained in itself.

Question Q12 investigates if TFV is different from a mere diligent accounting practise. We consider that TFV is different from a mere diligent accounting practise (see Table 3, Panel A). The unconditional average is 3.52 being statically different from 3 (t-statistic = 9.81, p-value < 0.00). High levels of agreement are found for academics (65.66%) compared to students (54.32%). Significant differences are established in the answers by respondents (*t-statistics= -1.850* and *Z = -2.258*). We received positive answers from the two sets of participants as expected. However the percentage of agreement is quite different between both, being substantially higher for academics. Once again showing that academics have more control over the material here.

Question Q13 asks if the TFV is usually interpreted with the literal meaning of the expression. We would have expected disagreement to this question because the TFV requires more than the application of its literal meaning, it requires a full understanding of the accounting system and the financial statements in question. The academics are more sceptical in their responses (42.42% of agreement) compared to students (53.40% of agreement). We observe statistically significant differences in the mean and median between both participants (*t-statistics= 2.188* and *Z = -2.051*). Although academics obtain an answer nearer to that anticipated, we consider the level of agreement to be very high.

Table 3: Interpretation of TFV

Panel A: Overall. Unconditional averages

	N	%agree	%disag	Mean	S.D.	H0: Average = 3	Expected	Results
Q10	423	38,06	43,74	2,84	1,31	t = -2,57 **	Agree with the question	X
Q11	423	78,72	7,57	4,05	0,93	t = 23,29 ***	Agree with the question	✓
Q12	423	56,97	20,57	3,52	1,09	t = 9,81 ***	Agree with the question	✓
Q13	423	50,83	21,04	3,32	0,95	t = 7,00 ***	Disagree with the question	X
Q14	423	44,68	35,93	3,09	1,16	t = 1,64	Disagree with the question	X
Q15	423	79,43	10,17	4,03	0,98	t = 21,55 ***	Agree with the question	✓

Panel B: Results by participants

	Students (1)					Academics (2)					Differences (1) - (2)	
	N	%agree	%disag	Mean	S.D.	N	%agree	%disag	Mean	S.D.	t-statistic	z
Q10	324	34,26	44,44	2,77 ***	1,27	99	50,51	41,41	3,05	1,40	-1,769 *	-1,880 *
Q11	324	75,62	8,33	3,97 ***	0,95	99	88,89	5,05	4,34 ***	0,81	-3,579 ***	-3,798 ***
Q12	324	54,32	20,37	3,47 ***	1,05	99	65,66	21,21	3,70 ***	1,21	-1,850 *	-2,258 **
Q13	324	53,40	19,44	3,38 ***	0,92	99	42,42	26,26	3,14	1,02	2,188 **	-2,051 **
Q14	324	40,12	38,58	3,01	1,14	99	59,60	27,27	3,36 ***	1,19	-2,686 ***	-2,827 ***
Q15	324	77,78	10,80	4,02 ***	0,99	99	84,85	8,08	4,06 ***	0,93	-0,401	-0,196

Note: The table reports summary statistics on the sample where % agree corresponds to strongly and moderately in agreement (4 or 5 in the Likert scale). % disagreement corresponds to completely and moderately in disagreement (1 or 2 in the Likert scale). S.D corresponds to standard deviation.

In panel A, the asterisks of the mean figure measure the probability that this average is significantly different from 3. In Panel B, the last two columns show the t-statistic from the differences in the t-tests and Z value from Wilcoxon - U-Mann Whitney test.

*, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

Question Q14 explores if the financial accounts show a TFV when the information is sufficient to satisfy the users' expectations. In this case, the expected answer would have been in disagreement with the question. We believe that it is not enough for users' expectations to be satisfied if the TFV has not been achieved in a correct fashion. Users may be satisfied but the accounts may not give a TFV. The percentage of agreement from academics is near to 60% while students do not show a clear position (mean = 3.01). This shows statistically significant differences in the responses (*t-statistics = -2.686* and *Z = -2.827*). As the mean answer from students to this question is near to 3, it is possible that they didn't understand the question completely or they didn't have enough knowledge to answer it. However, given the opposite response desired from academics in this case, it is not surprising the answer by students who obtain their knowledge from this very source.

Finally, Question Q15 asks if the TFV is a way of protecting the users of the financial statements. The unconditional average is 4.03 and is statistically different from 3 (*t-statistic = 21.55, p-value < 0.00*). This is the unique response of the Section when the academics and students coincide in their opinions. The agreement is high and the mean in this question is similar for both groups. Then, no differences exist between them (*t-statistics = -0.401* and *Z = -0.196*). The response is also as we would anticipate here. The TFV is established to fill the gap for efficient financial reporting when the guides or the rules by themselves don't obtain this objective. By overriding the standards we are protecting the users by showing a TFV of the financial information.

