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Challenges for Quality Management in Higher Education – Investigating Institutional Leadership, Culture and Performance

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1. Introduction

In an era of global economic recession, Higher Education Institutions (HEIs) are experiencing severe pressure from budget reduction. As a result, they have been forced to develop more competitive ways in order to tap on resources and capabilities stemming from contemporary rapid technological and organisational changes. Thus, quality management issues have drawn the interest of academics and practitioners in order to build a sustainable competitive advantage battling against economic recession (Altbach et al., 2009).

Nowadays, Greek economic arduous position triggered off downsizing and cost reduction at unprecedented levels in the pubic sector, forewarning a similar orientation of retrenchment of higher education. Hence, resource scarcity and decline will guide inevitably to the corrosion of institutional effectiveness accompanied with lack of innovation, rigidity, dissatisfaction, conflict, reduced quality and turnover, unless HEIs adapt to the vulnerable environmental conditions and fiscal recession (Cameron & Smart, 1998).

Almost six years ago, a reform act was initiated for the adoption of necessary metrics and processes in order to assure the quality of services provided by Higher Education Institutions (HEIs) in Greece. This national quality assurance (QA) system aims at improving transparency, comparability and accountability of the Greek higher education system, fostering quality culture throughout the HEIs. Teaching and administrative staff as well as students are expected to be the main participants and contributors in this process. Evidence from other countries have shown that the introduction of an assessment system, QA procedures, and long range planning leading to cultural change has met the opposition and resistance of the majority of HEIs' stakeholders (Morley, 2003; Van Damme, 2002). The success of the quality management systems' change and the necessary transition in quality culture of HEIs depends on the ability of academic leaders to handle crisis and to build a strategy supportive culture with the contribution of all participants.

This chapter aims to give an overview of the QA system deployed at the Technological Education Institute of Larissa (TEIL) and to describe the transition process through the

investigation of leadership, culture, student satisfaction, graduates assessment and teaching performance evaluations.

First, the chapter provides the general framework for QA initiated in higher education in Greece, as the foundation of the quality system TEIL adopted. Then the chapter describes the profiles and the emergence importance of leadership and institutional culture in the implementation stage of QA system, to engage faculty and administrators in the evaluation of service quality provided. Thereafter, this study presents the findings of a large scale survey conducted by the QA unit of TEIL, investigating the quality level of teaching processes and supporting services offered to students. Finally, this chapter concludes with the perceptions of graduates about various aspects of quality in order to provide insight into the strengths and weaknesses of the established system and offer valuable suggestions for areas of improvement.

2. Quality in higher education

Though a plethora of meanings and connotations of 'quality' term has been proposed, its subjective nature has contributed to confusion and vagueness in the existing literature leading to the lack of a universally accepted definition. In addition, the discipline of quality in higher education suffers from ambiguity due to the interchangeably adoption of conceptual different terms such as *quality*, *accountability*[1] and *assessment*[2].

Yet, it might be more fruitful to provide an insight into many views that formulate a fuzzy construct referred to as quality through theoretical consensus rather than defining it.

Initially, institutions of higher education have adopted the internally focused resource view determining quality by the assessment of their internal resources, such as the number of books in its library, the number of faculty with terminal degrees, size of the endowment and reputation neglecting the influence of the changing external environment and the emergence of sophisticated higher education customers (Seymour, 1992). Increased competition, cost-efficiency, accountability and service orientations forced higher education to gradually swift its focus on a value added or performance approach of excellence, where quality is determined by its outcomes, such as efficient allocation and use of resources and producing highly satisfied and employable graduates (Koslowski, 2006).

Originated in ancient Greece, Aristotle[3] rejects that quality is an act, and favours that it is a habit. In another way, Crosby (1979) described quality as conformance to requirements based on customer expectations. From a related but different perspective, Juran (1945) established the fitness for use view as determined by the customer. However, Drucker (1985) determined quality as customer's willingness to pay in relation to what he/she values.

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[1]Accountability as an overarching principle has frequently been related to external forces such as accrediting bodies, governmental agencies and the public (Koslowski, 2006).

[2]Assessment as one of the many components of quality reflects the further refined tangible process resulting to the evaluation of individual instruction, specific curriculum, and student learning as a way to deal with and enhance the quality of higher education (Palomba & Banta, 1999).

[3]Aristotle of Stagira (384 BC -322 BC) was an ancient Greek philosopher who first devised a comprehensive system of Western philosophy, encompassing morality and aesthetics, logic and science, politics and metaphysics.

In an attempt to synthesize diverse quality perspectives, Seymour (1992) interpreted in the higher education context the five different types of quality proposed by Garvin (1988), as follows:

- *Transcendent* quality is a result of educator's reputation and expertise, however, it is internally focused ignoring the role of external agencies as well as the public.
- *Manufacturing-based* quality is based on service conformance to specifications and implies that the provider is capable of appropriate self-regulation. Seymour (1992) advocates that this definition is useful in an educational context, since it counterbalances the resource view of quality. Still, educational institution is responsible to make the critical decisions about service design (degree offerings, curriculum etc.) abolishing external environment and neglecting consumers' wants and needs.
- *Product-based* quality reflects student learning, produced by the curriculum and faculty. It is closely linked with assessment due to its foundation on measurable and objective indices and once agreed upon by administration and academia can advance teaching and learning. Notwithstanding, it suffers from imprecision and it might be deceptive, because several metrics such as retention rates and graduate entrance examination scores fail to shed light on what students have learned and the competences gained during their studies.
- *Value-based* quality refers to acceptable or above expectations performance at an acceptable price, meaning that higher education customers may consider the expected salary after graduation in comparison with tuition fees.
- *User-based* quality is determined by the customer's needs, wants, desires, and preferences, but in the educational context, they are highly idiosyncratic and partially subjective. This approach is antithetical to transcendent, and resource views.

Regardless of the debate on quality perceptions which are inevitable, legitimate and evolving, there is some agreement that quality has to be determined by stakeholders (Koslowski, 2006). Thus, higher education has a number of stakeholders such as students, graduates, their parents and family, academic and administration staff, employers, governmental agencies, local community, and society, all of whom experience different aspects of quality.

For example, **academics** characterized by professional preparation and autonomy in the delivery of the educational process are more inclined to define quality in resource rather than performance terms, such as individual reputation, number of research publications produced, and number of courses taught. However, **administrators** favour concrete and definable measures of success or failure of administration and coordination processes, in relation to abundant (and sometimes potentially contradicting) institutional goals and obligations (Koslowski, 2006).

Bonvillian and Dennis (1995) recognize that quality in higher education is determined by three related ingredients, namely (a) market forces as a result of fierce competition and socio-economical environment of higher education, (b) the political context referring to accreditation and public funding in order to efficiently accomplish more with less[4], and (c) student's experiences and expectations.

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[4]Recognizing the significant impact of global financial crisis on OECD countries, the Institutional Management in Higher Education entitled its last general conference: *Higher Education in a World Changed Utterly: Doing More with Less*, (IMHE, 13-15/9/2010, Paris, France) in order to highlight and reinforce initiatives toward sustainability and effectiveness.

In this regard, the application of the marketing paradigm in higher education has advanced the view that tertiary institutions serve customers endorsing service quality rather than students. Thus, their satisfaction of their learning experience is crucial to develop institution's reputation and gain competitive advantage over other institutions.

Moreover, on the grounds that students may not be in a position to recognize exactly what is better for them at that point in life, Sitkin et al., (1994) distinguish that tertiary institutions should educate customers in what they need rather than just aiming to satisfy what they want.

Further, the term '*students*' is commonly tightly linked with a one-way approach of learning, limiting the potential for greater collaboration and participation, while the concept of '*customers*' indicates a sense of sharedness, interaction and feedback leading to knowledge co-construction where involvement promotes knowledge acquisition and experiential learning (Yeo, 2009).

