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Educating Scientists

Philosophy and Practice of University Pedagogy

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Abstract

A large number of people are educated every year in universities and higher education institutions all over the world to gain competencies, skills and knowledge, with a view to contributing after graduation from several important positions, to the proper functioning of society and the improvement of its production and reproduction base. All of them come into contact with teachers in various roles; some of them delivering lectures or seminars, coordinating or helping them in laboratory activities, or supervising undergraduate and graduate course work and as examiners of their performance and knowledge. It is of immense interest to probe what kind of skills and competencies a university teacher should possess. This paper focuses on the role of the University as a knowledge producer, as well as an environment for education and training, based on sound scientific research and reflective experience. Thereafter, a particular understanding is delineated on the academic disciplines of Pedagogy and Didactics, in an effort to draft a philosophical framework of the University Pedagogy, concluding with a presentation of specific teacher training practices of faculty members applied in Sweden.

Keywords

University Pedagogy, Teaching and learning in Higher Education, Professionalism, Teacher Education, Teaching Competencies

” Teaching is the profession that teaches/creates all other professions”

The prevalence of teaching and teachers’ professionalism

It would not be an exaggeration to claim that university teachers are mainly a "product" of one or more educational systems.

A common feature at all stages of the formal education system is the provision of teaching. To this end, teachers around the world are trained in special educational institutions. The duration and the nature of training vary from country to country and level of education. One characteristic for example of the Greek educational reality is that primary schools teachers are specifically trained for this purpose in Pedagogical Departments at universities, while secondary school teachers who normally have studied only theoretical courses in their discipline, later become eligible to teach. Many of them attend some courses (not always compulsory) in pedagogy and didactics, as part of their university education. Nowadays almost everyone appointed to secondary schools has acquired some theoretical knowledge in pedagogy, but practical training before recruitment still remains of limited scope. Goulgoulakis & Economou 2014; Kedraka & Dimasi 2015).

Indicative are the findings of a quantitative survey of 78 curricula from universities around Greece, whose graduates are eligible to become guaranteed to be hired in secondary education) (Georgiadis & Economou, 2013). Only 36 of the 78 programs offered pedagogical training in the shape of compulsory courses. According to the same survey, the provision of internships throughout the pedagogical training is restricted and offered only in 21 of the 78 programs (op.cit., pp. 84-85).

Contrasting the Greek case with corresponding Swedish teacher education, we find that the pedagogical-didactic training and practicum of candidate teachers at all levels is mandatory. The mandatory courses belonging to "professional body of knowledge"[1] comprise content domains, corresponding to 60 ECTS credit points (one-year full time studies). These areas are: a) Assessment, grading and quality improvement; b) Curriculum theory and theories of teaching and learning; c) History, organization and management/leadership of the school; d) The fundamental principles of Democracy; e) Social relations, Conflict management/resolution and Leadership; f) Development, Learning and Special Education; g) Scientific Theory and research.

The above mentioned subjects are considered vital for the professional formation of the future teacher and aim to consolidate the perception and predisposition to treat the school as a special learning environment for students and teachers. Teacher education also includes practical training, a total of 30 ECTS credits that are dispersed across all years of study. During the internship, students are given the opportunity to apply theoretical knowledge in practice, thus participating not only in the activities of a specific classroom but also in the daily operations of the school unit where they practice[2].

While extensive research is carried out in Greece to improve teaching and learning in primary and secondary education, and in-service-training programs for teachers are continuously offered, this is not the case in higher education. Why is pedagogical and

[1] It is also called the Core of Science of Education (UVK). The UVK courses are mandatory for all prospective teachers, and include areas of knowledge that are central to the teaching profession. (For a more detailed description see Stockholm University's home page: www.su.se/lararutbildningar/bli-l%C3%A4rare/l%C3%A4rarprogrammen/utbildningsvetenskaplig-k%C3%A4rna).

[2] See e.g. the website portal for Teacher Education at Stockholm University on http://www.su.se/teacher-education/.

didactical training self-evident for teachers in primary and secondary education, but not for higher education professors? To avoid any misunderstanding and to reduce any excessive expectations, I would like to announce that there is no definitive solution to the issue of teaching and learning in higher education (HE). This current account is an attempt to highlight the range and scope of the challenges that teaching and learning in HE is faced with today both nationally and worldwide. After all, the clear definition of problems in education is more important than the provision of solutions (Ramsden 1992).

The prevalence of teaching and teacher professionalism

The kernel of teacher profession(alism) is about the quality of teaching and everything else teachers do in order to succeed in implementing their mission on the basis of the conditions and requirements that their conduct is surrounded by.

What does it mean to belong to a profession? Researchers seem to face problems in formulating a sufficiently precise definition of what a profession is. However, modern sociological definitions of professions emphasize the connection to higher formal education, mainly at universities. Talcott Parsons considered science as the profession *par excellence*, which gives rise to specialized professionals. For this reason, university teachers have a special position in terms of forming professions, which also explains why the English social historian Harold Perkin exclaimed that university teachers hold *The Key Profession*, the profession from which all other professions emanate (Brante 2009). Nevertheless, higher education institutions no longer simply shape society through the production of "knowledge workers". They are also shaped by society

through the demands of current social and economic transformations, designated as globalization, knowledge-based-economy and lifelong learning, which ultimately question the adequacy of traditional universities to effectively deliver what surrounding society requires in terms of useful competencies (cf. Light & Cox 2001).

