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# Proceedings of the
# 13th European Conference on Research Methodology for Business and Management

## Cass Business School
## City University London
## UK

## 16-17 June 2014

## Edited by

Ann Brown and Martin Rich

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Conference Chair
and
Dr Martin Rich
Programme Chair

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# Research Methodologies in Accounting and Auditing: Empirical Evidence From Postgraduate Projects Concluded Between 2008 and 2013

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**Abstract:** Research emerges as a continuous discovery and relates to knowledge creation and learning processes about physical and social world. These processes comprise a series of steps towards the final results achievements. This paper relates to the methodological matters and aims to identify the research approaches commonly used in the scientific field of accounting and auditing. Based on 258 postgraduate projects concluded between 2008 and 2013 and disseminated through the national scientific repository, we have explored those projects characteristics through a set of variables such as field of research, type of research, type of project, nature of higher education institution, methodological approach, and data sources, among other. Thus, we found several significant correlations between those variables which have permitted the identification of a research trend in accounting and auditing research. It would be expected that financial accounting follows a positive approach while management accounting follow an interpretative or critical approach, corroborating the literature on the topic. This insight was partially corroborated, associated with other key insights relating the current state of the art. Furthermore, evidence shows that higher education institutions, most of them listed in international rankings, tend to implement positivist approaches and use databases or inquiries as the main sources of primary data collection.

**Keywords:** research methodologies, accounting research, auditing research, postgraduate projects

## 1. Introduction

The capture, transformation and dissemination of new knowledge are the basis in research approaches, towards scientific and social achievements. Epistemologically, knowledge is justified as the symbiosis of belief and truth. It results from a dynamic framework, involving individuals, groups and organizations, which describes, explains, and predicts the natural and social world. It becomes an intentional overview to look the world and the path to define usefulness and sense.

To pursuit knowledge covers, historically, a wide process of identification and formulation, namely concepts, theories, principles and procedures that are useful to find that truth. Divided by Aristotle in three distinct areas - Scientific, Technical and Practice - man's survival lies in opinion (*doxa*) and technique (*techne*). Thus, in the wide and complex world of ideas, men can attain true knowledge (*épisthéme*). Scientific progress, overtime, is based on the search for truth that instills in the natural and social world order and rationality. This process should anticipate and predict the future on a fair and reliable basis. The contributions of Plato are really the continuous guide in this search towards those justified and paradigmatic true beliefs.

The last decades are, indeed, a natural landmark in the systematic search to explain the natural and social world. This demand of truths has reshaped the traditional concepts of time and space, reinforcing the essence of Plato's philosophy. His theory of ideas and forms ensures the intelligibility of each phenomenon, a perfect symbiosis between the intelligible and sensible reality. Away off the discussions about the most rationalistic or empirical approaches, and using a more deductive or inductive methods, René Descartes (1596-1650) also seeks for the identification of principles in the understanding of natural and social world. Therefore, the pursuit of knowledge has become the core driver of each science. Far from the thoughts of Aristotle (384 b.c-322 b.c.), Plato (427 b.c.-347 b.c.), and Descartes, the contributions of Kant (1724-1804), Hegel (1770-1831) and Marx (1818-1883), among others, have structured new concepts and treatments influencing the boundaries of the economic theory in general and the organization's theory in particular. Nowadays, this complex world has exploited the emerging of new economic models, strongly oriented to complex and dynamic knowledge management processes.

The boundaries and scope of knowledge is a paradigmatic abstraction in itself. Their multiple typologies – *v.g. Tacit/Explicit* (Choo, 1996); *Individual/Social* (Von Krogh, 1998); *Strategic/Tactical/Support* (Sullivan, 2000) – intersect the scope and objectives of each research, always seeking for an symbiotic adherence to the reality and phenomena. It will therefore be scientifically understandable that in social sciences, classification of knowledge follows many of those types which can also emerge in the context of natural sciences. We believe

that the genesis of knowledge always lies in a set of assertions, formulated to instill the dynamic nature of development and discovery.