In a similar vein, Rinehart (1993) discerns two different approaches of students regarded as customers: (a) internal customers actively involved in the input and output of the learning process, and (b) external customers playing the role of future employees and employers. The latter type promotes the idea that education should prepare students for the future by developing curricula suited to employment needs, even though students hardly envision of what they need to learn.

3. Employees' perceptions of service quality in higher education

Despite the various quality views have been put forth, there is some consensus that quality has to be determined by stakeholders, especially in the services sector. Service quality enhancement requires a sustained improvement in the clarity, accuracy and reliability of services delivered under a holistic perspective. The imbalanced focus of quality attempts on only external customers' perceptions, ignoring internal customers would stimulate the resistance among the latter. On the other hand, it may not be feasible to simultaneously meet all stakeholders' criteria, due to limited resources or conflicting demands.

In this regard, several scholars verified the link between customer-perceived service quality and employees' satisfaction, enforcing the definition of service quality as a perceived judgment (Snipes et al., 2005; Brown & Lam, 2008; Schlesinger & Heskett, 1991). Nevertheless, most researchers in higher education have exclusively investigated students' view of service quality, neglecting employees' perceptions of teaching processes as well as administration services. In our study of *faculty and administration staff*, we bridge this gap by adopting employees' view of the service quality they provide, following Slatten's et al. (2011) recommendations.

Though most of the instruments[5] developed to evaluate customer satisfaction in educational settings have gained acceptance in USA, Europe and Australia, their immoderate focus on the teaching aspect of quality rather than students' holistic experience has been proved to be

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[5]For example: Classroom Environment Scale (CES), My Classroom Inventory (MCI), Individualized Classroom Environment Questionnaire (ICEQ), College Student Experiences Questionnaire (CSEQ), Course Perception Questionnaire (CPQ), Student Evaluation of Education Quality Questionnaire (SEEQ).

their crucial drawback (Cuthbert, 1996; DiDomenico & Bonnici, 1996). In this regard, the various "*educational instruments*" aiming at evaluating specific aspects of higher education may fail to determine the level of '*satisfaction*' as a holistic experience of students which requires an integrative and interpretive paradigm (Yeo, 2009).

Among the several measuring instruments have been developed aiming to capture and explain a holistic view of service quality, SERVQUAL (e.g. Parasuraman et al., 1994), has proved to be the most popular, as acknowledged even by its critics (e.g. Asubonteng et al., 1996). The 22 items of this instrument are categorised into the reliability, tangibles, responsiveness, assurance, and empathy service quality dimensions.

In our study of faculty and administration staff, two frameworks of service quality measurement based on SERVQUAL were synthesized referring to quality of teaching and administration quality: First, Owlia and Aspinwall's (1996) theoretical framework of service quality with an emphasis on teaching aspects of education (academic resources, competence, attitude, content), and second, Waugh's (2001) model of administrative and supportive services quality (tangibles, reliability and responsiveness, assurance and empathy).

In the context of the sustained growth and diversification of higher education systems, OECD[6] launched a program on Institutional Management in Higher Education (IMHE) putting special emphasis on innovation, quality of teaching and learning improvement, the measurement of performance and learning outcomes, access and regional competitiveness. In a student-centered approach of education promoted by IMHE, teaching (bringing learning about), assessment (finding out what has been learned), and university management (organizing learning) should be aligned to be achieved the intended learning outcomes.

4. A conceptual framework of service quality in higher education

The conceptual framework of this chapter is based on Yeo's work (2009) and links research findings with the three interrelated aspects of service quality in higher education, namely customer orientation, course design and delivery, and support services.

4.1 Customer orientation

In this study, customers are classified into three distinct yet interrelated groups: employers of prospective HEI graduates, graduates, current students and parents. Performance of this strategic objective is evaluated by the 'graduate survey' and 'faculty and administrator survey' (figure 1). The latter field research investigates institutional culture, leadership, service quality, organisational commitment, job satisfaction and job performance of academic and administration staff.

4.2 Course design and delivery

Performance in this area is mainly assessed by the 'student survey', 'graduate survey' and 'faculty and administrator survey'.

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[6]OECD, Assessment of Higher Education Learning Outcomes (AHELO) programme, Access on 25/8/2011, Retrieved from
<http://www.oecd.org/document/22/0,3746,en_2649_35961291_40624662_1_1_1_1,00>.

4.3 Support services

Satisfaction in this area is evaluated by the 'support service survey'. Quality expectations include the availability of facilities such as computer and technical laboratories, library services, internet facilities, as well as administrative and technical support.
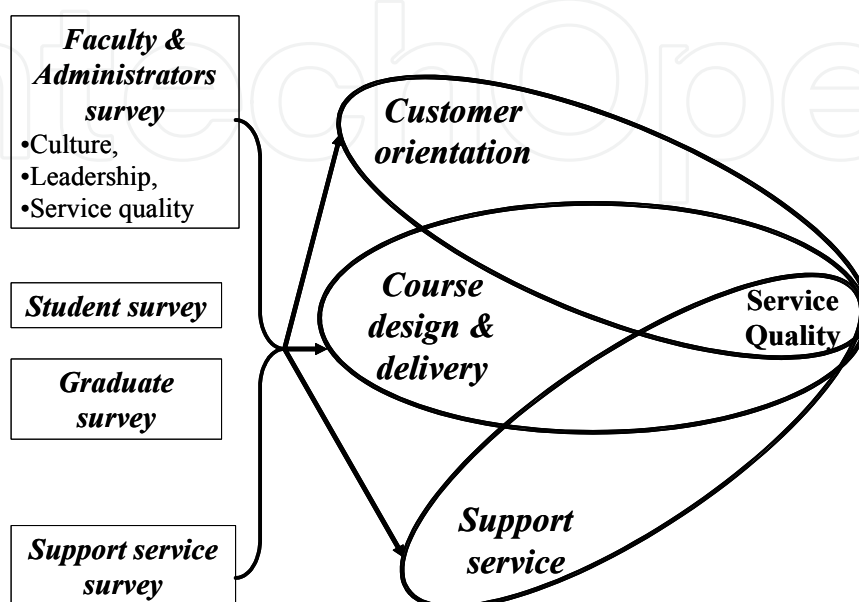

Fig. 1. Conceptual framework of the chapter.

5. Quality assurance framework for higher education in Greece

Higher Education in Greece is provided by 38 HEIs through a binary system, as in other European countries, of Universities (22) and Technological Education Institutes (16) all of which are state entities operating under a regulation framework put in place in the early eighties and is under reformation nowadays. Institutional autonomy of the Greek HEIs is limited mainly to educational and research activities as shown in Table 1 based on the 6 criteria describing institutional autonomy as defined by OECD (Santiago et al., 2008).

A tremendous expansion of Higher Education in terms of institutions and number of students emerged between 1999 and 2004 leading to 40% increase in student intake and two fold increase in the number of academic departments/programmes offered (1998: 238 departments /56,000 annual student intake, 2010: 488/80,000), making Greece the top OECD country in terms of increases in higher education expenditures as well as number of students, and among the top three countries (Spain, Turkey and Greece) in terms of increases in public spending per student (OECD, 2007). However, this expansion was not guided by quality, as most decisions regarding expansion of specific institutions were taken under the pressure of local and regional politics (viewed as transfer of income to regional economies for boosting growth), without any formal accreditation procedures in place, and mainly without a corresponding increase in academic staff.

