

# Looking for Clues about Quality: A Multilevel Mixed Design on Quality Management in Greek Universities

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**Abstract:** As methodology, mixed methods (MM) provide a means to facilitate and explain several complex phenomena across various disciplines. Tashakkori and Creswell (2008), identified a nurturing and dynamic intellectual community as one that encourages scholarly debate and intellectual risk-taking as well as developing graduate students as stewards of their disciplines. Therefore, the purpose of this paper is to describe how a multilevel mixed design was applied to a research project designed to investigate the adoption of quality management in Greek universities through the lens of neo-institutional theory. Appropriate research design is a critical choice when performing organizational research, especially when the research lacks previous precedents; thus, this gap in the literature empirically investigated these issues by using MM, which led to a process in design development and compatibility to overcome many challenges. This paper presents part of the methodological and pragmatic rationales that guided the choice to use a multilevel study mixed method design by using both concurrent and sequential data collection at the macro, meso, and micro levels in Greek universities.

**Keywords:** multilevel mixed design, quality management, higher education, neo-institutional theory

## 1. Introduction

As a methodology, mixed methods (MM) provide a means to facilitate and explain several complex phenomena across various disciplines. Creswell (2009, p. 106) noted that “the field of mixed methods will continue to expand across disciplines and [throughout the] field”, and he anticipates seeing uniquely combined MM designs in future papers. Additionally, Tashakkori and Creswell (2008, p. 294) argue for the use of MM along with many other scholars (Creswell and Plano Clark 2007; Greene 2007; Johnson and Ownuegbuzie, 2004; Teddlie and Tashakkori 2009) thus, in varying degrees, all of them advocate for the empowerment of the next generation of researchers to examine issues and research problems from multiple perspectives. Tashakkori and Creswell (2008) identify a nurturing and dynamic intellectual community as one that encourages scholarly debate and intellectual risk-taking as well as developing graduate students as stewards of their disciplines. Therefore, the purpose of this paper is to describe how a multilevel mixed design was applied to a research project to investigating the adoption of quality management (QM) in Greek universities through the lens of neo-institutional theory. It provides methodological concepts, relating to the theoretical framework of the study, and details that concern the multilevel study mixed method design using both concurrent and sequential data collection at macro, meso, and micro levels in Greek universities. This paper begins with the rationales partly methodological and partly pragmatic (how difficult it is to do research in Greece) that guided the choice of looking the clues about quality by using a multilevel mixed design.

## 2. Research project overview and pragmatic rationales

Quality management deals with policies, systems and possesses designed and implemented to ensure the maintenance and improvement of quality of organizations including universities. Quality management suggests a transformation process requiring a fundamental shift in management practice and culture. Thematically this study is rooted in organizational and management research on higher education within which QM practices are investigated as an instance of organizational change. Normally, organizational theorists focus on the effects of institutions on organizational structures. Although there are several studies of that type, Sporn (1999, p. 75) stated “because adaptation in universities is a relatively new and pressing phenomenon, there are no standard definition[s] of variables, let alone validated instruments for measuring them” and that has not changed in the ten years between her publication and mine.

Quality management is usually defined as *organized activities dedicated to improving and assuring educational quality* (adapted from Massy, 2003, p. 159). QM is supposed to systematize a university's approach to quality instead of leaving it mainly to unmonitored individual initiative. Arguably, attempts to manage quality in universities in a more structured and systematic way emerged first in the context

of the US higher education system and was partly inspired by models and practices from the business world. Schwarz and Westerheijden (2004) point to the use of practices and models for QM that originated in the business world, which was then applied and adapted to higher education in order to improve higher education's products and processes. Academic research which focuses on the rise of QM in the US contains, however, quite different views about the value of these processes and models. Schwarz and Westerheijden traced quality assurance, as a separate instrument in university management and to government policy, as having started in the 1970s (in the USA) and 1980s (in Europe). This move to adopt QM was followed by industry's discovery and usage of the new management tool, which mimicked the success of the Japanese economy. Schwarz and Westerheijden interpreted this management tool from a European perspective as both the old isomorphism drive to copy whatever seemed successful in US higher education and the new isomorphism drive to copy whatever seemed successful in industry. Hence, they used the concept of isomorphism, one of the central elements of neo-institutional theory, which has become one of the dominant approaches for explaining how organizations adapt to institutionalized pressures from their environments for changes in business theory. DiMaggio and Powell (1983) stated that in neo-institutional theory, three mechanisms can be identified through which isomorphic change occurs: *coercive* forces, which stem from political/legal influence and the problem of legitimacy; *mimetic* forces resulting from standard responses to uncertainty; and *normative* forces associated with professionalization. Thus, I made use of these organizational insights and used them as mechanisms from neo-institutional theory in order to adequately evaluate specific changes as responses of Greek universities.