The intensity and efficiency in the knowledge capture and creation depend on the context in which it is originated and embodied. Thus, each knowledge level reflects its intensity of aggregation and integration. In a purely ontological dimension, knowledge is created by individuals, through their interaction inside groups and organizations, structured and exploited through dynamic and complex networks. This integration process, aligned with the perception of knowledge degree of usefulness, reflects the essence of the dynamic processes that capture, create and disseminate new or transformed types of knowledge. Intuition, judgment, experience, values, and rules are the clue drivers in the whole process. We can identify the same drivers in each research project as the basis for strong add-ins in the prior expertise levels.

## 2. Aims and objectives

Based on the concepts of knowledge creation, research methodologies and methods, this scientific project aims to identify the most structured approaches that have driven, in the last six years in Portugal, the research postgraduate projects. Embedded in multiple methodologies, those projects depend on the scientific domain boundaries and objectives. Therefore, it becomes imperative to identify and understand the main variables that characterize the methodological options that have been followed by several Portuguese researchers. In the scientific fields of accounting and auditing, it will be relevant to find empirical evidence whether there are significant differences in the research methodologies and methods. These approaches and consequent validated evidence can contribute with new insights for the research theory.

## 3. Research approaches

The research paradigms as a whole can be lied on a sociological understanding of the natural and social world. They can be linked with two different dimensions (Burrell and Morgan, 1979), which alignments derive in a more radical or functionalist view. The first structural spindle is based on the research level of subjectivity (ontological and epistemological approach) and the second is based on the society's structure and related ways to interpret complex phenomenon. Senik (2009:6) links this dimension to the status quo, social order, level of social integration and cohesion, solidarity driven orientation and satisfaction needs compliance.

From an epistemological outlook, Sekaran and Bougie (2013) have defined an alternative classification for the most important perspectives of research in the business scientific fields, namely: Positivism; Constructionism; Critical realism; and Pragmatism. The positivist or mainstream approach evidences the way to achieve the truth, believing that it is always possible to predict the world. This is also a replicable research, based on its findings generalization. Through a deductive reasoning, cause and effect relations are tested within structured and multilateral frameworks. This hermetic point of view lies on the objective measures, on the direct observation and on the dismissal of research emotions and thoughts (Chua, 1986; Laughlin, 1995; Ryan *et al.*, 2002; Sekaran and Bougie, 2013).

The second perspective of research is based on the assumption that the reality is in itself mentally constructed (Sekaran and Bougie, 2013). Thus, this approach focus on the understanding of rules and procedures used to make connections in the real world. From this perspective, the capture and creation of knowledge is based on observations and interpretations of the social nature practices (Ryan *et al.*, 2002). The intrinsic qualitative nature drives researcher into an ontological dimension in which knowledge is created from the individual interaction within groups, organizations and networks (Von Krogh, 1998). As mentioned by Senik (2009), this perspective has social subjectivity and disagreement between positivist approaches.

Critical realism perspective is in nature an intermediary approach which lays its genesis on the assumption that an objective truth exists but cannot be objectively measured (Sekaran and Bougie, 2013). Individual, as an actor in each phenomena interpretation, always biases its understanding, even whereas collecting emotions, attitudes or viewpoints. Behavioral theories can support those biases, especially phenomenon that researcher cannot observe and measure directly as satisfaction, motivation, organizational culture or knowledge management culture. Finally, pragmatism emerges as a pluralist but practical perspective. Its transversal practical view aligns research methodologies as a mix of research objectives, observable phenomena, and research questions. Since the world is dynamic, evidence always assumes a provisional nature.

Structured around six topics (basic assumptions; prediction power; method used in data collection; nature of research; generalization level; and main fields of research), the key characteristics and differences of each generic approach (positive or mainstream; interpretive; and critical) developed are summarized in the table below.

**Table 1:** Research approaches and perspectives

| | POSITIVE | INTERPRETIVE | CRITICAL |
|---|---|---|---|
| ASSUMPTIONS | Objectivity; Realism; Functionalism; Social change | Subjectivity; Social regulation; Mental constructivism | Objectivity/Subjectivity; Radical change |
| PREDICTION OF THE NATURAL AND SOCIAL WORLD | Predictive | Usually, non predictive | Non predictive |
| MAIN METHOD IN DATA COLLECTION | Databases | Inquiries (Questionnaires and Interviews); Observation; Content Analysis | Observation; Content Analysis |
| NATURE OF RESEARCH | Quantitative (*Exploratory*) | Qualitative (*Explanatory; Descriptive; Case studies*) | Qualitative (*Explanatory; Experimental; Descriptive; Case studies*) |
| GENERALIZATION OF FINDINGS | Generalizable | Usually, not generalizable | Not generalizable |
| MAIN FIELDS OF RESEARCH | Financial accounting; Corporate governance, etc. | Management accounting; Auditing and internal controls; Public Accounting, etc. | Management accounting; Management control, Performance analysis; Pricing, etc.. |