INSTITUTIONAL AUTONOMY OF GREEK HEIs					
Bold letters indicate areas of autonomy in HEIs,					
Italics denote areas controlled by the state or non-existent in the Greek HE					
INSTITUTIONAL GOVERNANCE	STAFF	STUDENTS	FINANCE	EDUCATION	RESEARCH
Legal Status *Own infrastructure* *Commercialization of activities* **Parameters for internal decision – making** *including freedom to set up internal governance structure*	**Selection appointment** *and dismissal of academic staff* *Academic career structure* **Career advancement** *Working conditions (e.g. salaries)*	*Selection of students* *Number of students enrolling.[a]*	*Set and differentiate tuition fees* *Borrow funds on capital markets* *Allocate funds as the institution sees fit.[b]* *Income generating activities* *Right to build up a portfolio of assets and to accumulate financial capital*	**Supply of Programmes**, *including their accreditation* **Design curriculum** **Contents of courses** *Modes of instruction and delivery.[c]*	**Design research** **Decide the priorities of research**
[a]Institutions Proposition. Final decision made by the ministry of Education (MoED) [b] Must be approved by the MoED [c] No part-time studies or non-degree studies. Open & Distance Learning offered only by the Hellenic Open University.					

Table 1. Autonomy of Greek HEIs

Furthermore, current issues such as internationalization, flexibility in curricula and institutional diversity were not addressed leading to a situation where most of HEIs lack any strategic planning and cannot exploit market opportunities while a significant number of students show a low interest in their studies as it is evidenced by the fact that more than 50% of the total student population in universities do not complete their studies on time (required years +1), according to the Greek national statistics service (EL. STAT., 2008).

Several reforms were attempted in the regulatory framework for HEIs, addressing mainly peripheral and minor issues. Significant improvements that were introduced lately (since 2006) were neither welcomed by the academic community (i.e. introduction of quality assurance – currently implemented at 50% of academic units), nor could be applied because of the economic crisis (i.e. contracts between Government and HEIs on four year operational plans) nor have taken effect yet (i.e. limiting the maximum time required to complete degree requirements - to take effect in 2012).

The establishment, in 2006, of the Hellenic Quality Assurance Agency for Higher Education (HQAA, 2009)[7], an independent agency governed by a board of academics, nominated by the rectors and presidents of HEIs, marks the formal introduction of a QA system in Greek HEIs. The role of the HQAA is to oversee and co-ordinate the QA process and external assessments at HEIs, inform and advise the government on issues related to quality in higher education and promote public awareness. In this way, accountability at department,

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[7]Greek Republic (2005) Quality assurance in higher education. Credit transfer and accumulation system – diploma supplement. Greek State Law 3374/2005.

institution and government level is promoted, transparency is increased, and quality of education and learning is improved.

6. Quality assurance at the Technological Education Institute of Larissa

The Technological Education Institute of Larissa (TEIL) is the largest HEI in Central Greece. Established in 1983, comprises four faculties (Management and Economics, Agriculture and Food Technology, Engineering, Health Studies, and Forestry & Wood/Furniture Technologies) offering twenty (20) undergraduate and nine (9) postgraduate programs of studies in applied sciences to a student population exceeding 17,000.

The institution had identified the need to introduce QA procedures long time before QA became mandatory for HEIs. In 2002, TEIL invested in the introduction of quality processes through the implementation of a pilot project, exploiting funding of the 2nd Community Support Framework[8]. Self-evaluation reviews, followed by external audits and reviews for the first time were generated at the departmental and institutional level.

As of 2007, the QA procedures pertaining to higher education institutions became mandatory. TEIL was one of the first HEIs in the country to introduce the QA procedures, where all of its departments (except four newly established departments that first had to complete 5 years of operation) managed to deliver their first self-evaluation report by the end of 2009, as compared to a national average of about 15% of all academic departments.

7. Quality Assurance System at TEIL

7.1 Establishment of quality units & committees within the institution

TEIL developed the necessary organizational structure to establish QA processes in accordance with ENQA guidelines (ENQA 2005):

'Each university should formulate a policy and procedures for the QA in their programs and commit themselves to the development of a quality culture. To this end, a strategy should be devised with a role for students and other stakeholders.'

In particular, the following bodies were formed to plan, introduce and implement QA policies and procedures:

- Institutional *Quality Assurance Unit (QAU):* Headed by the Vice-President of Academic Affairs, four academic staff members nominated by the General Assembly of the institution, one member of the administrative/technical staff, one representative of the undergraduate students, and one of the postgraduate students.
- Departmental *Internal Evaluation Work Teams (IEWT):* A three to five member committee of academic staff, nominated by the Assembly of Academic Staff of the corresponding department, the main task of which is the issuance of the annual departmental reviews, the release of the Internal Assessment Report (self-evaluation review) every four years.

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[8]Community Support Framework (CSF) is a set of programmes funded jointly by the European and National governments of member states in different sectors (i.e. education, transportation, environment) to achieve economic and social cohesion in Europe.

7.2 Defining areas of evaluation and establishment of metrics

HQAA provided to all HEIs a framework of evaluation criteria which mainly address the programme of studies, the teaching and learning process, interaction and cooperation with industry society, internationalization, and research. The list of criteria was adapted to the specific institutional environment of TEIL, and the sources and processes of data collection were identified including the development of focused questionnaires addressed to students, academic and administrative staff. Data are then processed to meaningful information through the derivation of a series of performance/assessment metrics defined by the QAU with the consensus of the academic departments. In addition, a set of metrics was established for the evaluation of the performance of institutional-wide student related services such as ICT, library, registry and administration facilities, athletic facilities, dormitories, and student restaurant/cafeteria. Metrics were defined in such a way to qualify the following characteristics:

- To ensure systematic and uninterrupted collection of data so that time series are produced
- To provide the ability to aggregate from course level to institutional level where appropriate
- To produce comparisons within each department but also across faculties and departments possible, and finally
- To maintain compatibility with the national metrics defined by HQAA.

7.3 Quality assurance process

Following the general guidelines of HQAA, QA process at TEIL works on a four-year cycle, as it is illustrated in fig. 2. The internal processes lead to the compilation of self-evaluation reports, while the HQAA controls the external review process (i.e. maintaining registry of reviewers, setting up the review teams, compiling the external review reports).

The QAU prepared proper templates for the academic departments and organised a series of workshops to train the members of the departmental IEWT.

The process of compiling the first self-assessment report was a rather long one (on the average one and a half year) requiring laborious involvement from academic staff, and especially those who staffed the self-evaluation team due to lack of administrative personnel. The fact that historical data were not readily available, and had to be collected from different sources and checked for validity, along with the requirement to build a five year retrospective view of the main metrics, so that trends can be identified resulted in many person hours to be allocated in this process. The provisions of MIS support for the next rounds will facilitate the process to a large extend.

7.4 Early experiences of a quality odyssey

Introducing a QA system in an organization is a difficult task on its own since it affects the "business as usual" status and introduces additional burden to personnel, especially in an academic environment where most of the necessary quality processes are seen as