Researchers describe universities as organizations with unique characteristics (Baldrige et al. 1977; Dill 1992). Some distinguishing characteristics that affect a university's decision processes regarding adaptation to change are: goal ambiguity, client service, task complexity, professionalism and administrative values, and environmental vulnerability. However, Johnson et al. (2003), writing about change in the modern university, stated, for example, that vision for change must come from inside the institution, at the department and college levels. They argued that leadership, technology, and academic culture are interconnected dimensions of managing organizational change. They also argued that deans and chairpersons in universities must manage all the above mentioned dimensions concurrently if they are to create systematic change in their organizations. The authors confirmed what Clark (1983) stated earlier: changing higher education from above is very difficult, although there is a lot of bottom-up change.

The present, adopted research design was conducted in Greece. Greece may be an attractive place for a holiday because of its rich history, food and night life, but news around 2005-2006 about its universities seemed dominated by reports about strikes, student marches, protests and similar issues rather than the QM of Greek higher education institutions. Other news regarding quality assurance in higher education could be read in the Greek National Reports published in the framework of the Bologna Process in 2003 and 2005 (Ministry of Education, 2003, 2005). The reports claimed that the framework for operating a national system for quality assurance in higher education was under consultation before the Greek Parliament. This framework, however, only became an active law in 2007. Related news was that the Hellenic Quality Assurance Agency's for Higher Education website went online in March 2007. In the absence of any national quality performance monitoring system (until 2006) eight of the twenty-one Greek public universities voluntarily had participated in the European University Association- Institutional Evaluation Program (EUA-IEP).

In Greek higher education at least until 2007, QM was in an early and *debated* stage. The purpose of that study was to examine the adoption or non-adoption of quality management within the universities in Greece as outcomes of organizational change practices. To study organizational change by using neo-institutional theory in universities is a challenge and especially in Greece, where the environment for conducting empirical social science research has been characterized internationally as notoriously difficult. The hot debate which took place in Greece during the period of the study made it difficult to study quality management directly using only qualitative or quantitative approaches.

That study examined QM at macro, meso and micro levels in Greek universities up to 2007. The reason for drawing a specific time border was that in 2007, the context changed considerably when a new law was adopted regarding quality assurance in higher education, and consequently the national system for quality assurance in higher education made its first public appearance. Thus, that study examined a period during which quality assurance, evaluation, and QM were heavily debated as to

the meaning for the universities in Greece. As this historical event occurred in Greece, it became a good place to study forces for change and stability as QM was introduced and implemented and led to the problem statement of my study: *to identify relationships between the organizational factors for stability and/or change in Greek universities and the universities' adoption (or lack of adoption) of quality management*. For these pragmatic reasons, a sophisticated approach of the study became necessary and a multilevel mixed design was chosen because it was the most appropriate method.

Ultimately, the central concern of that study was to understand the adoption of QM practices (if any) in public universities in Greece through the lens of organizational theory. That study employed some core concepts of neo-institutional theory as applied to QM in organizations. Given that the focus of this paper is not the research itself, but rather, it is the adopted research design that was used to answer the research question of that study. The next sections will address issues to explain why it was necessary to choose a sophisticated approach to investigating QM in Greek universities through the lens of neo-institutional theory.

### **3. Choosing a sophisticated approach to investigating quality management in Greek universities: Why mixed methods**

A mixed methods strategy is defined as: research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches and methods in a single study or program of inquiry (Tashakkori and Creswell, 2007, p. 4). Tashakkori and Teddlie (2003) suggested that a variety of data sources and analyses is needed to understand complex social phenomena or realities thoroughly. In addition, Currall and Towler's (2003) review suggested that when organizational and management researchers used a combination of qualitative and quantitative methods to investigate organizational phenomena, their research yielded greater information than could be achieved through single methods. The authors pointed out that MM are considered appropriate when research questions concern process and dynamic phenomena such as innovation and change. Furthermore, Currall and Towler (2003) advocated that quantitative and qualitative research methods are complementary rather than opposed approaches: thus, this combination of techniques can enhance and enrich current knowledge by "filling the gap" that other studies, which only adopt a single approach, are unable to do. Thus, the MM strategy seemed the most appropriate methodology for that study (Johnson and Ownwuegbuzie 2004; Tashakkori and Creswell 2007; Tashakkori and Teddlie 1998, 2003; Teddlie and Tashakkori 2009).