Despite various perceptions of the notion "profession" it is important however to make a distinction between professionalisation and professionalism, which are sometimes used as synonyms. Professionalisation refers to the aspirations for social position and status of a professional group, while professionalism focuses on the internal quality of a profession. Professionalism deals with the qualities and acquired skills of professionals - actual competences - necessary to successfully exercise the profession. Englund (1997) goes a step further and proposes the use of the concept *didactic competence*, in order to avoid confusion that the use of the terms professionalisation and professionalism might cause. According to Ekholm (1997), the professional level of a profession is determined by factors dealing with:

a. the specific knowledge base of the profession

b. the responsibility for the development of the profession,

c. the existence of professional ethics

d. the control of who may exercise the profession and

e. the degree of professional autonomy.

Certainly, Ekholm's reasoning refers to how the professionalism of primary and secondary school teachers is perceived in relation to the above criteria, but in principle it can also be used to treat all educators as a professional group – at least for the group of educators serving in the formal education system including tertiary level (see also

Gougoulakis & Bron 2011). The traditional use of the concept of teachers' professionalisation has stressed the proficiency of teaching a subject. Teachers have had the task of disseminating knowledge. In contrast to primary and secondary school teachers, university teachers are specialists in their fields of knowledge. The latter's professional knowledge has, thus, a specialized direction. However, this is something that is about to alter in the wide and generic direction of the faculty's teaching competence not least because of the fact that the higher education sector is challenged by escalation in student admissions, expansion of course offerings, and the diversity they face in terms of groups of students with different needs and conditions. Accordingly, teaching requires specific knowledge, e.g. on how learning takes place in relation to learners' developmental needs, on how the educational materials should be structured and processed in order to promote learning and, additionally, knowledge of human behaviour in group contexts. This approach of the teaching profession has emphasized the methodological aspects of teaching, taking teachers' subject knowledge for granted.

Regarding the responsibility and initiative for the development of professional knowledge content and direction, as well as control over who gets access to the profession, university teachers as a collective seem, historically, to have had a privileged influence in defining the entrance procedures. In the case of professional ethics it is not always clear if the academic community, has the entire control and possession of sanction mechanisms concerning observance and compliance with ethical principles. Nevertheless, it seems that in the Academy, more or less rigorous ethical rules exist that researchers are obliged to follow in their undertakings. In principle, though, the researcher's own ethical responsibility forms the basis for all research ethics,

meaning that the researcher him/herself has the ultimate responsibility to see that the research is of good quality and is morally acceptable. Ethical reflection is therefore a natural part of a researcher's literacy and daily routine (CODEX)[3]. In Sweden, for example, an expert group on the Central Ethical Review Board handles matters involving misconduct in research.

Finally, regarding the degree of professional autonomy, in the sense that no one other than the teacher determines how to think and act in a teaching situation, tougher demands for professional accountability could be perceived as a prelude to growing restrictions of academic professional autonomy.

Development of professional teaching competencies is mainly linked to formal teacher training. A modern professional education at an academic level is arranged on the basis of knowledge that, it is believed, future teachers need to master to facilitate others' learning. At the same time, it is expected that this knowledge will create a foundation for continuing learning (Dochetry 1996; Folkesson 2005, p. 67). The skilled teacher is, therefore, expected to take a professional responsibility for his or her own continuing learning process, which is supposed to be mostly of informal character. It is informal because it is not institutionalized or pre-structured in a set curriculum and model in order to achieve the predefined knowledge. However, this does not mean that informal learning takes place only unconsciously and unintentionally. Informal learning is also a highly purposeful and autonomous activity (Cross 2007; Deer Richardson & Wolfe, eds. 2001).

[3] CODEX (Centre for Research Ethics & Bioethics): http://www.codex.vr.se/en/index.shtml. CODEX is a website run by the Swedish Research Council aimed at giving researchers and other interested parties access to and information on the guidelines, ethics codes and laws that regulate and place ethical demands on the research process.

The teachers´ professional core consists of potential competencies whose development gradually takes place during the course of their professional life. Such a development model has been presented by Kugel (1993) who has studied university teachers' professional development. Kugel's model indicates that teachers initially focus on mastering their role in the classroom (Stage I: competencies of the **self**). When this has been successfully completed, they focus their attention on how to understand and organize their subject in order to convey it (Stage II: The competences of the instruction **subject**). Once the teachers feel familiar with their own educational role and confident enough with the subject, they could pay attention to students' abilities and learning needs (Stage III: **student**-centred learning competences).

Although the model gives the impression that the phases of development follow a certain order, it is far from certain that this is always the case. Nonetheless, it is reasonable to assume that the usual pattern is as Kugel proposes. Fundamental in this case is that the model captures the qualitative leap that occurs during the changeover to the third step. What such a model emphasizes is the restructuring of teacher competencies signifying a perspective alteration, from their own instruction to student learning.

Ultimately, the model describes a teacher's professional evolution by which a basic ability appears to be managing the relationship between the three competence dimensions of teaching. Mastering the relationship between self, subject and student creates conditions and space for teachers to act, as well as freedom to choose among a large repertoire of teaching strategies depending on the educational situation in question. Professional experience and the ability to reflect on one´s own professional practice are of great importance.