non-academic, taking away valuable staff time from research and other academic activities. Establishing a quality assurance system in a period where the vast majority of the HE community is against formal QA processes (by the middle of 2009 - one and a half year after the release of the HQAA guidelines only 10% of all academic departments had submitted a self-evaluation report) makes the implementation of such a project even more difficult.
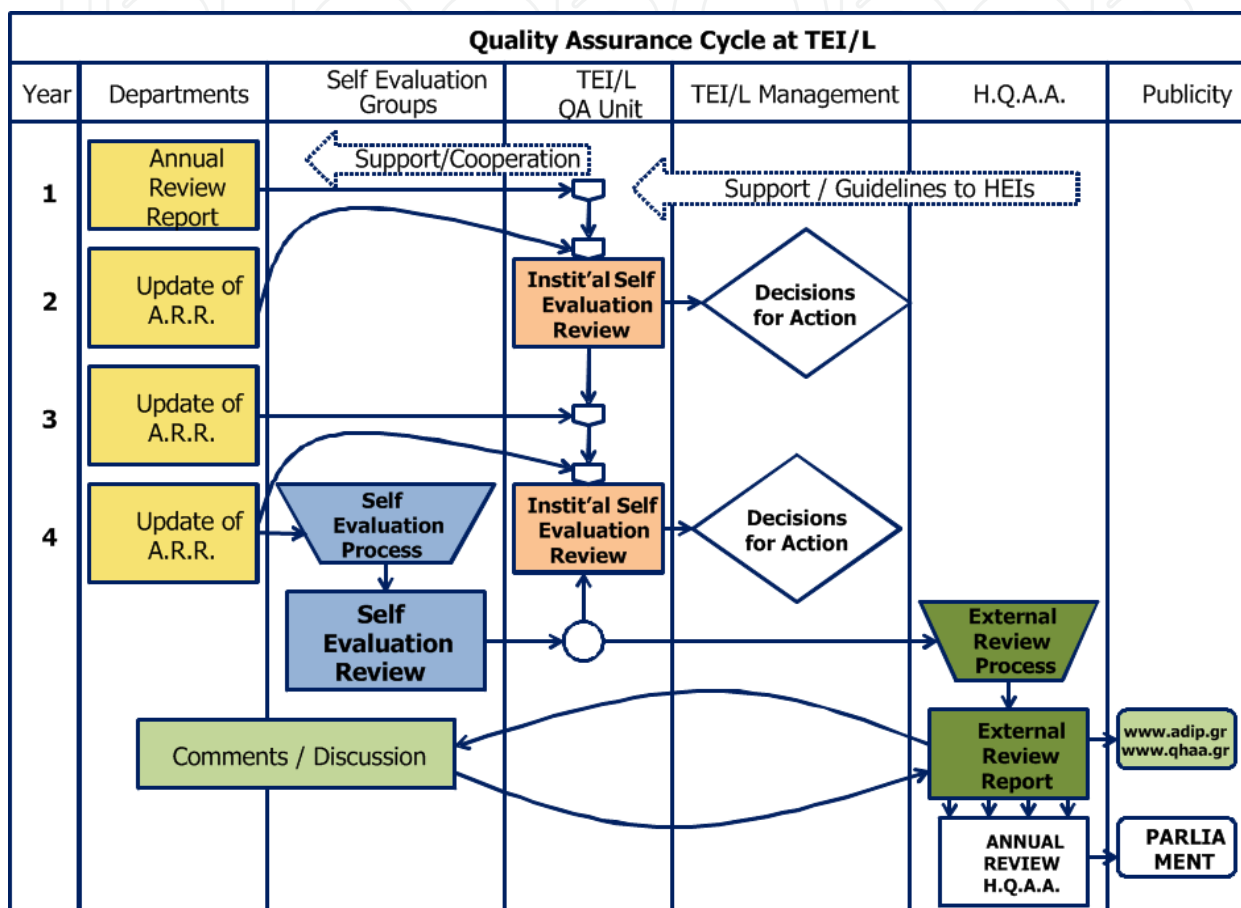

Fig. 2. Quality assurance cycle of TEIL (proposed by the HQAA)

On the contrary, nowadays the majority of the faculty have recognised the need to standardize and improve procedures related to the basic operations involved in the teaching and learning processes. As a result, several academic departments and the QAU are currently committed to contribute to the development of the core elements of the Quality Management System, compatible with the ISO 9001:2008 requirements.

As many stakeholders have had different attitudes, interests, concerns regarding the implementation of QA at TEIL, the task of recognizing and managing stakeholder's interest becomes vital for the success of the project. At TEIL, stakeholders are categorized into four groups: institution's top management, institution's middle management, academics and students, whose interests and actions prescribed by QAU are listed in table 2:

Institution's top management: *Interests*	(institutional level) *Actions*
Promote excellence at institution – wide level *Increase funding opportunities since non-conformance with QA requirements may lead to reduction in funding* *Become more competitive*	*Make Quality a strategic issue for the institution. Mention it in the mission statement* *Introduce institution-wide policies (e.g. QMS-ISO9001) across all departments. Link results to allocation of funds* *Commit resources to support QA process* *Extend QA to administrative processes* *Introduce QA in research*
Institution's middle management: *Interests / Attitudes*	**(departmental level)** *Actions*
Acceptance. A "chance" to reform curricula and teaching *Opportunity. Identify weaknesses and areas of improvement with much less internal conflicts, since "we are obliged to it"* *Rejection. Problems lie with the institution not with the department* *Necessary evil. Will do it because otherwise could lose funds. Exploit the system.* *Reluctance. Bureaucratic burden on academic staff must be minimized*	*Support, diffuse and promote best practices* *Diffusion of knowledge from departments that do it successfully in regular meetings (one per semester)* *Build information systems to support the processes and reduce burden on staff* *Even those who do it just due to their obligations will realize some benefits. Encouragement of efforts.*
Academic Staff: *Interests / Attitudes*	*Actions*
Opportunity: A "chance" to address / provide input / become involved / discuss issues at departmental level *Fears: Concerns for low ratings by students, and/or low research output. Increased insecurity.* *Doubts: QA added value questionable. reliability of student assessments*	*Increase awareness for low performance* *Provide relative assessment reports (compared to department median and quartiles) to all staff, while protecting privacy* *Discussions of annual report at departmental meetings with the presence of students* *Private meetings with Dept. Head for exceptional cases. Plan corrective action* *Take student assessment into account in contract renewal of part-time staff*
Students: *Interests / Attitudes*	*Actions*
Enthusiasm: It is our turn to evaluate you *Expectations: Improvements to the teaching / learning process, Better infrastructures* *Eagerness: No real changes happen. Too many surveys no results.*	*Keep students informed. Discuss departmental self-assessment review results in the presence of all students.* *Make results of external reviews known to students.* *Assign responsibilities. Make clear to them that some may participate in the external review* *Publicize results* *Utilize input from student evaluation forms in module reviews.*

Table 2. Main stakeholders of TEIL services

8. Institutional culture and leadership in higher education

In an era of economic crisis, HEIs are experiencing severe pressure from budget reduction, and they are obliged to establish new rigid systems of quality assurance, new rules and regulations and tight monitoring. As a result, academic leaders have been forced to develop more competitive ways to explore and embrace new roles in order to tap on institutional resources and core competences. Furthermore, the study of leadership in higher education faces many difficulties due to the dual control systems, since leaders have to excel in different contexts including administrative and academic departments and to deal with mixed expectations (Lewis & Smith, 1994).

Even though HEIs may be considered as service institutions, as adaptive or entrepreneurial entities, or as learning organisations (Askling & Kristensen, 2000) pursuing different strategic orientations, a convergence on a sense of strong institutional leadership prevails (Askling, 2001). Strong leaders are supposed to instigate change processes, set overarching objectives and formulate the necessary strategies to accomplish them. Nevertheless, empirical evidence support that some strong leaders with clear and predefined objectives about the outcome of the evaluation process such as well-structured self evaluation reports may have a negative impact, because they actually suffocate motivation and involvement from the academic staff (Stensaker, 1999).

Thus, the lack of a participative culture, stimulating discussions and analysis for current and future actions may conclude to disappointment and alienation among the staff or even resistance to change. Institutional culture may be defined as the collective personality of a HEI and reflected at the shared values, beliefs and behaviours of its members (Quinn, 1988). Resistance to change from its internal members such as faculty and administrators is reasonable, because change stimulates uncertainty, fear and suspicion in the stakeholders engaged (Thomas, 1998). Elements of culture such as autonomy from external control, adaptation, morale, conflict resolution, goal achievement, and formalization modify the degree to which faculty and administrators accept policy or changes associated with QA initiatives. Thus, the major challenge academic leadership has to deal with is to empower members to discard old ways and obsolete values; essentially to 'unlearn' and espouse new values (Elwood & Leyden, 2000).