The MM strategy was also chosen for additional reasons. First, the introduction of QM in a higher education system is a complex issue that may appear different at various levels. Each level may need individualized research to fully explore the core theoretical approach that neo-institutionalism contributes to the complete study. Mizruchi and Fein (1999, p. 678) for example, suggested that for organizational analysis, the neo-institutional theory has become a leading perspective. One of the problems that arise in cases where authors stipulate just one type of isomorphism is at work occur when they ignore alternate options that are equally possible. Mizruchi and Fein (1999, p. 678) also claimed when authors assume that only voluntary mimicry accounts for an organization's behavior, without consideration of alternate explanations, which include coercion, the author(s) might, in effect, provide a limited and biased picture of the processes one is attempting to analyze.

Another reason that guided my choice in methodological matters was related to the heated debate, which took place in Greece during 2005-2006, thus making it difficult to study QM directly. Studying a 'hot topic' is already a sensitive and difficult matter in the best of circumstances. But Greece is an environment that is internationally notorious for its difficulty for conducting empirical social science research: accordingly, very low levels of cooperation have to be expected (as also found by Bourantas and Papadakis 1996; Makridakis et al. 1996) while only few empirical studies report good access to the field and high response rates in surveys (e.g. Gotzamani and Tsiotras 2001, Lipovatz et al. 1999, Papadimitriou and Westerheijden 2008).

Those difficulties necessitated a sophisticated approach of the study. As noted by Greene (2008, p. 14), "there has also been some work in the area of integrated mixed methods data analysis, although this work has not yet cohered into a widely accepted framework of set of ideas". My study attempted to explain the rationale and the purposes for conducting MM analysis by combining both qualitative and quantitative approaches, while illuminating the QM phenomenon in three levels and under difficult research circumstances. I argue that this research amalgamation provided a deeper understanding of the study phenomenon (QM) and its relationships with isomorphic pressures: coercive, normative and

mimetic. My study used several research techniques such as document analysis, surveys and interviews with a variety of respondents (i.e., rectors, department heads, laboratories' directors and academic support services administrators).

### **3.1 Multilevel mixed design**

Teddlie, and Tashakkori (2009) proposed that "multilevel designs are possible only in hierarchical organized social institutions, such as schools and hospitals, in which one level of analysis is nested with another" (p. 146). Also, the authors pointed out that "the most dynamic and innovative of the MM designs are mixed across stages" (p. 146). The authors argued that typologies of MM designs are "valuable, researchers should not expect them to be exhaustive" (p. 139). Multilevel mixed designs, characterized by Teddlie and Tashakkori (2009) are "very powerful, they are challenging to conduct due to the complexity of running multiple research strands often simultaneously" (p. 153). Teddlie and Tashakkori, (2009) provided several diagrams in their book; however, they suggested that "multilevel mixed design may be considered specialized designs because only certain types of data are structures in a nested manner with the different levels of analysis" (p. 156). The following section presents the multilevel mixed design that was developed for the purpose of my study.

## **4. From theory to praxis: Practical considerations in developing a multilevel mixed design**

As explained above, taking into account the problem statement, the research questions as well as the circumstances (rationales) of my study, my research intended to use different methods of investigating the QM and synchronously explain its relationships with neo-institutional theory in Greek universities. That study attempted to be explanatory and at the same time it had exploratory elements. For a better understanding, that study involved multiple qualitative and quantitative data (surveys and documents analysis) to converge information in the best way possible and to provide evidence for a variation of QM in an organization. This design involved mixing qualitative and quantitative approaches in three levels (macro, meso, and micro) in an interactive way. Like a scaffold, each empirical study of this research was built on and was designed to harmonize with the other elements. The empirical study took place over a two-year period from 2005 to 2007. However, each empirical study occurred at a specific period. The visual model of the procedures for the multilevel mixed design of this study is depicted in Figure 1.