The approaches specified in table above have their genesis in the sociological research framework developed by Burell and Morgan (1979). However, the gradual increase in the phenomena complexity requires new and more systematic approaches in their exploration and explanation. Authors as Chua (1986), Laughlin (1995), Denzin (2000), DeWalt and Dewalt (2002), Ryan *et al.* (2002), and Sekaran and Bougie (2013), have pursuit that objective by contributing with new insights about the identification and categorization of new research methodologies and methods.

## 4. Scientific knowledge production in accounting and auditing

The boundaries of accounting and auditing are quite diffuse once these fields of knowledge intersect multiple scientific domains as corporate finance, taxation, control management, corporate governance, and law, among others. The globalization and complexity, over the last decades, of the economic and financial phenomena, require new approaches and insights towards the understanding the drivers that contribute and explain that intrinsic complexity. The consequent harmonization efforts within accounting and auditing horizons have put the information quality, its subsequent dissemination, and resources allocation, in the centre of the debate. Thus, the research in those domains should explore, explain and even predict the historical or potential outcomes. Broadly, research in these particular domains should be normative and descriptive, and positively contribute to help individuals and organizations to support their own decisions. As mentioned by Ronen (2012:4) *"… normative research specifies assumptions that descriptive research attempts to verify, and descriptive research documents behaviors that guide normative researchers in formulating their assumptions about the decision-making environment*".

Ronen (2012), through a four cell matrix, has summarized the accounting research and its linkage with the objective of information usefulness in the decision making process. Approaches were categorized according the attributes (wisdom or foolishness) how researchers see managers and markets. The first matrix axis measures the way how managers use the information available as utility optimizers while the second axis measures the way how researchers see the markets or stakeholders (users of accounting information). All cells

in this matrix should converge into a bilateral wisdom perspective. In this case, several accounting issues arise as agency theory applications, financial reporting, signaling, optimal contracting, and performance measures.

Accounting is traditionally divided in two different and complementary typologies, according its objectives and scope: financial accounting (external) and management accounting (internal). We can also consider the public accounting as a third line of research. However, this third typology does not differ in substance but in its direct focus, the institutions publicly owned and socially driven such as schools, hospitals, ministries, army, and central and local government, among others. It merges both financial and management accounting in its objectives and purposes. As referred by Ryan *et al.* (2002), financial accounting research has followed, in a broad sense, a positive approach while management accounting has followed an interpretive or even critical approach. The globalization of markets and accounting harmonization processes have driven accounting to an international comparison, in terms of convergence issues and in terms of contextual factors (*v.g.* culture, country, standards implementation, legal systems, economic development, etc.) that affect the utility and use of information by stakeholders. The increase in the use of databases with predictive purposes has driven the research in the external accounting.

Research in pure management accounting and its related scientific fields (control management and performance, residual income analysis, pricing, capital budgeting, etc.) has been marked by its more applied focus (Joahnsson and Siverbo, 2009; Scapens and Bromwich, 2010; Sekaran and Bougie, 2013). It explores the social practices and interprets or criticizes the application of conceptual theories and frameworks in practice (Ryan *et al.*, 2002; Harris and Durden, 2012); Al-Htaybat and Alberti-Alhtaybat, 2013). The case study approach emerges in this context as qualitative, explanatory and descriptive tools towards the knowledge creation in a time and space limited scope and horizon. In its overview about management accounting practices, Scapens and Bromwich (2010) have identified the main topics under analysis in the last two decades. Topics such as activity based costing, capital budgeting, cost accounting systems and techniques, management accounting practices, and performance measurement, have characterized the major part of scientific projects concluded in this domain. Applied projects (34%) and institutional theory (19%) lead the research in the last two decades, respectively. Relating the research methods used, case studies lead the ranking, 24% in the 90's and 40% in the first decade of current century.