The cited model could be used as a structuring and classifying principle of university teachers' generic competencies. The different stages of an educator's professional development may constitute a coherent and sound, although broad, set of key competencies related to the different skills that teachers need to acquire in order to fulfil their "mission".

Teachers' key competencies could be placed in Kugel's stages, which can be perceived of as three broad dimensions of an educator's competence profile. Instead of a long list of key competences related to specific subject domains, this profile should embrace sets of competences integrated across learning domains.

Another set of competence categories can be listed as follows:

1. personal competencies
2. social competencies
3. didactical competencies
4. methodological competencies
5. societal and institutional competencies (Ekkehard, & Lattke 2008, pp. 54-55).

The DeSeCo Project introduces yet another conceptual framework for key competencies classifying them into three broad categories:

> ***First**, individuals need to be able to use a wide range of tools for interacting effectively with the environment: both physical ones such as information technology and socio-cultural ones such as the use of language. They need to understand such tools well enough to adapt them for their own purposes – to use tools interactively.*

> ***Second**, in an increasingly interdependent world, individuals need to be able to engage with others, and since they will encounter people from a range of backgrounds, it is important that they are able to interact in heterogeneous groups.*
>
> ***Third**, individuals need to be able to take responsibility for managing their own lives, situate their lives in the broader social context and act autonomously*. (OECD 2005, p. 5).

Based on the work of the DeSeCo project, Tiana (2004) makes a tentative proposal for key competencies for education systems dividing them into two main groups, namely

a) **curriculum-bounded competencies**, such as ability to communicate with others, basic science/math skills, computer literacy and media competence

b) **cross-curricular competencies**, which include metacognitive competencies, intra-personal competencies, interpersonal competencies, and positional competencies (coping with complexity and dealing with diversity/change).

Hoskins & Fredriksson (2008, p.15) line up Tiana's proposal in the following Table 1:

Table 1: Key competencies for education systems: a tentative proposal

Curriculum-bounded competencies	**Cross-curricular competencies**
Ability to communicate with others, both orally and in writing: - oral and written mastery of the mother tongue - reading comprehension	Metacognitive competencies - problem solving - developing learning strategies - critical judgement

- mastery of at least one foreign language	- divergent thinking
Basic mathematics skills and numeracy	Intrapersonal competencies - management of motivation and emotions - self-concept - developing personal autonomy
Computer literacy and media competence	Interpersonal competencies - capacity of joining and functioning democratically in groups - ability to relate well to other people - ability to play by the rules and to manage and resolve conflicts
Capacity for situating in the world of the individual - knowledge of the natural and social world - development of civic attitudes	Positional competencies - ability for coping with complexity - dealing with diversity and change

Source: (Tiana, 2004, p. 51)

Evidently, the competencies mentioned above do not specifically refer to educators, but are competencies which all individuals are expected to cultivate because of the widely accepted assumption that a well-educated, knowledgeable, highly qualified citizen is better equipped to respond to the challenges of the present and the future. The development of these competencies is linked to notions of lifelong learning for every citizen, and how learning in general should be organised and carried out. Last but not

least, the kind of knowledge, skills, and competencies which are important to individuals and to society as a whole, affect the educators´ professional competencies, knowledge and skills.

The "Faculty"[4]

The autonomy of university teachers as hinted at already, is subjected in later years to constraints due to the increasing pressure from external stakeholders who criticize universities for limited disposition to adapt to the labour market and society. On the one hand, universities are blamed for absorbing national resources without reciprocation. On the other, they are regarded as key drivers of economic growth and prosperity. Meanwhile, the scarce resources invested in higher education are utilized to cover an increasingly high demand and access to university education. As a result, faculty is being confronted with new teaching challenges owing to the altered composition of the student population. The university today is expected to offer education to a larger number of students with less money and also improve the quality of teaching and research, while being exposed to constant evaluations of its performance.

University teachers today are seeing their vocation dwindle as they are expected to produce more by increasing the volume of teaching hours, to take care of a greater number of students, to publish more articles in international journals, to pursue external funding for research projects, while constantly being evaluated and under accountability pressure (Leveille 2006). They are required to do more with fewer resources. Hence,

[4] "Faculty" embraces all those involved in learning facilitating and supporting in one or another way student learning in HE institutions, i.e. professors, lecturers, researchers, teaching assistants etc.

university education is affected and forced to make adjustments in the content of courses and programs as well as in the overall pedagogical preparation of teaching staff, in order to align themselves with the diversity of the student population and its particular characteristics in terms of conditions, opportunities and needs. In other words, it is expected nowadays that the university teachers are excellent teachers who can design and redesign courses, develop and improve the teaching methods to facilitate learning for different groups of students, and juggle with increased administrative duties (Ramsden 1992). But what do all these changes mean and what is the impact on the pedagogical training of university teachers? What knowledge, skills and wider pedagogical attitudes are most suitable for the modern university teacher?

