Women in higher education and their road through Romania’s second modernity

by

Cornelia Dragne
B.Sc., Timisoara Technical University, 1991
M.Sc., City University, 2000

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of

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Abstract

This study explores the conditions in which women teaching and conducting research in the fields of computer science, computer engineering and information technology in six Romanian universities live and work. The research begins from women’s concerns and practices of everyday life, rather than those of institutions and disciplines. This exploratory work asked two fundamental questions of the women interviewed: what does it mean to be a woman academic in these high-tech disciplines, and what does it mean to be a second world academic. Employing a critical feminist ethnographic framework, the study explored the professional lives of seven women academics whose ranks varied from Lecturer to Professor through in-depth, face-to-face interviews. A number of documents were also reviewed in order to create a context for the major social and political changes in Eastern Europe – including its new connections to Europe – that had an impact on the professional journeys of women academics in Romania. Findings convey a multiplicity of conscious and unconscious inclusion and exclusionary practices, and ways in which gender, technology, higher education, neo-liberalism and globalisation are bound together. The findings reveal nuanced systemic gender exclusionary practices suggesting that the theoretical underpinnings and practice of gender equality employed in Romania and by Romanian higher education institutions needs much further study.

Women academics in computing face a complex interplay of discouraging factors such as
severe financial austerity and the masculine domination of the disciplines being most salient. The implication for educational change is the need to establish structures and mechanisms to foster honest debate around the dilemma: equality of opportunity, equality of outcome versus gender mainstreaming which has been the normative action in Eastern Europe for decades.
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Dedication

To Darlene, for everything

To Carol, for Heidegger

To Catherine, for the soup

To Budd, for publishing

To Miss Kafka, for Thales
Chapter 1- Introduction

‘...the First Industrial Revolution devalued muscle work, then the second one devalued routine mental work...’
‘Do you suppose there’ll be a Third Industrial Revolution?’
‘A third one? What would that be like?’
‘I don’t know exactly. The first and second ones must have been sort of inconceivable at one time.’
‘...I guess the third one’s been going on for some time, if you mean thinking machines. That would be the third revolution, I guess – machines that devaluate human thinking.’

Kurt Vonnegut, Player Piano

The present is increasingly conceived as a time of transition; but change, according to Thales from Miletus, is an eternal principle of nature. The way he worded this thought is perhaps one of the most famous sayings ever: phanta rei (everything flows). Thales lived from the mid 620s to 547 BC in the Greek Ionian city of Miletus in Asia Minor (today’s Turkey). According to Bertrand Russell (2004), philosophy begins with Thales. He is credited as being the first thinker to attempt to find naturalistic explanations of the world, without reference to the supernatural, the reason why he was called a ‘materialist’. For Thales the world is material and all matter is one. Aristotle tells us that Thales was interested in the nature of objects. Trying to understand the nature of objects and the nature of change, Thales played with magnets and amber. Since then, interest in magnetism and electricity never ceased in science. Although he was also in the business of olive oil making (he bought all the presses in Miletus) and a politician, he is remembered for his contributions to the study of nature, such as predicting an eclipse, or experimenting with amber (Allen, 1991). Today all school children hear of him when they study the theorem of Thales in geometry class.
What has Thales to do with women in higher education in Romania some 2,500 years later? The thread that unites the two through ages and across differences is their curiosity about the nature of things. Science captures the imagination and invites us to dream. Many are captivated with the images of Neil Armstrong walking on the moon, with StarTrek and with StarGate SG 1. Boys grow up surrounded by men thinkers, such as Thales from Miletus, and with heroic scientists such as Neil Armstrong. Girls, on the other hand, have few visible examples of female scientists.

Perhaps no other sciences today invite us to dream more than those associated with the computer. The message carried in a myriad of ways in our culture is that science is the playground of men. The message that women may be computer scientists is nowhere to be found. Yet, it may well be that these women will change the world as we know it if research institutes and universities will allow them to flourish as computer scientists and as academics. Feminist cultural studies of science and technology challenges the assumption that science is simply what scientists do, say or write, by deconstructing the multiple and dispersed makings of science and technology in everyday life and popular culture (McNeil, 2007). Possibly in a distant future, culture will transmit more gender-equitable images of science.