Auditing and internal controls intercept both financial and management accounting. Topics as internal controls procedures implementation, risk categorization, and detection, have followed the same trend as observed in pure management accounting research. Case study approach (experimental, exploratory or explanatory) is the most used method in both cases. In contrast, topics such as corporate governance, information quality and risk detection, seems to be closer to the approaches effectively followed by financial accounting, in which a positive or mainstream approach has been implemented.

## 5. Methodology

### 5.1 Then data source

The main data source for this research was the RCAAP (*Scientific Open Access Repository of Portugal*). It aims the collection, the aggregation and the indexing of scientific content in existing open access institutional repositories in the national higher education institutions, and other organizations for R&D. The RCAAP portal was established as a single point of search, discovery, location and access to thousands of documents of scientific and academic nature, including articles from scientific journals, presentations at conferences, thesis and dissertations, distributed by numerous Portuguese repositories. This main repository is considered the most updated database in Portugal for the postgraduate projects effectively concluded. It has approximately 506.000 indexed documents in 69 categories (it includes aprox. 8.300 PhD thesis and aprox. 45.500 MSc dissertations in all scientific fields).

The RCAAP portal is a key component of the Scientific Open Access Repository of Portugal project. This project is an initiative of UMIC (*Agency for the Knowledge Society*), implemented by FCCN (*Foundation for National Scientific Computing*), providing a more advanced service on the National Network for Research and Education (RCTS), managed by FCCN. The project was funded by the POS_C (*Knowledge Society Operational Programme*) and UMIC. This repository is the unique national integrated and updated database which aggregates the Portuguese scientific production from higher education institutions and related research institutes.

## 5.2 The variables

The variables used to identify and typify the postgraduate projects were based on the literature review and based on the field direct observations. All of them are categorized according their main specificities, as illustrated in table 2.

**Table 2:** Variables description and framework

| Variable | Acronym | Description |
|---|---|---|
| Field of Research | FRES | Typology of accounting and related scientific domains: Financial accounting; Management accounting; Public accounting; Auditing and internal controls; Accounting History; Research in accounting and auditing; and Other. |
| Date of Conclusion | YEAR | Year of project conclusion. |
| Type of Institution | TINST | Type of higher education institution based on the Portuguese education alignment: Polytechnic school of management; Faculty of economics; Business school; and Other. |
| Type of Project | TRES1 | PhD project or MSc project |
| | TRES2 | Type of project performed to conclude the postgraduate course: Thesis (PhD) or Dissertation (MSc); Applied project; and Other. |
| Approach | APPR | Main methodology implemented in the research [Chua (1986); Denzin (2000); Ryan *et al.* (2002); Modell (2010); Scapens and Bromwich (2010); Sekaran and Bougie (2013)]: Mainstream or Positivist; Interpretative; and Critical. |
| Sampling | SAMP | In positive approaches, evidences the extraction of samples from population. |
| Main Data Source | MDSR | Typifies the main data source used in the research [Sekaran and Bougie (2013)]: Database; Inquiry by questionnaire; Inquiry by interview; Direct or participative observation (DeWalt and DeWalt, 2002); Content analysis; and Other. |
| Case Study | CSTY1 | Number of cases under analysis: Single; Double; and Multiple. |
| | CSTY2 | Typifies the case study approach [Yin (1984); Ryan *et al.* (2002)]: Experimental; Exploratory; and Explanatory. |

This variables framework intends to characterize, from a qualitative perspective, the postgraduate projects (towards the achievement of a PhD or MSc degree) available in the RCAAP, with origin in multiple national repositories. Through an integrated overview, it will be possible to identify and define the state of the art relating the national postgraduate scientific production.

## 5.3 Association measures

These measures quantify the strength and direction of association between two variables towards the diagnosis of possible causal links. The most frequent association measures used are the Chi-Square ($\chi^2$), the Pearson's or Spearman's ($\rho$) coefficients, the Cramer's V, the coefficient Phi ($\phi$), and the contingency coefficient. Since the Pearson correlation coefficient measures the strength and direction of the linear association between two quantitative variables while the Spearman coefficient measures the strength of the association (albeit non-parametric) between two variables at least classified as nominal, we will use this one in our analysis. The Cramer's V is also a non-parametric and asymmetric coefficient, used as an association measure between two nominal variables which will be used in this scope only with corroborative validation purposes.