### *1<sup>st</sup> Stage*

The *raison d'être* of the first stage of the model was to include the problem statement and the research questions (RQs) that this study aimed to accomplish.

### *2<sup>nd</sup> Stage*

The rationale of the second stage was the development of the conceptual framework. Thus, this stage was designed to include the theoretical considerations of that study (quality management, isomorphism, and university characteristics). The first research question was linked to QM and it was approached through a review of quality management in higher education, which included the European University Association-Institutional Evaluation programme (EUA-IEP), the Malcolm Baldrige Education Criteria for Performance Excellence (MB), and ISO. In addition, as a pilot test for putting quality management theories into practice and to make it more application-oriented, quality management practices from abroad were also used (two from US universities and one from Europe). The second research question was approached through open system theory, neo-institutional theory, and isomorphism more specifically. From a neo-institutional view, organizations (such as universities) operate in an environment dominated by rules, requirements, understandings, assumptions, beliefs and procedures (scripts) about what constitutes appropriate or acceptable organizational forms and behavior. In addition, to gain a better understanding of isomorphism, I focused on the use of neo-institutional perspectives in empirical studies in organizations as well in studies undertaken in the field of higher education. Furthermore, universities are characterized as complex organizations with many layers; therefore, universities' characteristics reflect intra-organizational elements of the adoption of quality management. In the case of the Greek universities, due to their state idiom, some characteristics such as their mission and decision-making processes were equal in all universities. The key elements of these characteristics fall into six categories: leadership, vision, age, size, location, and range of studies. This stage ended by presenting the study's conceptual framework (Figure 2) and the variables enclosed in the conceptual framework, which was operationalized in this stage as well.

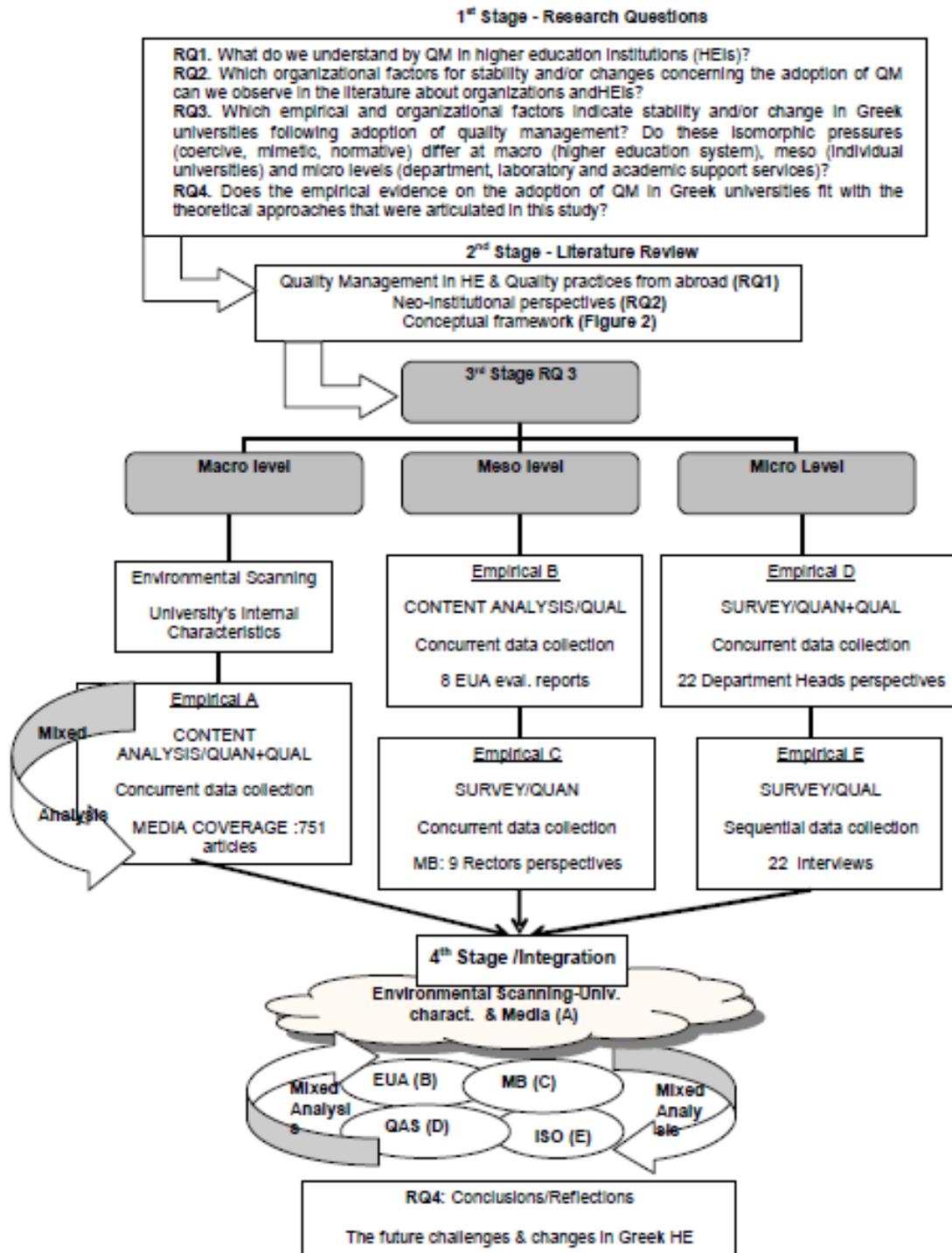
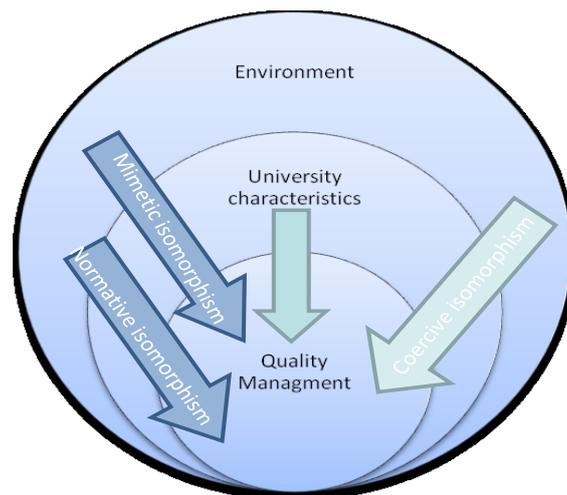