**Statement of the problem**

Romania is a country in Eastern Europe with a population of 21.5 million and a Gross Domestic Product (GDP)/capita of $12,500 classified as upper middle income¹. By

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¹ According to the World Bank (WB) classification of countries based on income economies are divided according to 2007 Gross National Income (GNI) per capita, calculated using the WB Atlas method. The groups are: low income, $935 or less; lower middle income, $936 - $3,705; upper middle income, $3,706 - $11,455; and high income, $11,456 or more (which translates in $19,000 GDP/capita) (WB, 2009).
comparison, Canada has a GDP/capita of $40,200 (CIA World Factbook, 2009). Until 1990 Romania was a socialist republic, part of the ex-Eastern Block of socialist countries in Eastern and Central Europe. Since January 1, 2007 it has been a member of the European Union.

Higher education in Romania started a decade short of the mid-17th century. Until the end of the Second World War (WWII) higher education had been in general the monopoly of the upper class. Women students were extremely rare, and only in fields such as literature and arts.

When communists took power in 1947, higher education had been greatly expanded and reformed after the Soviet style of higher education. Changes in attitudes towards women, in particular the idea that women are entitled to higher education just as much as men are, provoked dramatic changes in the educational opportunities and career prospects available to women. From this time, we can speak of a truly democratic higher education system in terms of gender. However, the numbers of students admitted had never been greater than approximately 8% of high-school graduates, which is much less than the number of students admitted in today’s higher education systems in developed nations in the European Union and North America. Therefore, it may have been democratic, but not massive.

Today we witness the process of massification of Romanian higher education, which takes place on several levels. One level is the creation of new higher education institutions, another is the reform in the admission processes, and yet another is the reform in the structure of degrees. This latter reform is part of the European Bologna process, whose scope is to create a pan-European higher education space. Its ten specific
objectives concur to support mobility of students, academics and graduates, which leads to the ‘blurring of boundaries’ (Prague Communiqué, 2001). There is much talk about reform in higher education in Romania; there is much criticism as well. However, the discourse is made up of a large number of disparate discussions about specific changes, which succeed in large number, while the grand plan goes on without large social debate. But as the Brazilian educator Paulo Freire has pointed out, people who want to understand the role of politics in shaping education must “see the reasons behind facts” (Freire, 1985, p. 2).

Blurring of pre-given boundaries does not happen only at physical level; it started in the people, and what they witness are exterior reflections of profound changes in our ways of thinking, repositioned in and influenced by a new ontology of space and time (Tomlinson, 1999; Adam, 2000). Perhaps nothing contributes more to the blurring of modern boundaries and at a new ontology of space and time than technological changes brought about by computer sciences and information technology.

Feminist theorists argue that the world of science in general and of computer science in particular is being dominated by male-centred perspectives and by a masculinist ethos which contributes to the marginalisation of women in these spheres (Harding, 1986, 1991; Longino, 1990; Keller, 2001; Hubbard, 2001; Hoonakker, Carayon & Schoepke, 2006). As a result, the literature dedicated to women in science and technology often speaks about “the woman in computing ‘problem’” (Grundy, 1997, p. 1). The ‘problem’ is complex. If I were to sketch it in few words, I would say that it stems from several main causes: under-representation, a chilly climate created by
masculine norms, values and attitudes, and high ‘mortality’. This metaphor means that women quit the field for other more or less related professions.

While in regions such as Western Europe and North America there is an extensive body of work in various disciplines such as women’s studies, computers, cultural studies, political studies, education, sociology – dedicated to the women in computing ‘problem’, the Romanian academic landscape is a desert from this point of view; but it is an important space for many reasons.

Today Romania is passing through hard times; it is a poor country with a weak economy. Any contribution to the general well-being is thus particularly important. The information technologies and computer industry, in many respects the newest one, as it started in earnest only after 1990, is one of the very few success stories. This domain of activity manages to contribute to the GDP, employ a large number of people, and grow, despite a general unfavourable national and global economic climate. The vast majority of its employees, men and women, are graduates of the higher education system. During the communist era, disciplines such as sociology and education were removed from universities. The study of philosophy had been highly politicised and women studies did not exist. Therefore the year 1990 found many Romanians with almost no knowledge about social life, at least in the public domain. As feminist philosophy is a rather recent exotic import, the number of studies focused on women alone is particularly low, even for an arid humanistic landscape as found in Romania. Furthermore, I have no knowledge of any educational studies on women in computers, despite the prestige computing professions enjoy in today’s Romanian society. There is therefore limited knowledge, if any, of how women function within an ever-changing academia in fields
that are considered by the vast majority as being masculine, the playfield of smart boys, or ‘nerds’. A large body of Western feminist literature speaks about a chilly climate. Perhaps in Romania a similar climate exists, and combines with a continuous state of flux and with economic austerity.