Any discussion regarding teachers' pedagogical and didactical training should start from an understanding of what teaching is. Surely, teaching is an integral part of any formal learning process and includes, in the broadest sense, the aims and objectives of the curriculum, methods of achieving these objectives, assessment of learners and evaluation throughout the teaching-learning process. Mainly, learning outcomes usually indicate, though not exclusively, whether the teaching provided was of high quality or not. Assuredly, and as Ramsden portrays it, bad university teaching is one of the most depressing things in the world of education:

> "Perhaps its nadir is reached in the vision of an outstanding scholar standing before a class of brilliant, hand-picked first year students. He or she mumbles lifelessly from a set of well-worn notes while half the class snoozes and the other makes desultory jottings, or maybe – if this is an engineering or medicine lecture especially – tests new aerodynamic theories by constructing and launching paper

> projectiles. Everyone longs to get the hour over and get back to something serious." (p.3)

How effective is such a didactic approach to support the learning of students? On the other hand, we should not ignore the fact that teaching and learning are not always easy processes but more often demanding and painful. Nonetheless, they are self-rewarding.

Arguably, a prerequisite for the improvement of teaching is an underlying notion and perspective of what learning is, and how students learn. Herein, the perception of learning as something dealing with change, a qualitative one, the way in which learners understand, experience or conceptualize the world around them, is taken as a starting point of our view on university instruction (Marton & Booth 1997). This change is cognitive, emotional or behavioural and includes the most characteristic concepts and methods of the discipline or profession studied. It is one thing to memorize formulas presented in "instructional manuals". It is completely different however, to make use of the memorized stuff (concepts, models, formulas) to solve new problems outside the context of education. From a phenomenographic perspective, Ference Marton and Shirley Booth (op.cit.) treat learning as experiencing the world in a variation of ways. People experience situations and phenomena in their worlds in particular ways. The starting point for their discourse on learning is:

> *"One thing that people have in common is that they are all different. This disturbing sentence – whether considered conceptually or grammatically – boils down to this: people may be created equal, but they do things differently. There are other ways of putting it – for any one of the things people do, some do it better, others do it worse. To the extent they have learned to do that one thing,*

> *they must have learned to do it differently – some better, some worse. Rather, they have learned differently – some better, some worse – to do it."* (p. 15)
>
> *"If one way of doing something can be judged to be better than another way, then some people must have been better at learning to do it – or have learned to do it better – than others"* (p. 179).

In their view, learning proceeds from an undifferentiated and less coherent understanding of the whole, to an increased differentiation and comprehension of the whole and its parts. Although they do not reject the inductive way of learning, i.e. as a progression from acquiring basic facts (simple forms of knowledge) to more complex forms of knowing, they argue that learning rather proceeds from wholes to parts, and from wholes to wholes: *in order to learn about something you have to have some idea of what it is you are learning about*!

In addition, I put forward the assumption that all education is educative and flows into learning of some kind, which in turn implies development, either in a positive or negative sense. Learning does not arise out of nothing; it is contextual and subject to sociocultural factors and prevailing power relations.

Moreover, learning is understood as a process of two different types: an external interaction process, through which learners find themselves in constant interaction (communication) with their social, cultural and material environment, and an internal interaction process, fundamentally psychological, through which the learner receives and elaborates new impulses connecting them to his or her prior learning. These assumptions are encompassed in Illeris' theory of learning, which also includes a cognitive dimension of knowledge and skills, an emotional dimension of feelings and

motivation, and a social dimension of communication and cooperation. All three dimensions, the theory stipulates, are embedded in a societally situated context (Illeris 2003).

When we get to grips with learning something new, we are drawn into a formation process that in one way or another will shape us. We are rarely the same as before we started the learning process. The process can take place within the framework of organized training or in non-formal and self-directed education projects.

Learning is usually associated with some kind of institutionalized activity in school-like settings. So, an underlying message related to it is that learning comes in specific pre-packed forms and is delivered by people, who know, to other people who don't know. Freire in his *Pedagogy of the oppressed* analysed the teacher-student relationship at any level, inside or outside the school, and found that

> *"(t)his relationship involves a narrating Subject (the teacher) and patient listening objects (the students). The contents, whether values or empirical dimensions of reality, tend in the process of being narrated, to become lifeless and petrified. Education is suffering from narration sickness"* (Freire 1993).

Freire continues his reasoning with the famous banking metaphor:

> *"The teacher talks about reality as if it were motionless, static, compartmentalized, and predictable. Or else he expounds on a topic completely alien to the existential experience of the students. His task is to "fill" the students with the contents of his narration – contents, which are detached from reality, disconnected from the totality that engendered them and could give them*

> *significance. Words are emptied of their concreteness and become a hollow, alienated, and alienating verbosity (...) Education thus becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiques and makes deposits, which the students patiently receive, memorize, and repeat. This is the "banking' concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing, and storing the deposits* (op.cit.).

Institutionalised education in its banking form has undoubtedly a positive side. It has made it possible to extend teaching beyond the chosen few. However, a disadvantage of mass pre-packed education is that it emphasizes teaching rather than learning and subsequently disempowers the would-be learner. When learning is anchored in the context of the learner's life it becomes more efficient, whereas institutionalised learning is de-contextualised and as such less meaningful because the learner's experiences are ignored.