## 5.4 Classification approach

Apart of descriptive statistics (frequencies, mean), association and dispersion measures (Person's correlation, variance, standard deviation), we tried as a proxy the *Linear Discriminant Analysis* (LDA) in order to identify linear combinations of *p* variables $X_n$ that best separate subgroups of appointed individuals, according to the inherent separability criterion (Fisher *et al.*, 1990; Johnson, 1998; Johnson and Wicherin, 2007). The determination criterion which governs the solutions in this statistical technique is based on the assumption that the possible linear combinations of the observed variables, is intended to find the one in which individuals

of each class become more homogeneous, and different classes become more heterogeneous with each other. Thus, this technique aims to identify the internal homogeneity of classes as follows:

$$\left\| \left( I_n - P_C \right) y \right\|^2 = \sum_{j=1}^{k} \sum_{i=1}^{n_j} \left( y_i^{(j)} - \bar{y}^{(j)} \right)^2$$

This result is the sum of the variances of *y* observations in each *k* classes. A best *y* derives from the linear combination for which that sum is quite low, since this fact will reflect the existence of internally homogeneous classes. Complementarily, the dispersion of the mean of each class *k*, around the overall average *y* values (heterogeneity among classes) is evidenced by the formula below:

$$\left\| \left( P_C - P_{1_n} \right) y \right\|^2 = \sum_{j=1}^{k} n_j \left( \bar{y}^{(j)} - \bar{y} \right)^2$$

Thus, this statistical methodology has the objective to identify the variables that better can differentiate between multiple groups of individuals, structurally different and mutually exclusive. It can also be used to establish indexes or models with predictive nature by allowing the allocation of new individuals into those groups. Its intrinsic assumptions are the normality in the variances distribution and the homogeneity in the variances-covariance's matrix, which can be verified through the *Shapiro Wilk* and *M Box* tests, respectively.

In this particular research, the LDA was run with the main objective to identify which variables better fit with each group of individuals (postgraduate projects concluded in each scientific field and disseminated in RCAAP).

## 6. Results and discussion

Based on the title and on the key-words "*accounting*", "*auditing*", "*internal controls*", "*corporate governance*" and other IAS/IFRS concepts, written in Portuguese or in English languages, 258 postgraduate projects were identified [15 (5,8%) PhD thesis and 243 (94,8%) MSc dissertations]. All of them were concluded in public and private institutions since 2008. In the scope of auditing projects, we have excluded from this research all projects related to non-financial auditing approaches (*v.g.* strategic, management, quality, energetic, taxation, industrial, information systems, among others).

### 6.1 An integrated overview

After 2010, we have observed an increase in scientific production [2010: 47 projects (18,2%); 2011: 71 projects (27,5%); 2012: 47 projects (18,2%)], especially in financial accounting. This evidence is certainly related to harmonization of national accounting standards with IASB accounting standards. The projects in the scientific area of auditing and internal control represent 31% of total which, together with the scientific field of financial accounting, represents 68,2% of the actual concluded projects (Figure 1).

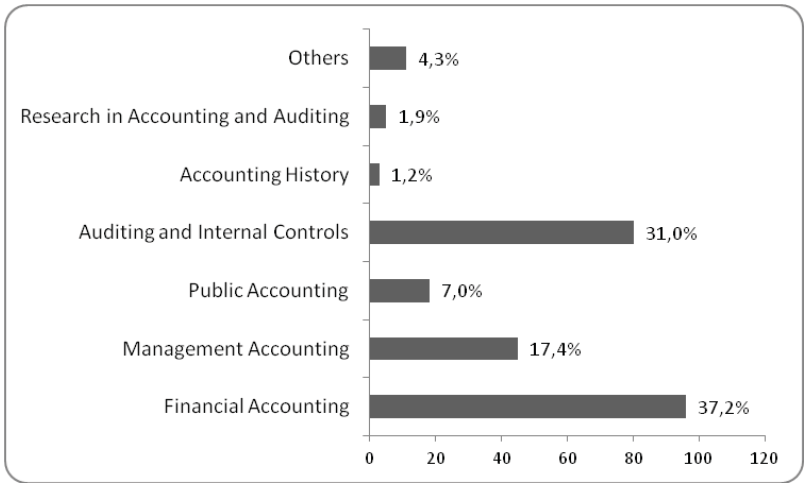


**Figure 1**: Fields of research in accounting and auditing

The field of research "*Others*" includes projects related to learning techniques and procedures. As evidenced, it assumes in our research a residual contribution (4,3%).