The lack of a feminist movement in Eastern Europe, coupled with the high-jacking of sociological research by the communist rulers left many un-answered questions, and with a gap in understanding gender relations. Studies employing a gender lens are still scarce and do not form a critical mass, capable of constituting a solid base for understanding, such as those in the West. I maintain that the analysis should be extended into these geographical areas, and we need to take a situated view at the causes behind the figures representing women’s participation in computer science. This research project is an instance of critical engagement with the issue of women’s participation in sciences within higher education in the East.

The historical turning point constituted by the fall of the Berlin Wall brought positive developments as well as negative ones. For women in Romania I maintain that the balance leans towards the latter. My study suggests that we are witnessing a process some call the feminisation of poverty (Roman, 2001; Domanski, 2002; Fodor et. al., 2002; Popova, 2002; Oprica, 2008). It is thus of utmost importance to make efforts to build an understanding of how women could improve their status in society and to struggle against ending up in the secondary labour market.

**Purpose of the study**

The purpose of the study is to explore, interpret and illuminate how the new realities of science and technology within higher education in Romania affect gender
equity, both at the theoretical level and at the level of everyday life experiences. The study is based on the assumption that the profound changes that have occurred within society and within the sphere of higher education have led to new intertwined systems of power, which may create new and as yet unexplored forms of gender differentials. The study explores the conditions in which women teaching and conducting research in the fields of computer science, computer engineering and information technology live and work. This exploratory work asks two fundamental questions: what does it mean to be a woman academic in these disciplines and what does it mean to be a second world academic.

The research builds on the works of social theorist Ulrich Beck (Beck, 1994; Beck, Bonss, & Lau, 2003) who suggests that not only post-socialist societies, but the whole of Europe is entering a period of transition between what he calls in his theory of reflexive modernization the first modernity and the second modernity. The first modernity is largely synonymous with the nation-state, whereas the shape of the second modernity is still being negotiated and, therefore, unfolds before our eyes. Beck, Bonss and Lau (2003) contend that:

Reflexive modernization seems to be producing a new kind of capitalism, a new kind of labour, a new kind of global order, a new kind of society, a new kind of nature, a new kind of subjectivity, a new kind of everyday life and a new kind of state (p. 3).

In Romania old certainties, distinctions and dichotomies are fading away, but through close investigation we can discover what is taking their place. My study, which attempts this discovery, is framed in a theoretical framework that places Feminist Critical Theory at the centre, but it is also informed by views drawn from other feminist streams, such as empiricism, postmodernism, and standpoint feminism.
Employing a feminist critical framework, the study explores the professional lives of seven women academics, whose ranks vary from Lecturer to Professor, working in Romanian universities, in departments of computer science and computer engineering. The data was collected through in-depth, face-to-face interviews, during my trip in Romania in the summer of 2007. While this was the primary data collection instrument, a number of documents had been reviewed, not only for the purpose of triangulation, but also for information purposes. Collectively, the data conveys a multiplicity of inclusionary and exclusionary practices, and a multiplicity of ways in which gender, technology, higher education, neo-liberalism and globalisation are bound together.

**Layout of the study**

My study begins from the feminist assumption, shared by almost all streams of feminist and interpretive theory, that context matters greatly (Hartsock, 1983a; Longino, 1990; Nelson, 1990; Smith, 1990). Chapter Two tries to present in a nutshell the historical period between 1947 and 1989, that is, the socialist period, in which the country had been ruled by a Communist Party (RCP). Because characterising a long historical period is not an easy task, I chose to employ the ‘biography’ of the RCP as the tool to describing the era. My decision was also fuelled by curiosity. The chapter starts with the birth of RCP, walks us through four decades of power, and presents the fall of a mighty socio-economic and political force. After some conclusions about the epoch and its demise, the topic of what had been the woman’s condition during this time is introduced. This second subchapter describes the gains brought about by the communist rule, the limits imposed on freedom, and the state’s inadmissible intrusion into women’s
private lives. Chapter Two concludes with several remarks about women’s condition under socialist rule.