"Teaching is a skill and a gift, a talent and a technique"

We do not know if one incontestable way of training teachers or a method to improve the teaching quality in higher education exists. Starting from the principle that the purpose of teaching is to assist students acquire new knowledge and understanding of phenomena and concepts in the way scientists, researchers and other experts conceptualize the various fields of knowledge, then, it is appropriate to cultivate a reflective habitus in the learners; about what learning is, how one learns and what learning outcomes are expected from a particular instructional design. Teaching and

learning activities are intertwined and one presupposes the other. Consequently, it is hardly possible for teachers to improve the quality of their teaching if they do not learn from their teaching and how their students learn. Certainly, a "technically" flawless design of a lecture is rarely a criterion of good teaching without taking into account the way students think and perceive learning which is normally influenced by the learning environment. What one learns in a classroom varies. Some learn what teachers have designed to transfer, others simply memorize the content to respond to the examination requirements, and others learn how to please the teacher to gain high marks. Knowing all that, the teacher tries to take it into account when planning the teaching and the course examination. By itself, the mere knowledge of methods and teaching techniques is not sufficient to make an effective teacher. Knowledge acquisition is relatively easy. The art and skill lies in the apprehension of how and when to make use of these methods and techniques so that they actually promote learning in specific subjects; *"Teaching is a skill and a gift, a talent and a technique"* (Galbraith 2004). The answer to this problem cannot be other than the formation by the teacher of a pedagogical philosophical approach to deal with any didactic questions. It is this philosophical approach that contributes to the integration of any techniques and methods in conducting effective teaching in a professional manner. Brookfield (1990) suggests that developing a philosophical vision provides an organizing vision for the teacher's efforts, gives a sense of stability and direction, reduces feelings of uncertainty, can be used to combat pressures and wishes that are in conflict with the vision, provides a sense of collective professional identity, and helps you to make the right judgements (op.cit., pp. 16-18). A professional's distinctive feature is that he/she underpins his/her didactical choices with a core of exclusive knowledge, both theoretical and empirical,

which facilitates problem solving in the most proper manner. Teachers' professional competence is grounded on pedagogical and didactic knowledge. The professional training of university teachers is not only confined to knowledge of the subject but also includes knowledge of learning and teaching and their relationships as well. Only when teachers reflect on the complexity of the learning process will they be able to change and improve the way they teach. Reflection is a stimulating form of learning. Mezirow distinguishes three different forms of reflection: reflection, critical reflection and critical self-reflection:

> Reflection: Examination of the justification for one's beliefs, primarily to guide action and to reassess the efficacy of the strategies and procedures in problem solving.
>
> Critical reflection: Assessment of the validity of the presuppositions of one's meaning perspectives, and examination of their sources and consequences.
>
> Critical self-reflection: Assessment of the way one has posed problems and of one's own meaning perspectives (Mezirow, 1990, s xvi)

Mezirow argues that critical self-reflection has an equally vital importance for learning due to paradigm shifts in science. Being critical and self-reflective, the learner questions the very preconditions/assumptions for tackling specific (professional) problems in an elaborate way.

The mission of the university

Anyhow, what institution is the University, for what purpose was it created and why does it even exist?

According to one view, any discussion about the aims and objectives of the University causes some suspicion for the simple reason that its objective is taken for granted. They are for seeking new knowledge far beyond external influences. According to others, the university should continuously revise and update its aims and goals, being able to assess and judge the quality of the education it provides.

GRATIÆ VERITAS NATURÆ, is the motto of Uppsala University depicted on its seal. It was created as early as about 1600 and means “Truth through the grace of God and through nature”. The exploration of truth in universities is always conditioned: “If the fancies of an inscrutable deity do not lend themselves to scientific investigation, human action predicated upon a particular conception of these deity does.” (Merton 1996, p. 224)

The universities are associated with knowledge, scientific knowledge. From a purely operational point of view, scientific knowledge is knowledge generated in universities and research centres of a prestigious academic level. It could be added that such a definition coincides with Plato’s view of knowledge in Menon as "justified true belief", considering that what is done at the university is a continuous effort to justify what the researcher stands for.

The fact is that the universities have existed for over a millennium educating generations of students, not only to learn what they are taught, but also to question

assumptions and reigning knowledge by inventing new knowledge. The research task of the university appears much later in the 19th century. Additionally, the university is part of the society in which it operates and mainly consists of people with opinions, needs and interests. Robert K. Merton introduced four principles - known by the acronym CUDOS - to describe "four sets of institutional imperatives that make up the ethos of modern science": universalism, communism, disinterestedness, and organized scepticism (Merton 1942).

The idea of universalism sets out that the important issue for scientists is the content of their claims about the phenomena being studied and not the particulars about those who are making the claims. Universality as a guiding principle determines that scientific theories and findings should be observable and/or controllable independent of political, cultural or religious restrictions: "*Universalism finds immediate expression in the canon that truth-claims, whatever their source, are to be subjected to pre-established impersonal criteria: consonant with observation and with previously confirmed knowledge*" (op.cit.).

When Merton wrote about "communism" he was careful to put the term in scare-quotes since he is not talking about Marxist-Leninist Communism. Scientific knowledge, according to the principle, is a resource to be shared by the whole tribe of science, regardless of the individual contribution of particular bits of knowledge. Ideally individuals get recognition for their findings within their own scientific community. They may be honored and rewarded in many ways but their findings are at the disposal of the whole community of science where anyone can make use of them to build new knowledge: " *"Communism," in the nontechnical and extended sense of common ownership of goods, is a second integral element of the scientific ethos. The substantive*

findings of science are a product of social collaboration and are assigned to the community. They constitute a common heritage in which the equity of the individual producer is severely limited" (op.cit.).