4.5. Discussion

We make special reference in this section to Questions 4, 7, 11, 12 and 15 because the replies received to these questions are what we would have expected globally but when we analysis the information between academics and students we observe that the expected answer is higher in the group corresponding to academics. In order to answer these questions as would be expected a good understanding

of the TFV is necessary. We base these differences on the complexity of the TFV concept and the differences in the cognitive structure of the two groups.

We believe that this gap between academics and students can be minimised in the learning process by introducing more effective learning materials for complex concepts. This would be in the form of schemes, pictograms, case studies or other appropriate methods of aiding the learning of complex concepts. These methods would help to reduce the three loads in the cognitive structure of students and therefore free up space in the working memory in order to facilitate the assimilation process of the concepts and improve the overall result of learning. These observations could also be used in the area of establishing more efficient accounting standards by standard setters and also by improving the presentation of financial reports making them easier to understand and as a consequence improving effectiveness in decision making.

5. Conclusions

This paper examines the perception of TFV by academics and accounting students. The study captures the way academics understand the TFV concept and the way students understand and perceive the concept. The sample chosen in this project allows us to compare the knowledge, expertise and level of learning reached by students. In particular, our objective is to investigate if academics and students share similar cognitive structures in relation to the TFV concept. In this case we have benefited by previous psychology research known as the cognitive load theory (CLT). This theory is now widely used in many areas but as yet it has not been exploited to a great extent in the accounting and auditing profession. This theory helps us to explain the differences obtained in the answers to the questions between academics and students because it shows us that novices and experts assimilate complex information differently. It also provides us with an explanation for this difference due to different loads for assimilating different types of information. By understanding

this model, steps can then be taken to design the information to be assimilated in order to obtain more efficient results.

The results show statistically significant differences between instructors and students in three areas: i) the compliance with accounting rules against the fulfilment of True and Fair View, ii) the need to provide a written definition of True and Fair View, and iii) the interpretation of True and Fair View.

The concept of override is especially difficult to understand in TFV but without the override TFV is simply the fulfilment of the accounting standards. It is also a philosophical concept and requires a lot of expertise in order to appreciate its meaning. This can be observed in Q1 when we obtain different answers between groups when asked if the TFV is always obtained by following the accounting standards. Although the students in the survey are in the final years of the degree course or already studying post graduate courses they have not been able to assimilate the override provision of TFV. It also shows that instructors were unable to transmit the understanding of the override concept appropriately.

This research fills a gap in the literature by showing a cavity in relation to complex accounting concepts between instructors and their students. It also provides an analysis of the difference in this perception in relation to fifteen questions related to TFV. The research goes a step further by explaining the reasons for this gap by examining previous literature relating to the different cognitive capacities of experts and novices. Finally, there is a proposal for these findings to be used by accounting and auditing regulators in the preparation of accounting teaching material, standards and guides in order to improve the quality of useful financial information for taking effective decision making.

More studies on cognitive structures are needed in the accounting discipline field to better understand the application of accounting concepts in practice. If the ultimate objective of financial information is to provide useful information that can be used for efficient economic decision making then it is essential that everything is done

to facilitate the understanding and presentation of that information. We believe that by incorporating the results of the CLT we can improve substantially the quality of the financial information being interpreted by users in the financial statements, by preparers using better quality financial standards and by individuals in the process of becoming professionals in this area by improvement in the learning design of teaching materials.

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Annex

Survey

Section 1. Distinction between the strict compliance with accounting standards and the fulfilment of TFV.

Q1. The true and fair view is always obtained by following the accounting standards.

Q2. The true and fair view should sometimes include more than the compliance with the accounting standards in vigour.

Q3. In the case where more than one true and fair view can be obtained, the one that is closer to the accounting standards is the one that should prevail.

Q4. In reality, the accounting standards would have to be abandoned only in exceptional cases in order to show a true and fair view.

Q5. The non-compliance with the true and fair view in cases where the accounting standards have been strictly complied with shouldn't be subject to a fine.

Section 2. The need to provide a written definition of TFV.

Q6. A detailed definition of the true and fair view would take away from the efficiency in its application.

Q7. The creation of a definition of the true and fair view in relation to the annual accounts is a very difficult task.

Q8. The true and fair view has an absolute quality that makes it unnecessary to define.

Q9. It is necessary to have a definition of the true and fair view.

Section 3. The interpretation of TFV.

Q10. It is possible to obtain more than one true and fair view from the same Financial Statements.

Q11. The objective to be obtained by using true and fair view is more important than the term in itself.

Q12. The true and fair view is different from a mere diligent accounting practise.

Q13. The true and fair view is usually interpreted with the literal meaning of the expression.

Q14. The financial accounts will show a true and fair view if the information is sufficient to satisfy the users' expectations.

Q15. The true and fair view is a way of protecting the users of the financial statements.