Figure 1: Visual model of the procedures for the multilevel mixed design



**Figure 2:** Study's conceptual framework

### *3<sup>rd</sup> Stage*

When studying QM it is important to consider that there are differences between countries. Other difficulties arise when introducing QM because the complexity of higher education requires individual analysis of unique and multiple levels within the structure of Greek universities. Since each these different levels should probably be researched separately, the core theoretical approach of neo-institutionalism contributes to realizing that need. Thus, this stage which related to the empirical studies of the entire project was divided into three levels (macro, meso, and micro) for better understanding.

#### *Macro level*

The macro level was understood to include issues related to the elements of the external and internal environment in which Greek universities operate. As a preliminary to the actual empirical studies, the entire project contained a 'quick scan' of the environment derived from documents and observations. The first empirical study (A) was directed at how the printed media addressed quality management in higher education during a peak period of the debate in 2005. This included a quantitative and qualitative (QUAN+QUAL) content analysis with mixed analysis of data for this particular study's inference. The study was based on content analysis of newspaper inputs from May 2005. This analysis considered whether articles in newspapers were for or against the introduction of quality assurance and which reasons were given for the stated points of view, interpreted in terms of coercive, mimetic, or normative pressure. Results from the 'scan' of the external environment and the media study (A) were intended as the "cultural knowledge" to give fuller understanding of the study's observed phenomenon and they became a valuable asset in the process of making inferences (Tashakkori & Teddlie, 1998). Thus, the macro level "reflects the researcher's prior understanding of a phenomenon under study" and provided answers to the RQ3 (macro level). In terms of Teddlie and Tashakkori's (2009) definition of purposive sampling techniques, this study used "sampling of [a] politically important case", which "is a special or unique case that involves selecting politically significant or sensitive cases for study" (p. 175).

#### *Meso level*

Taking into consideration inferences from the macro level and the potentially difficult circumstances that this researcher could face while interviewing and surveying individuals, the author decided to schedule the meso level in this way to investigating QM and isomorphism by using document analysis. At the same time, a survey study was employed for better understanding. Here, two studies (B and C) aimed to fully understand the phenomenon at the university level (meso) by using documents and leaders' experiences and perceptions.