Chapter Three presents the new realities which started to emerge with the fall of communism. The post-socialist condition is characterised through the neo-liberal ideology it enthusiastically embraced. Thus, I outline the assumptions underlying the effort to embrace the free market economy. I speak about several conditions specific to the East European context which undermines the political master plan in unforeseen ways. Then I try to picture the resulting market economy employing Geislerova’s (1999) theory of a ‘permanently post-communist market economy’. I conclude the first part of the chapter in a brief examination of the post-communist democracy. Using the same structure as in the previous chapter, I reserve the second part to an account of the woman’s situation during the local form of capitalism. I approach the matter from an economic point of view and I give prevalence to describing the world of work. Arguments are brought that support the thesis of women’s pauperisation.

Chapter Four is dedicated to higher education in Romania, starting from its beginnings. The chapter is divided according to temporal periods, each section describing an epoch. More space is given to the communist and to the post-communist periods, as these are the periods when higher education in Romania expanded greatly. An important part of the chapter is dedicated to the contemporary period, which is further divided according to the reforms in the higher education system. I tried to ‘put order in the reforms’ and to make some sense of the changes incurred by the system. The word ‘reform’ is being used and overused in the Romanian literature about the topic and various authors come up with various numbers of reforms. I classified the changes
according to the legislation passed. Therefore the chapter presents two educational reforms, the one represented by the post-1990 Law of Education from 1995 and the second brought about by the Bologna process. The chapter concludes with a few remarks about the contemporary system of higher education in Romania.

In Chapter Five I look at the literature related to the main topics of my research: the feminist critique of science and technology, of epistemology and of biological determinism. It starts by briefly presenting the streams of feminist research theory and praxis which inform my research: feminist empiricism, feminist standpoint theories, and postmodern, poststructural and feminist critical theories. The next set of topics comprise: women’s under-representation in science, engineering and technology, gender as barrier to career advancement in academia, and the under-representation of women in computer science and computer engineering. As the bulk of this body of work deals with women in North America (especially in USA), I also look at the findings related to the under-representation in Europe, including the situation in Romania. I assert there is need for more knowledge pertaining to the Romanian context. I conclude the chapter by formulating questions in need of research.

Chapter Six is dedicated to the theoretical roots of the study. Therefore, the theoretical assumptions my study builds on are introduced. The theoretical framework is reflexive modernisation as developed by the German sociologist Ulrich Beck in 1994. Thus, my study assumes that Romania passes through a transition process in a second phase of modernity, rather than towards postmodernity. The feminist perspectives informing my research are then presented. Firstly, the dialogue between feminism and critical theory is offered, and then the dialogue between feminism and postmodern
theories is mentioned. As I place feminist critical theory at the centre of my study, this
topic is given more prominence and space. I introduce then the gender equity model
developed by a US-based feminist critical theorist, Nancy Fraser, in 1997.

In Chapter Seven the study presents a visual model of the theoretical framework.
In the first section I discuss the choice of a feminist methodological approach. In the first
subsection I profess that I consider experience as a legitimate source of inquiry and why.
In the next subsection I introduce and detail my choice of research design: critical
feminist ethnography. Then I explain the main research method I employ: feminist
interviewing. The next section is dedicated to research questions; thus, in the first
subsection I formulate my primary research question and in the next I outline the
analytical research questions. I then continue with a section in which I explain the site
and participant selection and the choices made. Next I explain my process of data
analysis, bottom-up narrative analysis, as well as reasons for choosing this method. Then,
the coding process is presented and the category system that results. The chapter
concludes with issues regarding the evaluation of the study, a note on researcher’s
subjectivity and ethics considerations.