Many countries have established some sort of external evaluation system like ISO 9000 as well as accreditation systems such as the Accreditation Board for Engineering and Technology (ABET) and the European Quality Improvement System (EQUIS). Though, literature review supports a positive effect of the aforementioned systems on organisations as a whole, empirical evidence reveal that resistance to accreditation by employees may be attributed to increased workload and bureaucracy, negative emotions of stress, insecurity and distrust, low level of commitment, autonomy restraint, lack of knowledge and experiences, and limited acceptance of the system (Van Kemenade & Hardjono, 2009). Hither, institutional leadership and culture may act as catalysts to reap the benefits of accreditation.

8.1 Competing Values Model

Competing Values Model (CVM) is adopted in the study of faculty and administration staff, for the operationalization of the institutional culture and leadership constructs (Deshpande et al., 1993; Quinn 1988; Trivellas & Dargenidou, 2009a; 2009b). CVM has gained wider

acceptance among researchers as it has been validated not only as a model of culture (Kwan & Walker, 2004; Smart 2003; Zammuto & Krakower, 1991), but also as an instrument for other organizational phenomena such as organisational effectiveness, leadership (Quinn 1988; Hart & Quinn, 1993; Smart 2003; Trivellas & Geraki, 2008; Trivellas & Dargenidou, 2009a) and MIS effectiveness (Trivellas et al., 2006; Trivellas & Santouridis, 2011). CVM may also be used as a tool for mapping organizations' culture and leadership profiles and conducting comparative analysis.

CVM emphasizes the competing tensions and conflicts across two axes, which form a four-cell model (Fig. 3). The vertical axis extends from change and flexibility to control and order. The horizontal one reflects the conflict between internal focus and external orientation to the competitive environment. The intersection of these two dimensions determines four quadrants, which establish four archetypes of organizational culture which correspond to four leadership styles, namely adhocracy and adaptive leadership, clan and people leadership, hierarchy and stability leadership, market and task leadership (fig. 3):

Adhocracy culture and *adaptive* leadership style values entrepreneurship, creativity, proactiveness, resource acquisition, and innovativeness in discovering new markets and directions for growth. They are characterized by flexibility, adaptability and external orientation. The broker, who acquires resources for the institution and the innovator who actively supports adaptation to changes are the two roles assigned to this orientation.

Clan culture and *people* leadership addresses employee commitment, empowerment, morale, participation, teamwork, personal involvement and cohesiveness. They revolve around trust, while they promote conflict resolution and confine resistance to change. Mentoring subordinates and facilitating teamwork are the core activities attached to this style.
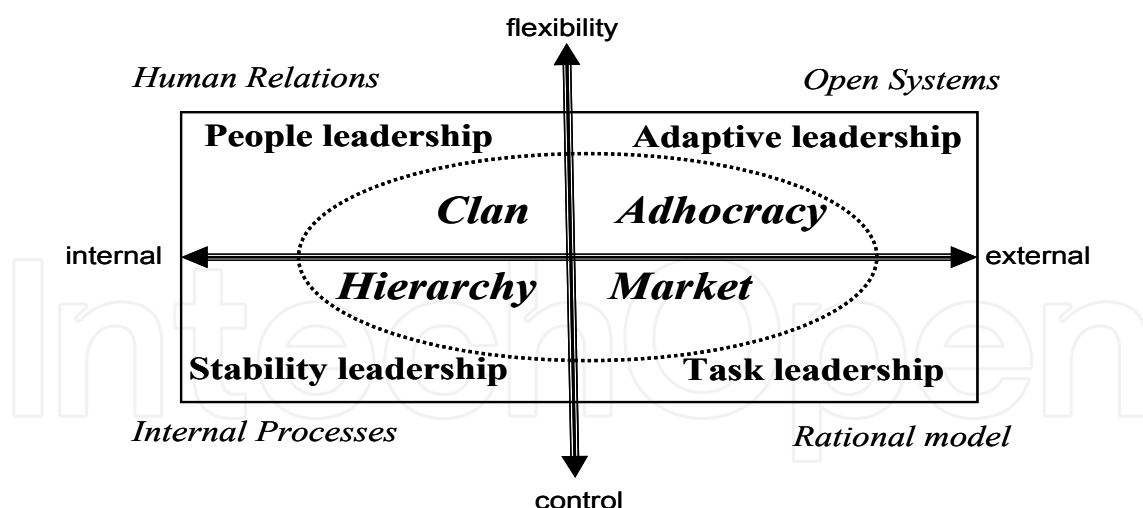

Fig. 3. CVM of culture and leadership styles

Hierarchy culture and *stability* leadership focuses on rules and regulations, order, stability, control, documentation, information management, centralization of decision making, standardization, dependability and reliability reflecting inward orientation and formalized structures. This leadership style consists of the monitor role striving to ensure compliance, track progress, and analyse results; and the coordinator one who maintains order and flow of the system.

Market culture and *task* leadership emphasize goal achievement, productivity, task accomplishment, planning and setting objectives, and efficiency (Cameron & Freeman, 1991; Deshpande et al., 1993), reflecting their extrovert and control orientation. This leadership orientation covers the producer role that motivates individuals to take actions and the director one, who clarifies expectations and establishes objectives.

There is growing evidence to support the view that institutional effectiveness as well as leaders' effectiveness depends on their cognitive and behavioural complexity, in order to respond successfully to a wide range of situations that may in fact necessitate seemingly conflicting and opposing behaviours (Smart, 2003; Denison et al., 1995; Hooijberg, 1996; Hart & Quinn, 1993; Quinn et al., 1992). In similar vein, managers who balance competing leadership roles are found to be more successful than those who adopt a restricted number of roles (Hooijberg, 1996; Hart & Quinn, 1993). Accordingly, institutional success lies on HEIs capability to develop an overall organizational culture that comprises a healthy balance of the four archetypes proposed by CVM (Smart, 2003).

8.2 Leadership and culture profiles of faculty and administration staff

The field survey of faculty and administration members of TEIL, comprised 134 valid questionnaires (response rate about 85%), and was based on a structured questionnaire measuring leadership, culture, organisational commitment, job satisfaction and service quality with 5-point Likert–type scales. Tapping on the advantages of CVM, the institutional culture and leadership instruments adopted were validated by several researchers (Trivellas & Dargenidou, 2009a, 2009b). In the same regard, higher education service quality was operationalised by adopting both the quality dimensions emphasised on teaching aspects proposed by Owlia and Aspinwall (1996), and Waugh's (2001) measures of administration quality. Affective and continuance components of Allen and Meyer's (1990) organizational commitment scale were also utilised. Job satisfaction construct was built upon Warr et al. (1979) recommendations.

Regarding leadership styles, faculty considered people leadership as the most frequently adopted one, while administration staff ranked task leadership as the dominant one. The CVM based instrument applied as a diagnostic tool, reveals that TEIL is deficient in roles emphasizing innovativeness, creativity, risk taking, monitoring, and networking with external constituencies reflected on adaptive leadership.

	Faculty	Administration	Sig.(t-test)
Leadership styles			
Adaptive leadership	3,79	3,87	n.s.
Task leadership	4,19	4,65	p<0.05
Stability leadership	4,12	4,26	n.s.
People leadership	4,23	4,17	n.s.
Valid N	66	68	

Table 3. Results of paired t-test analysis among leadership styles

Besides, t-test analysis was used to asses the statistical significance of the differences between faculty and administration members of TEIL. Results summarized in table 3, indicate that administration staff assigns higher priority to task leadership, in comparison with academics. In fig. 4, the leadership profiles of faculty and administration staff are illustrated.

Examining organisational culture, faculty preferred hierarchy and clan archetypes, while administrators considered hierarchy as the dominant one (Trivellas & Dargenidou, 2009b). The CVM suggests that TEIL is deficient in adaptability and growth potential, as well as in market orientation. Moreover, findings reveal that administrators characterised less by a clan culture reflecting loyalty, involvement and cohesiveness and more by a hierarchy one related to formalized structures, rules and regulations, control and decision making centralization, in comparison with academics (Trivellas & Dargenidou, 2009b).