The first empirical study (B) in the meso level was a concurrent qualitative (QUAL) content analysis where the main data were derived from the eight EUA-IEP evaluators' reports. The EUA-IEP was perceived as a key event concerning isomorphism and QM within universities in Greece. Fetterman

(1998, p. 100) noted that “key events are extraordinary useful for analysis”, because they shed light on mechanisms and processes that otherwise remain hidden in a routine examination. I began this research with the expectation that reports would explore the three categories of themes highlighted in the conceptual framework of this study, (i.e. isomorphic pressures, university characteristics, and quality management). The data were analyzed by hand using qualitative content analysis procedures. Each report was analyzed against the three categories of themes.

The second empirical study at this level was focused on understanding how leaders (rectors and vice-rectors) in Greek universities perceived the environmental pressures and to what extent they adopted quality management in order to improve their universities’ performances (C). The questionnaire I used was based on the Malcolm Baldrige Award Criteria for Performance Excellence (2005 version), to collect data on quality management and isomorphism. Questionnaires were sent to all rectors and vice rectors in all Greek universities. The MB criteria enabled me on the one hand to study university leaders’ perceptions of quality management, while on the other hand, to understand the extent to which it was being implemented at the meso level. Besides, this instrument facilitated an understanding of the leaders’ perspectives with regard to criteria for performance improvement in relation to neo-institutional pressures. This study was planned as a sequential quantitative and qualitative (QUAN→QUAL) study; however, I was unable to complete the second qualitative (QUAL) part of this study, as most participants were unwilling to participate in the second phase of the study. Therefore, the final design of this study was a concurrent quantitative (QUAN). The quantitative overall results were integrated in the final 4<sup>th</sup> stage by using MM analysis (Onwuegbuzie et al. 2007). Questionnaires were sent to all rectors and vice rectors in all Greek universities.

#### *Micro Level*

In an effort to build a deeper understanding of the study of phenomenon at the micro level, I incorporated another two empirical studies (D and E). The first one (D) was a concurrent quantitative and qualitative (QUAN+QUAL) survey and included department heads’ perceptions and concerns about QM, such as quality assurance systems. To study the isomorphic pressures that 266 department heads in Greek universities experienced in deciding whether to adopt QM practices I employed an electronic survey largely modeled on the questionnaire by Ursin (2007, personal communication). In Finland, he carried out a survey to find out how quality assurance systems are understood by the academic unit heads. My research was conducted in 2007 when the law concerning quality assurance in Greece was active. That research was able to provide a different angle for the study of phenomenon for both levels (meso and micro) and was designed in that way for triangulation purposes. Questionnaires were sent to all department heads.

ISO provides a framework for QM in organizations. The final empirical study (E) at the micro level was a qualitative (QUAL) study. It was developed to present the extent of use of the ISO at the laboratories and academic support services in universities and simultaneously to examine isomorphic pressures that might influence the adoption of this particular QM practice. In that study, I included all available ISO cases in all Greek universities and interviews with directors. The inferences of these two studies (D and E) were also integrated into the final 4<sup>th</sup> stage.

#### *4<sup>th</sup> Stage*

As noted in Teddlie and Tashakkori’s (2009) view, as well as others, the most important step in any mixed method study is “when the results from the study’s QUAL and QUAN strands are incorporated into a coherent conceptual framework that provides an effective answer to the research question”. Consequently, the final stage of this study was related to the integration process of the overall study. In order to answer the third research question, I presented the results by grouping the findings by detailing the corresponding qualitative and quantitative questions related to the explored factors influencing the adoption (if any) of QM in Greek universities.

During the analysis process in each of the empirical studies, I followed Onwuegbuzie and Teddlie’s (2003) suggestions. In quantitative (QUAN) studies, I used data reduction techniques computation of descriptive statistics. In qualitative (QUAL) Miles and Huberman’s (1994) and Creswell’s (1994), I followed their suggestions. In addition, I analyzed quantitative data qualitatively and vice versa. I also used a “construction technique” which helped to identify isomorphism and adoption of QM in different levels.