The norm of disinterestedness maintains that scientists are doing science primarily not to get advantages of various kinds. The reward comes through obtaining insight into the truth, and the recognition of scientific achievements, and not from any other benefits, particularly financial. Merton's description of this value is not so manifest and he comments that disinterestedness is different from altruism saying that scientists needn't be saints. The institutional purpose of science is recognition, not profit (see Stemwedel 2008). Scientists should have no emotional or other speculative linking to their work: "*Science, as is the case with the professions in general, includes disinterestedness as a basic institutional element. Disinterestedness is not to be equated with altruism nor interested action with egoism. Such equivalences confuse institutional and motivational levels of analysis [19]. A passion for knowledge, idle curiosity, altruistic concern with the benefit of humanity, and a host of other special motives have been attributed to the scientist* " (op.cit.).

Every claim of truth in the world of science should be subjected to organized testing and scrutiny to prove that it is tenable. Assertions that do survive the skeptical scrutiny of the scientific community can claim to be counted as scientific knowledge: "*...organized skepticism is variously interrelated with the other elements of the scientific ethos. It is both a methodological and an institutional mandate. The temporary suspension of judgment and the detached scrutiny of beliefs in terms of empirical and logical criteria have periodically involved science in conflict with other institutions. Science which asks questions of fact, including potentialities, concerning every aspect of nature and society*

may come into conflict with other attitudes toward these same data which have been crystallized and often ritualized by other institutions. The scientific investigator does not preserve the cleavage between the sacred and the profane, between that which requires uncritical respect and that which can be objectively analyzed" (op.cit.).

We could perceive the Mertonian values as a codification of the university ideology, which presumably is embraced by all those serving there. But is it really so?

Assuming that adherence to these principles leads to the conclusion that the role of the university is to improve the living conditions of mankind there is reason to wonder if such is the case. There are of course some contradictions in the entire reasoning. On the one hand science is considered a common good. On the other, there is typically the researcher as an individual who enjoys the gratitude and becomes the Nobel Prize recipient for his research achievements, albeit based on teamwork. The tension between the individual and the collectivity is even more exacerbated in cases where knowledge and innovation is subject to economic exploitation. Who owns the knowledge and the patent? He/she who thought and found? He/she who funded the research? The university that pays the salary of the researcher? Or a financier who risked his money? (cf Franke-Wikberg et.al. 1994, p. 8).

Maybe there are no easy answers to such questions, but such questions bring us closer to another dimension of knowledge, which Francis Bacon delivered with the familiar proverb: *Knowledge is power*! Without knowledge there is no growth. Lack of innovation weakens entrepreneurship and regions are languishing. Not to mention the consequences of lack of knowledge on the quality of political leadership, public administration and the empowerment of citizens.

The university is not intended to meet only the interests of students and their parents, the state and the market, which to some extent is legitimate. Nobody invests time, money and energy in something that is not beneficial either for future career, for social advancement or high income. Universities are mainly intellectual spaces for reflection and culture where the pursuit of knowledge is not always predictable. We face here a tension between the intellectual legacy of the Humboldtian University and the vocational aspirations of its users, perhaps in alignment with the requirements of the Bologna process. The *Bildung* ideal of Humboldt comprehends education in a broad sense, designed not only to provide vocational skills through a predetermined route, but offering opportunities to students to construct their own particularities on the basis of their own autonomous choices. Parenthetically, it should be mentioned that Humboldt was convinced that the study of the Hellenic past would help the German national consciousness, to come to terms with modernity and to distinguish it from the French culture, the roots of which he localized in the Roman tradition. The university was considered a vehicle (Held, Dirk t.D. 2000).

Humboldt believed that teaching should be based on current research, and that research should be impartial and independent from ideological, economic, political or religious influences. The academic freedom to explore the world should be absolute and true not only for teachers but even for students. The studies should be inspired by humanitarian ideals and freedom of thought, founded on logic, reason and empiricism and not the pundits, tradition, or doctrines.

The philosophy of Humboldt's University inspired and influenced many universities beyond Germany. Since the 1970s, however, it is in retreat because of the rise of market oriented research as a result of strategic partnerships between universities and the

business world. The policy of gradual deviation from the principles of Humboldt and the shift towards a "market university" operating as an economic engine is characterized as scientifically controversial. Ståhle and Hautamäki (2012) assert that this development jeopardizes its viability in the long-term. They advocate a return to a neo-Humboldtian paradigm with "less innovation and more civilization". Their proposal is clear: a return to basic Humboldtian principles of «Lehr-und Lernfreiheit», to academic freedom and autonomy of educational institutions, to pursuit of knowledge as a base of culture and Bildung, and to a connection of teaching to research.

Pedagogy as power and influence

Pedagogy and Didactics are often used synonymously although the former is understood in a broader sense. Their common feature is that both refer to learning and teaching, both as a form of expression and technical capacity and as content. They are not only academic disciplines but also social practices, focusing on modes of communication and interaction, as historically defined by power relations and the prevailing values in the society where they take place. Every moment of communication contains an element of influence and learning, and for that reason it is of interest to the discipline of Pedagogy and its sub-discipline Didactics.