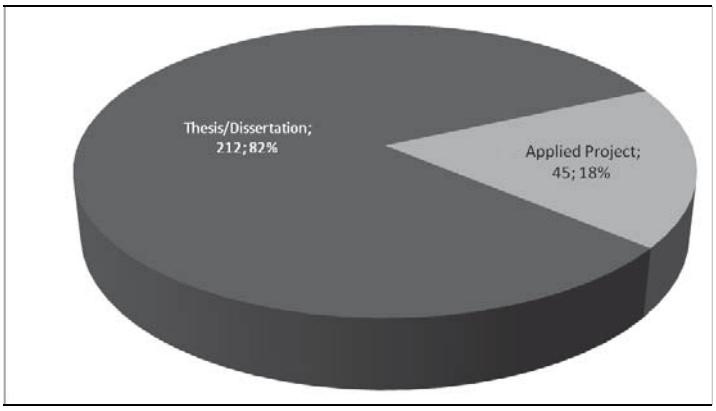


**Figure 2**: Type of project

The major part of projects concluded are thesis/dissertations (82,2%), not confirming the evidence stated in Scapens and Bromwich (2010). Interpretative approaches are followed in 57% of projects while others follow a positivist or critical approach as stated in Sekaran and Bougie (2013). Reports, standards and other documents are the main data sources which supports the content analysis used in 38,4% of the analyzed projects.

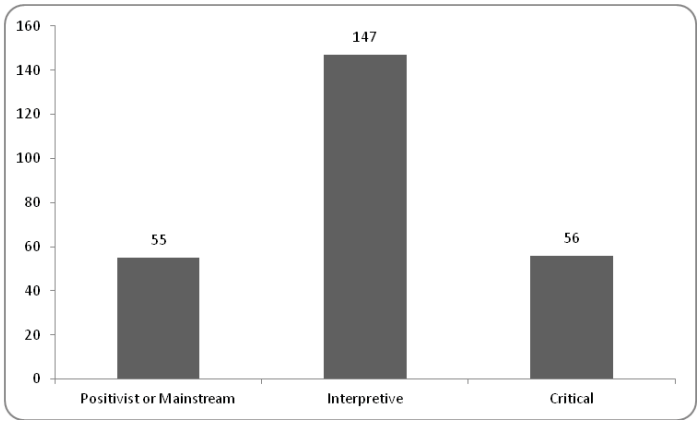


**Figure 3:** Approaches

As illustrated by the graph above, 57% of the projects have methodologically based on interpretative approaches. This approach is based on the belief that social practice is not a natural phenomenon but is socially constructed (Denzin, 2000; Ryan et al., 2002). Thus, it is based on the linkage between theory and practice. Accounting and auditing are interpreted as social practices in a social context, usually providing a theoretical framework which permits to understand how theory fits with practice. Critical approach, observed in 56 projects (21,8%), incorporates in the research several insights in order to provoke the social change.

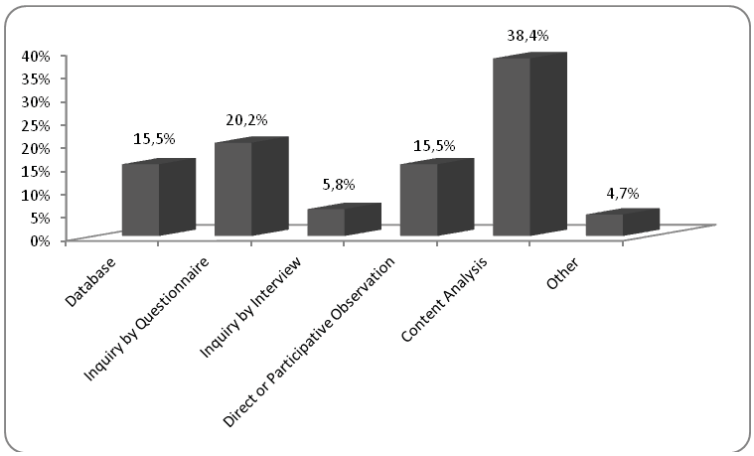


**Figure 4**: Data collection sources

Content analysis was used as the main data collection source in 99 projects (38,4%) while observation was used in 40 projects (15,5%). This evidence is linked with interpretative and critical approaches. Observation (direct or participative) is usually used when research does not need a self report descriptive data (De Walt and DeWalt, 2002; Sekaran and Bougie, 2013).