These findings are in alignment with other researchers' conclusions that public institutions are characterised by bureaucratic cultures emphasizing on order and control and their leaders adopt conservative and stability oriented roles (Hooijberg & Choi, 2001).
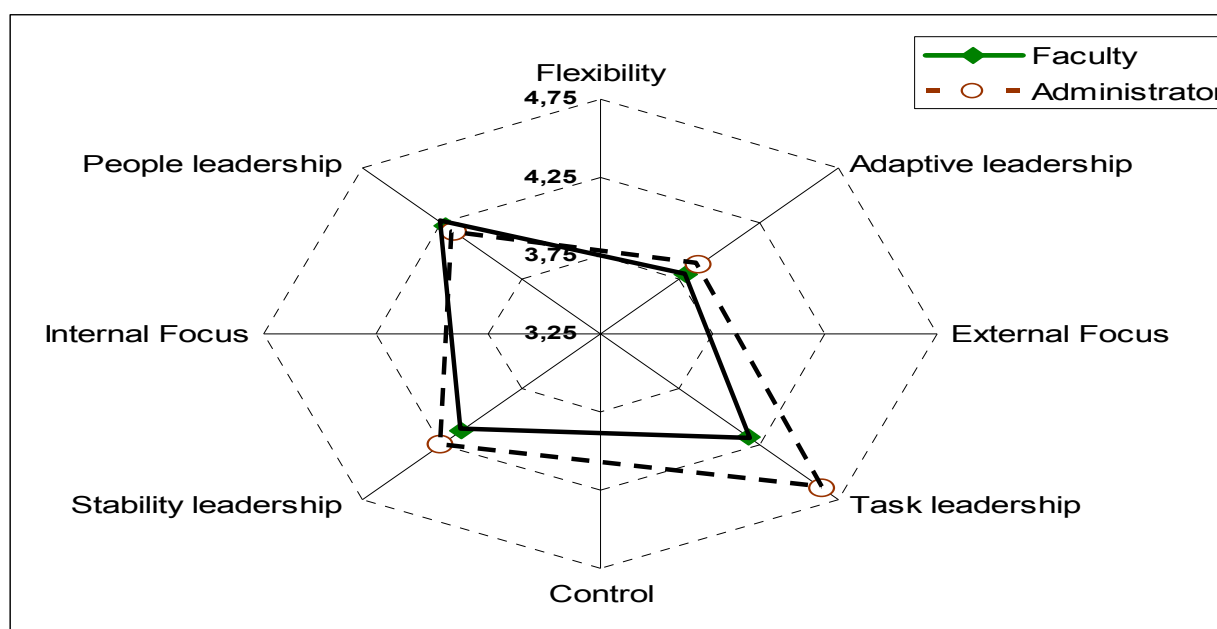

Fig. 4. Leadership profiles of faculty and administration members of TEIL

8.3 Culture, leadership, commitment and job satisfaction as antecedents of higher education service quality

Education may be considered as a transformative process promoting the enrichment of students' knowledge, the empowerment of their ability to think critically and to challenge their worldviews and assumptions (Yeo, 2009).

Extending this argument, a transformation from centralised hierarchical structures to decentralisation, employee involvement and effective leadership is a prerequisite for TEIL's adaptation towards the establishment of QA processes. Given that these transformations frequently cause employees' reluctance or opposition to change, the successful introduction

of a QA system depends on crucial factors such as **culture** (Trivellas et al., 2006), trust and long term **commitment** to the organization (Zammuto & O'Conner 1992; Trivellas, 2009); participation in decision making (Franz & Robey, 1986), and **leadership** (Smart, 2003). In this way, leadership come to play a decisive role in the transformation of attitudes, and management has to adopt the suitable human resource practices in order to facilitate changes towards enhanced service quality. Furthermore, an adhocracy culture facilitates critical thinking and experimentation to transcend taken-for-granted frames of reference, leading this transformation process, and elevates effectiveness resulting to improved customer satisfaction. Thus, the role of institutional culture, leadership, organisational commitment and job satisfaction as antecedents of higher education service quality was explored at TEIL.

Regarding institutional **culture**, higher education literature has consistently supported a three-tier order, with clan or adhocracy dominated institutions being the most effective, followed by those characterised by market culture, and lastly, hierarchical culture archetypes are associated with low performers (Cameron & Ettington, 1988; Cameron & Freeman, 1991; Smart et al., 1997). This research (Trivellas & Dargenidou, 2009b) provides supporting evidence in this argument, as adhocracy culture significantly contributes in the improvement of all aspects of higher education service quality. In other words, intrapreneurship, experimentation, creativity, proactiveness, adaptation and innovativeness are values conducive to enhanced quality of teaching and administration.

Quality of teaching building on academic resources, teaching expertise, theoretical and practical knowledge, attitude of academic staff, and curriculum content, requires creative spirit, experimentation, receptiveness to radical new ideas, tolerance to ambiguity and aptitude to change. In a similar vein, flexibility, adaptation and proactiveness are the foundations for the improvement of administration quality, referring to administration contact, reliability, confidence, understanding and caring.

Examining **leadership**, the innovator (adaptive leadership) and the monitor (stability leadership) roles were found to be the most powerful predictors of higher education teaching quality (Trivellas & Dargenidou, 2009a). For example, the improvement of quality of teaching competence (teaching expertise, theoretical and practical knowledge) requires not only experimentation, risk taking, creativity, adaptation, and tolerance to ambiguity reflected on the innovator but also compliance with rules and regulations, and documentation as the monitor role prescribes. The latter role also fosters quality of teaching attitude which emphasizes on the availability of academic staff for guidance and advice. Nevertheless, the producer (task leadership) and the mentor roles (people leadership) were negatively related to teaching attitude. Given that teaching attitude also refers to educator's empathy and understanding of students' academics needs, sometimes in expense of achieving the predefined goals, the producer's objective to maintain productivity may cause alienation and emotional detachment. On the contrary, too much intimacy and emotional engagement with students under the mentor role, may lead to complications that disturb the necessary political balance in human relations to ensure objectivity and fairness in decision making.

Regarding administrators, the broker (adaptive leadership) and the facilitator (people leadership) roles which are considered to be flexible in the resolution of problems and

supportive in building consensus towards its practical application, were strongly associated with both dimensions of administration quality (reliability and responsiveness, assurance and empathy). Reliability and responsiveness refer to administrative contact, provision of administrative material, confident and dependable administrative advice, and advanced notice of administrative changes. Accordingly, assurance and empathy concern courteousness and confidence, individual contact and understanding, caring and secure contact.

Investigating the relationships among **job satisfaction, institutional commitment** and service quality (Trivellas & Dargenidou, 2011), academics' teaching attitude, and satisfaction stemming from rewards and recognition were proved to be strongly associated with affective commitment, while availability of resources and academicians' competence were found to be related to continuance commitment. In a similar pattern, satisfaction with rewards and recognition as well as reliability and responsiveness of administration quality were linked with affective commitment of administrators.

9. Quality assessments by students

9.1 Questionnaire design and sample

The instrument for the students' survey included 43 items referring to students' self-evaluation and the evaluation of course elements, course teachers and laboratory workshop teachers. The structured questionnaires were answered by all students who were present in the class session in the day the survey for each course took place.

The questionnaires were specifically designed for the aim of this research, according to the basic principles of social sciences research (Gordon & Langmaid, 1988; Tull and Hawkins, 1990; Doyle, 1998; Aaker et al. 2004). Finally, 22657 valid questionnaires were analyzed, filled by students of 15 departments of the TEIL, during the academic year 2009-2010.