Chapter Eight is dedicated to the findings resulting from the data analysis process.
The chapter starts with a profile of the seven research participants. I structure the chapter
according to the broad themes emergent from analysis and from the literature informing
my research. I begin discussing the factors which influenced my participants to choose an
academic career in domains pertaining to the world of computing. Next I introduce one
important theme that became salient during data analysis – the issue of women’s under-
representation in academia in these fields. I took a chronological approach, as I presented
women’s presence in academia in CS, CE & IT from the beginnings of these as academic disciplines in Romania, as results from my participant’s recollections. Then I made a comparison with the situation in the world of work, in order to draw attention that academia is not to be considered a typical work place for a CS/IT professional and that the academic career is not what it can be called a typical career in IT. The next important category in the study is the issue of masculinity in the world of computing. How masculine are perceived the fields of CS, CE & IT within the academia, what are the perceptions in the society at large, what are the opinions of my participants about gendering computing, if and how stereotypes act in academia, are the topics of this subchapter dedicated to masculinity. The influence gender plays on academic careers in CS, CE & IT nowadays in Romania is the topic of the next section. Here the sub-categories are gender bias, both in academia and in the world of work, the issue of advancement, and the questions and dilemmas raised by affirmative action strategies to attain gender equity. When discussing about advancement, distinction is being made between the academic ranking and leadership positions within academia, as gender influences them quite differently. Then, the thorny issue of balancing professional and personal life is being allotted a subchapter. The categories discussed under this theme are the issue of making priorities, the issue of sacrifice, flexibility of the academic career, mobility of academics within Romanian higher education and the issue of support, from family and from the university and the state.

In Chapter Nine I continue presenting the findings, and it is dedicated to what it means to be a woman academic in a second world economy. Here the categories are under-financing and the influences of the Bologna process and of the market economy.
The issue of under-financing became salient during the interviews but more so during the data analysis. In fact, it became so prominent that although not planned in advance, it occupies almost an entire chapter. Within it there are such categories as working conditions, multiple employment, what a budding career in academia represents for those who may wish to embrace it. Another category placed here is the controversial issue of brain drain. The next section of Chapter Nine is dedicated to how market influences play on higher education in Romania, and how my research participants see and feel them. Finally, the chapter concludes with the issue of the Bologna process, which induced major changes in the Romanian higher education.

Next, in Chapter Ten, I discuss the findings presented in the previous two chapters. I link the fact that conversations with research participants often depart from issues of gender to the lack of feminist tradition in Romania. Next I discuss how the social, cultural and political context influenced the way my research participants prepared for an academic career. I contend, based on the interviews, that a certain technocratic paradigm is manifest in the Romanian IT. Then I analyse the vicious circle of masculinity and women’s under-representation in the world of computing in higher education. I show how the perceived masculinity of this world is being reinforced, and how women have to make supplementary efforts to fit in. Next I question the existence of a glass ceiling effect in computer higher education and I finish the section with a discussion about avenues to increase gender equity. The next section is dedicated to the issue of finding a balance between work and home. After that, the issues of under-financing and some of its consequences, such as the increase in the amount of work due to more students, leaving the country for better professional prospects, or one’s professional image within the
academic community, are discussed. The last section presents the impact the activity of my research participant’s professional lives have on society. Drawing from the work of Ulrich Beck I make the case that, through their professions, women academics act as conscious social agents of change.

In Chapter Eleven I finish the study drawing conclusions about the position of women academics in computer science in Romanian higher education, about the current tendencies identified in the system, about being a woman academic in a second-world country, about dilemmas facing women, and the general atmosphere in the academy. I end by claiming that the study opens up possibilities for future research.

**Locating myself in the study**

This study is conducted in partial fulfilment of my doctoral programme in Leadership Studies, with a focus on Adult Education. The topic of this research had a long ‘gestation’ period and stems from my direct life experiences. I obtained my first university degree from a Polytechnic Institute in the western part of Romania. I had experienced the Romanian higher education before and during the turning of the tide brought by the fall of the Berlin Wall. Thus, I had been a student in the communist period and I had witnessed firsthand the beginning of the transformations I describe in Chapter 2. In 2002 I updated my education with a Master’s degree in Computing Systems. This last degree was obtained in the US, from a private university. However, I have been a full-time student in CS in a Canadian public university as well. Thus, I experienced being a student in a socialist higher education system and in both public and private universities in North America. This made me reflect about higher education systems in general, and how they impact one’s life. Then, I began to think about their social role as sites of
education, not only as sites of training professionals in narrow disciplines. In parallel with this process, I tried to weave my previous career in engineering with a technical career in Canada, without success. Such failure made me reflect on the nature of the barriers I faced. Although it was a long process of realisation, I eventually came to the conclusion that society has certain expectations from me based on gender. I started to connect these thoughts with the fact that I was one of the two women students in my computer architecture class, choosing to major in computer science and that by the second part of the course, I was the only one. I remembered the reasons why my female colleague quit her undergraduate programme only a few courses short of graduation. At this point, I was one step away from my research inquiry, but not there. What pointed me to the topic of this research were the discussions I had with my doctoral committee members, especially with my supervisor, Dr. Darlene Clover. Also influential was the Philosophy of Technology course I took with Dr. Carol Harris, who introduced me to the works of Max Weber, Martin Heidegger, Andrew Feenberg, and to the critical theory and the Frankfurt School. Guided by my professors, I came to understand that it is possible to draw connections between being a woman interested in a technical profession, higher education systems where such professions and credentials are acquired, and where more and more women also work in teaching and research after graduation, and the larger socio-economic and political context which constitutes a crucial factor for professional success or failure. I have chosen as the context of inquiry my native country because I needed to be able to fully understand all the nuances of spoken language and to have a deep understanding of the institutional and cultural contexts. Therefore this study is a combination of these interests and of the fact that I am aware of the lack of such studies
in the Romanian context. It stems also from my curiosities, interest in learning new things, developing new understandings, and interest in conducting my own research. This study represents my attempt as making sense of a limited aspect of my world. I wish to state explicitly that the choice of the subject as well as the choice of the research approach - feminist critical ethnography, is firmly based on my underlying assumption and belief that the purpose of this type of research is the pursuit of social justice.