Knowledge, *education* and *learning* are pedagogical concepts, yet at the same time research objects of pedagogy. Pedagogy should rather be perceived as an interdisciplinary field in which several influential social practices of co-exist with a set of beliefs (ideas, concepts and theories) about man and his relationship with nature and

culture. Pedagogy is also a special form of power: a set of methods and techniques for shaping people in accordance with certain goals.

Individuals are affected even when they are not involved in planned educational situations of a formal or non-formal nature. This is because people are in constant communication with each other. Communicating with others is, in other words, an ontological fact and a matter of survival. Through communication, a person is socialized in language, habits and the worldview of the human community, thus acquiring the materials with which he/she builds an identity, or identities, and shapes mentality. Communication is, therefore, the basis of both individual and collective learning. Communication takes many forms and is regulated by more or less sophisticated techniques, depending on the context in which it takes place. These forms and rules consequently define the character and quality of learning.

In order to be effective, the methods and techniques of communication should be based on knowledge for those who are the objects of influence and education. In other words, the «teacher» should know his/her «student» (see Galbraith 2004). This knowledge needs, in turn, to be continuously produced and reproduced. Similarly, the instructors' knowledge includes understanding of the context in which methods and techniques – that is, pedagogy – appear and where specific acts of interaction take place. Education, therefore, is a way of exercising power whose ultimate goal is to nurture skills and ethos that promote the conditions for individual and social welfare.

The educational activities are, in general, part of a society's aspirations to nurture their citizens with shared values, which will regulate their behaviour in their political, social and private lives. Pedagogical practices, however, differ, depending on the degree of

standardization of their content and the external control they take. Each learning environment acquires in the course of time its particular pedagogical style and this is related to the level of freedom, autonomy and self-management it enjoys in designing and implementing the educational content it offers. Control over educational activities, which are not based on equal participation of those directly involved, results in bureaucratization and the dictating of hierarchical behaviours. Democratic education is based on free and equal communication, recognition and respect for the participants' opinions and, finally, socialization (Dewey 1966). Any other kind of directional educational model generates phenomena of unbalance in educational planning and relationships between those involved in the learning process.

Discussing what type of teaching is the most effective, we enter the field of didactics, namely the art of teaching (τέχνη του διδάσκειν), which is demarcated by participants' specific choices, attitudes and actions in the learning process in specific historical, social and cultural contexts. Its servants are invited to indulge in key issues of Didactics and face some classic questions that are inherent to the planning and implementation of any educational and learning activity. The following key issues, according to Abrandt, Dahlgren and Carlsson (2009), ought to be considered in every teacher-supported learning situation:

i. ***The issue of Legitimacy***: it refers to the teacher's/educator's choices related to the educational process and goals. In time and circumstance, the role and function of education (or of educational programs) change and sometimes focus more on discipline, other times on development, participation, sense, etc.

ii. ***The issue of Choice***: it refers to the choice of curriculum and to what the content of teaching should be. This issue becomes even more imperative in today's era of information and knowledge. It is clear that under no circumstances can education offer a complete and comprehensive picture of human knowledge, without running the risk of giving precedence to quantity, thus reducing the quality of educational content. Perhaps the solution lies in Martin Wagenschein's principle of representativeness (Exemplaritetsprincip) (1974), which suggests selecting a limited number of topics in the fields of specific training in order to be able to deepen and, of course, to enjoy real learning.

iii. ***The issue of Communication***: it refers to the choices of teaching methods and the organization of the learning process. The forms of teaching communication update the power relations between the actors of teaching and raise ethical issues for professional educators (see also Gougoulakis 2010).

iv. ***The issue of Identity***: it refers to the structure and the core of the teaching subject. In other words, it distinguishes one area of knowledge from another and ultimately affects the planning of our teaching actions and the way we reflect on them (Abrandt Dahlgren & Carlsson 2009; see also Kalantzis & Cope 2008).

Out of and beyond the "ivory tower"

Traditionally, a prevailing view among faculty was that teaching competence is subordinate to proficiency in a scientific area and research. The time the university operated as an "ivory tower" accessible only to a powerful elite has passed. Universities

have become institutions of mass education and training facing new pedagogical challenges. In the current context of "liquid modernity» (Bauman & Mazzeo 2012) and “social acceleration” (Rosa 2014), unrestrained globalization and flourishing consumerism, new phenomena and habits are emerging in the civilization, with a direct impact on the processes of social production and reproduction in every organized society, where education plays a pivotal role. The warning signs of a strong "educational" crisis, which seems to touch all levels of education, especially the tertiary, are obvious. The presence and use of new information and communication technologies, overturn what hitherto was taken as fixed and undisputed in relation to knowledge, learning processes and, certainly, the idea we had of what skills are required by the teacher. The new framework of the dominant ideology today in the educational sector is determined by the policies of Lifelong Learning and the building of a common European Education Area (Bologna Process - Higher Education Area, 2013). Concurrently a shift occurs in pedagogical thinking, from teaching to learning, updating the teaching - learning relationship. Ultimately, the question we must ask as a society and as an academic community can hardly be other than the following: In a changing world, moving in an orbit providing 24x7x52 services, with fierce competition in the world of production, how do universities react and how do they prepare their students? Will they be satisfied just providing learning for its own sake or should they meet the expectations of various stakeholders, and adapt their programs to nurture requested skills and competencies? How can universities transform into centres of excellence and freedom cooperating with the surrounding society? What is the role of the teacher and teaching in this new educational condition?