9.2 Results

Considering course content, the research revealed the strengths and the weak areas which need improvement of all courses evaluated. In particular, the 3 strongest points include:

1. The material covered, met the objectives of the course
2. The subjects of the work-papers were given on time
3. The objectives of the courses are made clear to the students

On the contrary, the 3 weakest points of all courses evaluated are the following:

1. The usefulness of the exercise workshops is limited
2. The educational material (book, notes, extra bibliography), were not delivered on time
3. The quality of the exercise workshops is low.

Minor differences were detected among TEIL departments mainly due to peculiarities associated with their relevant disciplines.

Moreover, the correlation analysis (Pearson correlation) brought to light some interesting relationships:

- The early delivery of the course material (r = 0.716, p<0.01), as well as the use of the course materials (r= 0.651, p< 0.001) are associated with better understanding of the course objectives and content.
- Teachers' crucial component of successful guidance through the course is the provision of edifying and analytical feedback to students (r = 0.795, p< 0.001).
- Work papers examination contributes more than other assessment methods to the better understanding of the subject by the students (r= 0.653, p < 0.001).
- The level of difficulty of the course, is positively related to the workload and the credits (ECTS) assigned to it (r = 0.373, p< 0.001).
- The usefulness of the exercise workshops is strongly related to the assessment of their overall quality (r = 0.749, p< 0.001).

Regarding faculty, the students of TEIL are quite satisfied from the responsiveness of the academic staff towards their duties such as: their attendance to the courses, the prompt correction of their project work and the time spent for collaboration with the students.

Exploring differences among students, senior students (at the 7th and 6th semester) are evaluating higher their educators than the junior ones perhaps because, students become more cognizant during the last years of studies, given that the modules they attend are more specialized and practice-oriented.

The correlation analysis verified that the more the academic staff organize their teaching materials, the better they succeed in stimulating the interest of the students for the course (r= 0.788, p< 0.001) and the better they can analyze and present the concepts of the course in a simple way, with interesting examples (r = 0.769, p < 0.001).

10. Support services

10.1 Sampling

The support services' field survey adopted the stratified random sampling method. In other words, the sample is not drawn at random from the whole population, but separately from a number of disjoint strata of the population in order to ensure a more representative sample. Stratification, that is the process of dividing members of the population into homogeneous subgroups before sampling, was based on two criteria: (a) the department and (b) the year of study of the student. The strata are mutually exclusive and collectively exhaustive. Then random sampling is applied within each stratum. This often improves the representativeness of the sample by reducing sampling error. Thus, almost 200 students from 14 departments was the initial population (2800 in total), resulting to 2114 valid structured questionnaires (75.5% response rate).

10.2 Results

The students of TEIL are found to be moderately satisfied from the suitability of the classrooms and from the teaching equipment with significant differentiation among the departments. The degree of overall satisfaction regarding the student dormitories is rather low, while much higher is the degree of satisfaction regarding the library of the Institute. However, the frequency of use of the Institute's library services is considered low (average 1.53 times per month per student), while the existence of the Career Office is not

as known (only to 54.7% of the respondents) as it was expected to be. There is moderate to low satisfaction on the services provided from the student restaurant, while the satisfaction regarding the campus cafeteria is higher. The sports facilities are considered as satisfactory, while the students use them 2.08 times per month on average. The degree of the awareness of the internet and network services of the Institute is high (75.4%), while the number of students who have an email account at the Institute is considered rather small (67.2%).

High enough is the awareness of the students regarding the existence of the e-class platform (69.4%), while finally, the web sites of the Institute is considered very useful for the information of the students.

Among the most important students' suggestions on the upgrade and improvement of support services are the following:

- The renovation and upgrade of infrastructure (classrooms, laboratory equipment).
- The incitement of the students to use the books of the library more as well as the enrichment of the library collection.
- The more effective promotion of the role of the Career Office.
- Incitement of the students to exploit ICT facilities (e.g. web-page) as well as the upload of more courses on the e-class platform(departments should demand this by all teaching staff whether permanent or not).
- The renovation of the Halls of Residence Complex for student accommodation and the introduction of more efficient administration.
- The improvement of the service quality provided at the student restaurant.

11. Quality assessments by graduates

11.1 Questionnaire design and sampling

One additional initiative of the Institutional Quality Assurance Unit (QAU) of TEIL in 2010, concerned the carrying out of a survey on the graduates of all the Departments for professional and educational issues. So, a structured questionnaire was developed to be filled from the graduates of all departments during the graduation day in December of 2010. It consisted of 28 questions referring to the choice of the students to study in the institute and in the specific Department they graduated from, as well as to the evaluation of the graduates' educational experiences, employment issues and their immediate professional goals. The 12 out of the 14 departments at TEIL participated and 499 valid questionnaires were collected.

11.2 Results

The fact that the Department of TEIL was one of the first choices of the graduates 4 to 6 years ago, in a percentage of 69.3%, is very encouraging. Of course, this choice depends on the specific discipline of each department (Pearson chi^2 = 40.865, p<0.001). In particular, the Departments that were on the list of graduates' first choices, are: Infrastructure Engineering (86.8%), Business Administration (82.9%), Electrical Engineering (83.3%), Business in Tourism (82.1%), Mechanical Engineering (80.0%). On the contrary, the least preferred

correspond to the Departments of: Animal Production (37.5%) and Forestry and Natural Environment Administration (47.1%). Certainly, this does not imply that the above preferences are also in effect today. The most important reasons for students' selection of the specific Department are the attractiveness of the subject of their studies (45.1%), and their employment prospective (33.9%).

The fact that 88.9% of the graduates would recommend the Department that they have studied in, to their friends, is very heartening. It is worth noticing that departments, which were not the first preferences of the graduates at the time of their entrance to higher education (e.g. Project Management, Electrical Engineering), will be strongly recommended by them at the time of graduation to other candidates.

Finally, if the graduates had the chance today to choose their department, the vast majority of them would choose the same one that they graduated from (e.g. Accountancy (93.9%), Infrastructure Engineering (94.7%)).

Furthermore, the graduates from the Departments of TEIL, state that they are satisfied on the most educational issues, ranking work placement and dissertation thesis on the top of the list. Regarding correlation analysis, the following relationships were confirmed:

- The increase of the quality of the workshops, leads to an increase on the sufficiency and the quality of the acquired knowledge of the graduates ($r = 0.614$, $p<0.001$). The sufficiency and the quality of the knowledge acquired in turn ($r=0.714$, $p<0.001$) as well as educators' relation with students ($r = 0.551$, $p<0.001$) determine to a large degree the perceived quality of the course.
- The suitability and quality of the curriculum is strongly related to the sufficiency and the quality of the studies ($r = 0.609$, $p<0.001$), the effectiveness of the faculty ($r=0.609$, $p<0.001$), but also the better link with the requirements of the labour-market ($r=0.646$, $p<0.001$).
- The strong association between the services provided by the library and faculty effectiveness ($r=0.516$, $p<0.001$), verified the crucial role of the library in facilitating the educational process by supporting not only educators and but also students as highlighted in the previous session (10.2).
- A proper work placement for the compulsory industrial training required in all programs of study at TEIL, contributes positively to the higher quality of dissertation thesis ($r=0.588$, $p<0.001$).
- Moreover, as it was expected, the total score of the graduates found to be significantly associated with the quality of the theory classes (ANOVA, $F=3.190$, $p<0.001$), the quality of the textbooks (ANOVA, $F=4.106$, $p<0.001$), educators' effectiveness (ANOVA, $F=2.759$, $p<0.005$), the efficient link between curriculum and market labour demands (ANOVA, $F=2.707$, $p<0.005$) and the quality of the curriculum (ANOVA, $F=2.307$, $p<0.05$).

Finally, the three most important benefits that graduates of the TEIL have acquired from their practical exercise are (a) the in depth understanding on the relevant subject (73.1%), the practical application of knowledge (65.3%) and the experience gained (63.7%).