**Limitations of the study**

Any study is limited in multiple ways. My study is particularly limited in time and space. In time, the research component is limited to the contemporary period. Historically, however, I trace higher education in Romania since its inception, sometime around the middle of the 17th century. Except this short incursion back in time, the study focuses on the nowadays position of women in the Romanian technical education in CS, CE and IT, a period that begins with 1990 and finishes with 2007, the year of the interviews.

In space the study is limited to the Romanian context as it looks solely to women working in Romanian higher education. Another limit is based on the disciplines of computer science, computer engineering and information technology. Another term used is informatics, which is an alternative for computer science.

Romania is a country with limited material possibilities. A number of limitations follow from it: the amount of information in digital format or digitised, the amount of information uploaded on the Internet, the amount of data collected by the single reliable statistical agency – the National Institute of Statistics (NIS). Unlike in Canada, Romanian universities do not put at the disposition of the public data regarding their activity such as...
the number of registered students. There is no, or very limited, data about the student population, about the administrative personnel, nor about academic personnel. Unfortunately, at the national level, occupational statistical data does not include the sphere of IT. Old and large categories are being used. For example, the occupation of software engineer, although it became a popular occupation after 1990, is not included anywhere as such. Nor are occupations such as network administrator, database administrator, and technical support. The single occupational group mentioned, in present statistical data released by NIS about the IT industry, is telecommunications.

I have to mention also the fact that, because the main data collection instrument is in-depth interviewing, another limitation stems from what my research participants chose to say and not to say. Also, this study is limited to the professional aspect of my research participants lives.

Another form of limitation stems from the process of translating participant’s words in English. The interviews were conducted in Romanian, which is the native language of the participants and of the researcher. Sharing the language in which participants are most comfortable maximises researcher’s degree of understanding of the speech. However, this comes at a cost of translating verbatim quotations from the interviews. Being empowered with the task of translation, places the responsibility of rendering the meaning of my participant’s speech acts on me. In Chapter Seven, speaking about critical feminist ethnography and about feminist interviewing (p. 185-187) I expose the power imbalance inherent in ethnographic writing. Researcher power over what is written, or not written, is unavoidable (Hesse-Biber & Piatelli, 2007). The act of translation deepens this power imbalance, as I am the person responsible for the
interpretation and for the choice of English words. Translation also inherently limits the richness in meaning of the initial speech act. To reduce this limitation and to convey the natural character of the speech act, every time I quote a participant, I employ a translation that best preserves the meaning of the original, while preserving as much as possible of the original form. Where preserving the form prevents conveying the full meaning intended by the speaker, I insert extra explanatory words in square brackets.

**Contribution of the study**

The research aims to contribute to knowledge about the interplay of being a woman and pursuing a scientific and academic career in the contemporary domains of computer science, computer engineering and information technology in Romania. Informed by a feminist critical theoretical framework, it assumes that the socio-cultural context of research is of tremendous importance in analysing gender relations. Therefore, the study dedicates an important section to the analysis of the socio-cultural and politico-economic milieu constituted by Romania and by the Romanian higher education. Standpoint feminist theories contend that it makes a difference whose questions get to count as ones worth pursuing and how these questions are being conceptualised. As I said before, feminist studies in the Romanian context are rare. Those that exist usually look at issues such as sexual exploitation, which unfortunately became an issue after 1990, being one of the most negative developments brought about by the new era. My study helps to fill this research gap and adds to understandings of the role and place of women in Romania today, particularly in higher education.