Apparently, the solution would rather lean towards addressing teaching and learning as intrinsic components of learning activities, thus avoiding polarizing the duality learning process - learning outcomes. Not surprisingly, therefore, the debate on evaluation within the European Higher Education Area ended up guiding directives for quality assurance even of the quality of the provided teaching in HEI (European Association for Quality Assurance in Higher Education, 2005). For example, an indication of quality assurance of the teaching staff, according to the official guidelines, is the application by institutions of proven evaluation methods of the faculty's teaching abilities and competence.

In Sweden, as an example, the debate on the quality of University Pedagogy (UP) had already started in earnest in the 1960s, at the initiative of the student movement in the country, and has stimulated research, development activities and capacity building for pedagogical and didactic preparation and support for faculty members (Bondestam 2010).

The first major research on UP launched its work in January 1965 and was completed in March 1970. "The academic teaching" (Den akademiska undervisningen), was the title of the final report (UPU, 1970). The work of this committee played an important role in the emergence of research and development concerning UP in Sweden. During its work, the committee received research initiatives examining various aspects of university teaching involving many researchers from various universities. Thus, the proposal of the committee created a special section for Teachers' Pedagogical Development within the Central Authority of Higher Education and similar services-units in universities, which were supported with substantial resources. Among other deliverables the Committee

also published the first manual in university pedagogy used in training courses by faculty members.

The position of the Swedish Ministry of Education on the renewal of teaching and pedagogical training of faculty members was expressed with the utmost clarity in the government bill on higher education (Regeringens Proposition 2001/02: 15). The universities were urged to advance the creation of systematized pedagogical training of the teaching staff:

Every university would independently or in cooperation with other educational institutions develop and deliver training in university pedagogy for the professional cultivation of its faculty members. (op.cit, p. 89). It is also emphasized in the law that the improvement of quality in teaching is an inherent concern of the academic community and the responsibility should therefore be shared equally between the teaching staff, faculties and departments, and the central administration of the institution.

Since the academic year 2002-2003, an account is required in the annual quality reference report of the scope and content of the training of teachers who supervise graduate students, on topics related to educational guidance and supervision. This provision is one of the conditions and criteria of excellence for postgraduate training programs.

After thorough investigation and consultation, in parallel with the organization of practical seminars in UP, it was finally decided to establish mandatory ten-week courses (15 ECTS) in all institutions as certification basis of the university pedagogical competence of the faculty members. Furthermore, the Swedish Association of

Universities and Higher Education Institutions recommended universities design courses in pedagogical proficiency in a comparable manner in order to make the content mutually recognized by all higher education institutions. Since 2003, the successful completion of the UP program has been prescribed as a condition of appointment to the post of lecturer (SFS 2002: 761, Framework Law / HF, chap. 4, §§ 7, 8 and 9).

Since 2006 the same requirement for training in UP applies for PhD students. Also mandatory are the seminars regarding post-graduate supervision for supervisors (SFS 2006: 1053, HF, chap. 6, §§ 32 and 33).

The Association of Universities and Higher Education Institutions makes in its Guiding recommendations, regarding the configuration and scope of the UP courses, a list of learning objectives to be achieved by the participants, namely:

- Acquisition of knowledge about students' learning in higher education, relevant to the scientific field of education (Educational Sciences)
- Improving the capacity of teachers to plan, teach, examine and evaluate higher education and to support the learning development of their students individually and in groups
- Development of a reflective approach to the teaching role and the value principles governing scientific activity or artistic-aesthetic creation, democracy, gender equality and equal opportunities in higher education,
- Acquisition of knowledge about society's objectives and the regulatory framework of higher education,

- Enhancement of the teachers' ability to understand, analyse and communicate their own and others experiences, as well as research results from their subject area, as a basis for the development of education and their professionalism,
- Presentation of an independent work (degree thesis) that deals with education and the teaching of a scientific field supported theoretically and empirically. (SUHF, 2005).

A "sage on the stage"? - Conclusion

Society invests great hopes in education and expects results that promote development and prosperity. This can be achieved through educative experiences acquired in the course of the students' educational journey under the skilled guidance of competent teachers. A genuine educational journey, in a curriculum-driven education, strives towards certain goals but getting there can be just as valuable. An educational journey becomes all the more exciting and rewarding with a skilled and farsighted guide. The professional teacher needs to be such a "guide on the side" and certainly not a "sage on the stage" if he/she is to be effective and successful, in the sense of managing to raise the interest of the students to enjoy thinking, seeing, doing, feeling, and communicating. This requires professionals who themselves find a satisfaction in developing their teaching proficiency. But above all a competent (professional) teacher needs to be equipped with an appropriate philosophical vision of teaching, combined with an understanding of the possible consequences of this vision's didactic implication. University teachers need to develop a professional ethos based on theoretical knowledge, solid professional expertise and an educational approach that assumes

insights into the human being, the teaching content, the learning process and the ways communication works in the seminar room and society.

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