12. Conclusions

This chapter aims to synthesize the experience gained and the conclusions drawn from the investigation of leadership, institutional culture, students' & graduates' satisfaction and teaching performance based on multiple stakeholders' surveys (faculty, administration staff, students and graduates) at the TEIL, in which a QA system is deployed in the last five years.

Regarding *institutional culture*, though adhocracy culture reflecting intrapreneurship, creativity, proactiveness, adaptation and innovativeness significantly contributes in the improvement of all aspects of higher education service quality, TEIL's academics are dominated by hierarchy and clan archetypes and administrators favour hierarchical values. Thus, TEIL is suffering from a shortage in adaptability and growth potential, as well as in market orientation, which may facilitate initiatives towards enhanced quality of teaching and administration. In a similar vein, administrators should depart from values tied with formalized structures, rules and regulations, control and decision making centralization in order to be actively involved in QA procedures.

According to OB literature, institutional success lies on TEIL's capability to develop an overall organizational culture that comprises a healthy balance of the four archetypes proposed by CVM, since *adhocracy* stimulates creativity and adaptation, *clan* triggers conflict resolution, morale and cohesion, *hierarchy* boosts reliability, standardisation and documentation, and *market* culture facilitates goal achievement and efficiency, all integral components for a holistic view of QA.

A similar pattern emerged investigating *leadership*. Although, the innovator (adaptive leadership) and the monitor (stability leadership) roles were found to be the most powerful predictors of higher education teaching quality, faculty considered people leadership and administration staff ranked task leadership as the dominant ones, both of them neglecting the crucial role of adaptive leadership. In alignment with management literature, managers who balance competing leadership roles are found to be more successful than those who adopt a restricted number of roles. Consequently, effective faculty and administration leaders should emphasize on all four leadership styles in order to improve quality of teaching and administration building on a QA system.

Investigating the relationships among *job satisfaction, institutional commitment and service quality*, academics' teaching attitude, and satisfaction stemming from rewards and recognition were proved to be strongly associated with affective commitment. Similarly, satisfaction with rewards and recognition as well as reliability and responsiveness of administration quality were linked with affective commitment of administrators.

Thus, effective HR practices and appraisal systems at TEIL should put special emphasis on rewards and recognition of faculty and administrators in order to improve their affective commitment and service quality provided.

In a different aspect, students of TEIL are quite satisfied from the responsiveness and commitment of the academic staff towards their duties, while senior students are evaluating higher their educators than the junior ones. As it was expected, the well organized teaching material by faculty stimulates the interest of the students for the course and facilitates the presentation of the relevant concepts in a simple way, with interesting examples. Furthermore, students' better understanding of the course objectives and content is

associated with course material quality, teachers' successful guidance and feedback as well as the adoption of essays examination as assessment method.

Regarding support services, students stress the requirement of renovation and upgrade of infrastructure (classrooms, laboratory equipment, and student restaurant), as well as the necessity to be motivated in order to take advantage of library, Career Office and ICT services.

Under a different point of view, graduates are so contented with their studies that the vast majority of them would recommend the Department that they have studied in, to other candidates, even though this might not be their first preference at the time of their entrance to higher education. Moreover, sufficiency and quality of the acquired knowledge as well as teachers' relation with students are associated with higher course quality as perceived by graduates. Furthermore, quality of the curriculum, faculty effectiveness, and studies connectivity with market requirements promotes the overall quality of the studies. Also, the crucial role of the library in improving the educational process performance by supporting not only educators and but also students was verified. Likewise, graduates' total score found to be significantly associated with the quality of the curriculum, the theory classes and the relevant textbooks, as well as educators' effectiveness and the associated links of studies with market labour demands.

In the light of the above findings, QAU prioritise the following actions:

- To raise quality of education and learning as a top policy item in the strategic agenda of the institution, and make the continuous improvement of educational provisions and quality of student learning a matter of the institutional mission statement.
- To promote all stakeholders' consciousness of QA processes as integral and effective part of internal procedures overcoming impediments due to bureaucracy and useless documentation.
- To assure the reliability and transparency of QA processes.
- To nurture a more balanced culture as proposed by CVM, with a special emphasis on adhocracy and clan archetypes (e.g. instigating trust about private data protection, publicity).
- To suggest motivational and appraisal systems aiming to facilitate continuous improvement at the institutional, departmental and individual levels.
- To support institution as a whole, as well as departments to formulate operational plans, set clear objectives related to learning objectives, design suitable curriculum under multidisciplinary perspective, make decisions and take actions towards their accomplishment.
- To assist the alignment or conformance with guidelines imposed by Bologna declaration, EHEA, OECD, European and Greek Qualifications Framework etc.

Setting the agenda for the future in alignment with OECD considerations, TEIL has to deal with the following challenges (Altbach et al., 2009):

- The phenomenon of *massification*, responding to mass demand as a result of the rise of service industries and the knowledge economy.
- *Inequalities in access*. Although, policy initiatives have focused on widening the undergraduate participation in recent years, has not benefited all sectors of society equally.

- *Increasing student mobility and internationalisation.* Greece is a champion in the number of students studying abroad regarding its population, with 4784 international students per million of Greek residents (2009).
- *Teaching, learning and curricula.* An increasingly diverse student body necessitates the establishment of new systems for academic support and innovative approaches to pedagogy taking into consideration indigenous philosophies, cultures, languages and histories. In addition, several key demographic trends will modify the education landscape such as female majority, the mix of the student population (e.g. international students, older students, part-time and working students), different social groups, disadvantaged groups, educators with varied employment contracts and part-time staff.
- *Quality assurance, accountability and qualifications frameworks.* Quality assurance in higher education, certification of institutions and the qualifications they award are tightly linked with postsecondary education mission to provide graduates with new skills, a broad knowledge base and a range of competencies to enter a more complex and interdependent world.
- *Financing higher education and the public good-private good debate.* Greek economic arduous position poses a challenge to the traditional view of postsecondary education as a public good and a 'social contract', contributing to society through educating citizens, improving human capital, encouraging civil involvement and boosting economic development. In response to these financial pressures, tertiary education has sought solutions by initiating tuition fees on postgraduate studies and lifelong professional training programs.
- *The private revolution.* Private higher education is the fastest-growing sector worldwide.
- *The academic profession.* Despite that possibly up to almost 50% of university teachers have only earned a bachelor's degree globally, in Greece all permanent academic staff hold a Ph.D. However, bureaucracy and administration often struggle their autonomy.
- *The research environment.* Teaching, research and public service as primary higher education objectives create constant tension and trade off with each other at different levels leading to shift their interest and resource allocation away from research.
- *Information and communications technology.* Distance education and other technology-induced innovations render traditional HEIs obsolete though they can promote quality offered.

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14. References

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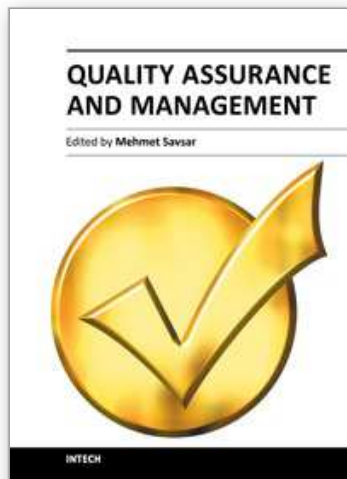
Quality Assurance and Management

Edited by Prof. Mehmet Savsar

The purpose of this book is to present new concepts, state-of-the-art techniques and advances in quality related research. Novel ideas and current developments in the field of quality assurance and related topics are presented in different chapters, which are organized according to application areas. Initial chapters present basic ideas and historical perspectives on quality, while subsequent chapters present quality assurance applications in education, healthcare, medicine, software development, service industry, and other technical areas. This book is a valuable contribution to the literature in the field of quality assurance and quality management. The primary target audience for the book includes students, researchers, quality engineers, production and process managers, and professionals who are interested in quality assurance and related areas.

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