I know of no other study that engages with the woman into computing issue, now that the IT industry is so important for the Romanian economy. Also, in the context in
which Romania loses specialists in computer science at a high rate (roughly half of the PhD students) usually to the USA, but also to other affluent Western European countries, I think it is particularly important to develop an understanding about gender relations within academia. A less direct contribution might be that it offers a certain amount of visibility to the work of women in computer sciences. I contend that nowadays stories about women that succeed in a highly intellectual, scientific, yet ‘cool’ and visibly connected to the everyday life activities may serve to influence the young generation.

Perhaps the most important contribution stems from the fact that the study sheds some light on what it means to be a woman academic teaching and doing research in Romania, what are the barriers to career advancement, what are the strategies employed to cope with the dynamism of the field, and how these women understand the balance between the personal and public.
Chapter 2 - Starting Conditions: Communism Romanian-style

In order to understand the collapse of the communist regime in 1989, we have to look, albeit briefly at the history of communism in Romania and at the history of the Romanian Communist Party (RCP) which was the sole political force in the country for half a century. This chapter begins with a sketch of the history of communism in Romania, introducing a few of the key political actors and discussing key factors that led to the regime’s demise. The second part of the chapter explores women’s conditions/situations during this time.

On the raise and fall of the Romanian Communist Party

The birth of the RCP

The leftist parties in Romania were formed relatively late compared with their Western European counterparts, primarily because the country was mainly agrarian and lacked a large and politically active urban proletariat. “The Romanian working class numbered around a quarter of a million in 1910” out of a total population of about 7.7 million (Jurca, 1993, p. 5). On December 1st, 1918, date known in Romanian history as ‘the Great Union’ (today Romania’s National Holiday), or the birth-date of ‘Great Romania’, the country extended to include Transylvania, a relatively more industrialized province, and the provinces of Bukovina, Bessarabia and Cadrilater. As the population grew (in 1922 the total population was about 16.5 million), “the number of Romanian workers reached approximately 400,000 by 1920” (Jurca, 1993, p. 57). The absence of a large and robust social base did not mean that no leftist movement existed. Although more an intellectual club than an organic upsurge from below, the first Romanian
socialist party – the Romanian Social Democratic Worker’s Party (RSDWP) was formed in 1893 and had a short life. In 1899, a large fraction of the RSDWP joined the Liberal Party, an event known as ‘The Treason of the Generous’. The party was reborn in February 1910, as the Romanian Social Democratic Party (RSDP) (Tismaneanu, 2003). The culture of the early Romanian Left included a tension between two factions. The first faction, the Westernizers, strongly influenced by the Left in Germany and England, sought as the ultimate goal to overturn the capitalist system. In the second faction were the advocates of a less ambitious goal - to develop a strong working-class political party that would participate in the country’s political life. Among the latest group, Constantin Dobrogeanu-Gherea, born Solomon Katz (1855-1920) deserves special attention, as he developed a sociological theory known as the ‘the new serfdom theory’, which contradicted Lenin’s claim that socialism could be brought about through sheer power of will. The ‘new serfdom theory’ insisted on the need to develop modern economic and social institutions as a necessary precondition for any socialist transformation. Dobrogeanu-Gherea believed that the revolution must logically begin in the industrialized West and would later spread into the less developed countries in the East. He claimed that if socio-economic conditions were not ‘ripe’ and a communist takeover were to occur it would lead to regression towards medieval-like social and economic relations, hence the ‘new serfdom’. Despite ideological differences, Romanian Left agreed on a number of priorities: improve working class living conditions, education, women’s emancipation, and minority rights (Tismaneanu, 2003).

After the Bolshevik Revolution of 1917, and as new members joined after the Great Union, the RSDP has been renamed the Romanian Socialist Party (RSP) in 1918.
At the party Congress in May 1921, the majority of the delegates voted for the transformation of the Socialist Party into the Romanian Communist Party (RCP). One day after this historical decision, police invaded the congress hall and arrested all delegates on charges of conspiracy against state order. The RCP was born illegal. One year later, under mounting pressure from democratic circles, Romania’s liberal government proposed a partial amnesty for political offences.