Answers to RQ3 were provided from multiple viewpoints (angles). Inferences from 3<sup>rd</sup> stage did not measure the quality management directly but provided a blend of pragmatism up until 2007. These approaches link to the documented QM practices, and derived from rectors/vice-rectors and deans from the same university (empirical B and partly C). The empirical study of EUA-IEP and ISO (empirical D and E) are linked with documented QM. In addition, inferences from empirical studies C and D were analyzed both qualitatively and quantitatively (Onwuegbuzie and Leech 2004; Tashakkori and Teddlie 2003; Wang et al. 2007) in order to give readers a different viewpoint of the adoption of QM and isomorphism.

In the integration stage, I took into consideration inferences from empirical study B to triangulate the data provided by rectors (empirical study C) and deans (empirical study D) derived from the same university. Another view in integration was to examine if there was any evidence of universities using quality management, such as EUA-IEP (empirical study C) and ISO (empirical study E). The final step was to verify if the empirical evidence coincided with the theoretical lenses-whether the neo-institutional perspective adopted for this study related to the answer of the fourth RQ. Additionally, the 4<sup>th</sup> stage was designed to include a section on “the future challenges and changes in Greek higher education”, which aimed to provide the latest considerations of the study phenomenon and concluded with recommendations for future avenues of QM research in Greek higher education.

## **5. Conclusion**

Proper research design is a critical aspect of organizational research, especially when the research takes place for the first time. The present research design was an authentic multilevel mixed design which was able to investigate QM and isomorphism in Greek universities. Adoption of QM reflects a complex change process, where data collection and analysis from different levels provides a better understanding. Additionally, when the QM is related to a policy such as quality assurance, outcomes of this research could have valuable answers and insights into why this practice, as a policy, fails and what needs to change in order to have full implementation; in other words, this design could be used in order to evaluate policy implementation as well. Thus, investigation requires a deep and cogent understanding of QM in any organization under study, which in my case was Greek Universities.

MM research is time consuming and incorporates methodologies that require one to overcome many challenges. Implementation of this design was time consuming and difficult, as might be expected, but there were foreknown challenges associated with using it.

Considering that few publications appeared to cover these issues empirically, I provided some of the process that I used to overcome those challenges. I argue that documents related to the study of the phenomenon are always a very useful source for analysis. Therefore, future researchers facing similar problems such as a low response rate from people who they initially targeted as prime subjects, but who refused to participate in the research, might find it helpful to look for other related issues/events that might give indirect explanations about their study of the phenomenon from perhaps geo-political, socio-economic, socio-cultural conditions, which might drive the decisions that affect the response rate. In organizational research like adoption of quality management, an environmental scanning always is a good source to start a research project. Also, debatable issues could be found in media such as newspapers and transcript of television new casts, where researchers might find indirect explanations for their studies.

Decisions made in QM research are always in need of special attention by all researchers who decide to study any organization. Additionally, special attention must be directed at how powerful the organization's leader is, especially in nonprofit organizations. Another issue to consider in an investigation should be in regards to the process of the decision-making within the organization.

Challenges that relate to the presentation of the project need particular attention, especially when individual empirical studies are presented without a full disclosure of the research methodology. For instance, in my project's operationalization section, I mentioned only once the methodological issues about surveys, content analysis, and interviews. In each empirical study, I concluded with research results, but the overall inference appeared in the section that I called “Integrations and Reflections” and where I used a construction technique for QM dimensions and isomorphic pressure, which then allowed me to make inferences for the overall project, and where inferences were provided at each level.

I argue that the success of this endeavor was enhanced because I had considerable mentorship support and understanding in carrying out a dissertation thesis in a way of a synergetic collaborative/mutual mixed methods research. I fully agree with Tashakkori and Creswell (2008) as they “envision[ed] the future stewards of the social-behavioral research enterprise”, because it needs more integrated research mentorship and support. They noted that this goal is only possible if the mentorship (the community of scholars and scholar-practitioners) “provide an open, diverse, and dynamic culture of enquiry” (p. 291).

The study investigated the adoption of QM in Greek higher education through the lens of neo-institutional theory. The implication of this empirical study lies in the fact that no existing studies have investigated the adoption of QM in Greek universities at the different levels. Further research should pay special attention to QM and the various organizational relationships, both external and internal while at the same time utilize neo-institutional theory along with MM design when approaching the relatively uncharted Greek higher education because a MM strategy poses multiple challenges. From a methodological point of view, I would like to characterize this practice not just as “good practices” but as a “good process” because it merges multiple approaches and processes as well as providing a design in which researchers can begin further inquiry into understanding the complex organizational change at different levels within organizations and especially within the universities.

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