**Table 3:** Correlation coefficients

| VAR. | FRES | YEAR | TINST | TRES1 | TRES2 | APPR | SAMP | MDSR | CSTY1 | CSTY2 |
|---|---|---|---|---|---|---|---|---|---|---|
| FRES | 1 | | | | | | | | | |
| YEAR | -0,016 | 1 | | | | | | | | |
| | 0,801 | | | | | | | | | |
| TINST | 0,054 | -0,294** | 1 | | | | | | | |
| | 0,390 | 0,000 | | | | | | | | |
| TRES1 | 0,056 | 0,363** | -0,206** | 1 | | | | | | |
| | 0,366 | 0,000 | 0,001 | | | | | | | |
| TRES2 | -0,031 | -0,026 | 0,016 | 0,114 | 1 | | | | | |
| | 0,621 | 0,675 | 0,795 | 0,067 | | | | | | |
| APPR | 0,040*** | -0,009 | -0,042 | 0,052 | 0,430** | 1 | | | | |
| | 0,517 | 0,887 | 0,499 | 0,406 | 0,000 | | | | | |
| SAMP | 0,061 | -0,001 | 0,048 | -0,071 | -0,403** | -0,622** | 1 | | | |
| | 0,326 | 0,985 | 0,444 | 0,255 | 0,000 | 0,000 | | | | |
| MDSR | -0,084 | 0,163** | -0,163** | 0,187** | 0,212** | 0,519** | -0,667** | 1 | | |
| | 0,178 | 0,009 | 0,009 | 0,003 | 0,001 | 0,000 | 0,000 | | | |
| CSTY1 | -0,158 | 0,017 | -0,124 | -0,190 | -0,149 | -0,202 | -0,038 | 0,039 | 1 | |
| | 0,128 | 0,869 | 0,235 | 0,067 | 0,152 | 0,051 | 0,714 | 0,707 | | |
| CSTY2 | -0,084 | 0,066 | -0,136 | 0,242* | 0,361** | -0,152 | 0,072 | 0,100 | 0,052 | 1 |
| | 0,420 | 0,525 | 0,192 | 0,019 | 0,000 | 0,143 | 0,489 | 0,338 | 0,620 | |

* p< 0,05 ** p< 0,01 *** p< 0,1

Relating variables association (table 3), several significant correlations can be observed. As expected, a significant correlation was observed between main data source (MDSR) and type of project (TRES1 and TRES2), approach (APPR) and related concepts as sampling (SAMP). Surprisingly, the variable FRES and APPR has a significant correlation only at a 10% level which does not confirm the traditional evidence (Ryan *et al.*, 2002; Joahnsson and Siverbo, 2009; Scapens and Bromwich, 2010; Sekaran and Bougie, 2013) that financial accounting usually follows a positive approach while management accounting follows interpretive or even critical approaches.

## 6.2 The association overview

Through an integrated crossed analysis, it was also possible to identify some important associations between variables which represent in this scope important corroborative evidence. These measures are described in table 4. Surprisingly, business schools (most of them listed in the international rankings) develop thesis/dissertations (95,7%) instead of applied projects (4,3%). Complementarily, these schools tend to implement positive or interpretative approaches towards the identification of relations, statistically significant, between variables that better explain the phenomena under analysis. This evidence is probably aligned with the opportunity to publish their researches in international journals and subsequent recognition achievement by the academic and scientific communities. Note that the dissemination of research is one of the main requirements to integrate those international rankings.

Broadly, primary data sources and approaches (positivist or mainstream, interpretive, and critical) corroborates the literature (Burell and Morgan, 1979; Yin, 1984; Ryan *et al.*, 2002; Sekaran and Bougie, 2013) about research methodologies and methods ($\chi^2$=208,893; df=10; p=0,000). Case studies have, in 65%, an explanatory nature and are used specially on applied projects ($\chi^2$=23,739; df=4; p=0,000).

**Table 4:** Main association measures

| Variable $X_n$ | Variable $X_p$ | $\chi^2$ | df | Asymp. Sig. (2-sided) | Cramer's V |
|---|---|---|---|---|---|
| TRES2 | INST | 53,895 | 6 | 0,000 | 0,323 (0,000) |
| FRES | APPR | 20,783 | 12 | 0,054 | 0,201 (0,054) |
| APPR | TRES2 | 55,619 | 4 | 0,000 | 0,328 (0,000) |
| SAMP | TRES2 | 42,807 | 2 | 0,000 | 0,407 (0,000) |
| | APPR | 100,037 | 2 | 0,000 | 0,623 (0,000) |
| MDSR | INST | 40,776 | 15 | 0,000 | 0,230 (0,000) |
| | TRES1 | 16,267 | 5 | 0,006 | 0,251 (0,006) |
| | TRES2 | 97,572 | 10 | 0,000 | 0,435 (0,000) |
| | APPR | 208,893 | 10 | 0,000 | 0,636 (0,000) |
| | SAMP | 145,129 | 5 | 0,000 | 0,750 (0,000) |
| CSTY2 | TRES1 | 6,308 | 2 | 0,043 | 0,259 (0,000) |
| | TRES2 | 23,739 | 4 | 0,000 | 0,355 (0,000) |

As observed in the table above, for a significant level of 1% or 5%, we didn´t find a significant correlation between the variables FRES and APPR ($\chi^2$=20,783; df=12; p=0,054). However, we should underline that 57% of the projects follow an interpretative approach and 21,7% a critical approach. This evidence applies for all accounting and auditing scientific domains under analysis. This evidence does not corroborate the assumptions stated in Joahnsson and Siverbo, (2009), Scapens and Bromwich (2010) and Sekaran and Bougie (2013).

Based on the LDA approach, the variables that better fit with "*Field of research*" are the variables TRES1, SAMP, CSTY1 and CSTY2. These variables explain 58,5% of the overall variance (Wilks' Lambda=0,533 and $\chi^2$=54,348; df=32; p=0,008). The variable MDSR explains by itself 24,5% of the global variance which represents a cumulative variance explanation of 83%. Thus, sampling methodology is used fundamentally in the scientific fields of "*Financial accounting*" (38%) and "*Auditing and controls*" (38%) while case study methodology is implemented in financial accounting (29,8%), in management accounting (27,7%) and in auditing and controls (31,9%).

## 7. Final remarks and limitations

Mainstream (positivism), interpretive and critical methodologies are the main approaches that drives the research as a whole, both in natural as in social sciences. Knowledge creation is based on unsolved paradigms which assumptions drive researchers towards multiple methodologies and methods that permit to explore and interpret the world. Traditionally, in the scope of accounting and related scientific domains, the financial accounting research has traditionally followed a positive approach while management accounting is more permissive to qualitative approaches such as case studies or even interpretive theoretical models (Denzin, 2000). Although not generalizable, applied projects allow and facilitate the understanding in depth of a certain phenomena in an organizational reality.

The projects concluded between 2008 and 2013, and disseminated in the national repository, are Ph.D. or MSc thesis/dissertations. In 78,3 % of cases, a positivist or interpretative approach have been implemented, corroborating the evidences stated in Ryan *et al.* (2002), in Scapens and Bromwich (2010) for accounting scientific field. Content analysis and inquiry by questionnaire were the main sources used in data collection.

Variables as sampling, case study and data source are the ones that better differentiate the research made in the fields considered in this research, as stated in and Siverbo (2009, Scapens and Bromwich (2010), and Sekaran and Bougie (2013). Complementarily, business schools listed in international rankings tend to implement positivist approaches while other institutions implement all the methodologies without any significant differentiation. This evidence requires further research in order to consolidate the possible trend in the current social context.

To extend the number and the scientific fields of projects concluded and disseminated in the national repository, can be the forthcoming lines of research towards the consolidation or refutation of the empirical evidences achieved in the current research project.

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