**The clandestine RCP**

The Second Congress of the RCP, on October 1922, was held secretly. At this Congress, Ana Pauker, one of the founding members, presented a report on the women’s revolutionary movement, although for all practical purposes the party was illegal from day one and was banned by law (the Mirzescu Law) in December 1924. This meant police harassment so all major party events were held outside Romania prior to WWII (Tismaneanu, 2003). Although these were small gatherings the young party was not homogenous in its thinking. The atmosphere was a paradoxical mixture of fraternity and deep solidarity on the one hand and suspicion of treason and extreme intolerance on the other. After Lenin stepped down and Stalin took power in 1924 (after the Fifth Comintern Congress) fear for one’s life entered the picture, as by now every visit to the Comintern represented a visit to the Stalinist Soviet Union, when one day one might have been praised as a top Bolshevik, and arrested the next on insane charges. The immediate consequence was a drastic reduction in numbers: before it was banned officially, RCP varied between 2,000 and 2,500 members; by the time of the Fifth Congress in 1931, it dropped to 1,200 (Tismaneanu, 2003).
The main reason for the ban was not as one might expect RCP’s total submission to the values and mission of the Third International (i.e. the Bolshevik revolution and the bringing about of the dictatorship of the proletariat), although class struggle was a factor. Rather, the RCP professed an extreme form of internationalism and was openly contemptuous of any national patriotic sentiment. From its first day of existence, RCP declared itself the Comintern’s arm in Romania. They were soldiers of Soviet Union’s international army, and their allegiance was supranational. According to Comintern dogma, Romania was an imperialist, multinational state, and the RCP’s task was to fight for the self-determination of some provinces, up to the point of separation from the existing state. The creation of Great Romania, thanks to the Peace Treaties of Versailles, Trianon and Neuilly (in the aftermath of the World War I and the Austro-Hungarian Empire’s collapse) did not sit well with the Soviet Union, which started to raise claims to the Romanian provinces of Bessarabia and Northern Bukovina. The ethnic profile of RCP was not of the nature to calm the spirits either. Majority of its members were ethnic minorities: Jews (most numerous), Hungarian, German (Romania just fought a brutal war against them in 1914, war that led to the recovery of its historic territories), Ukrainians (i.e. Soviets, who were raising territorial claims). Ethnic Romanians were in fact a minority. Romania between the wars was not a democratic paradise, as post-1989 anti-communist rhetoric would want us to believe: people were harassed for their political views (both the Left and the extreme Right) and ethnic discrimination was considered normal behaviour. However, we should keep in mind that in the case of RCP, the state dealt with a party formed mainly by minorities and foreigners, some seen as adversary, which openly supported Russian claims on Romanian’s territory, besides the overturn of
the regime and the imposition of a proletarian dictatorship. The Union of all territories inhabited by Romanians was the most important national desiderate for many centuries. It became reality only twice in 1600 and in 1918. In both cases the price in blood and human suffering was high. Little wonder therefore, that the Romanian communists remained an unappealing marginal group until the occupation of the country by the Red Army in 1944.

**The road to power**

A coup on August 23, 1944 overthrew the pro-Nazi dictatorship and brought Romania in the anti-fascist coalition. The coup permitted Romanian democracy to re-emerge briefly. The Communist Party played an important part in the coup and during the war was involved in anti-fascist activities. As a result it re-emerged after the war as a legal party and they were invited to participate in a coalition government, along with the National Peasant (NPP), National Liberal (NLP), and the Social Democratic parties (RSDP). Communist leaders took important ministerial portfolios, at par with the more established political parties. The fact that the ‘liberating’ Red Army reached the capital in August surely helped. Communists became the champions of the continuation of war for the liberation of northern Transylvania and furthered military cooperation with the Red Army until the final victory. Thus, the Romanian army continued to march towards West, helping liberate Hungary and a portion of the Czech territory, up to the Tatra Mountains.

It is not clear how many members RCP had at this point, as figures advanced by various sources vary greatly, from fewer than 1,000 to 6,000, including those in prisons and concentration camps (Tismaneanu, 2003). What is clear is that they needed to increase their numbers, as the opportunity to become a prominent political player loomed ahead.
Now the RCP was in a relatively strong position, as by 1947 it became clear that Soviet Union’s intention was to establish a fraternal satellite regime and the Great Powers agreed upon this plan. Soviet Union acted swiftly: in 1947, by direct diktat, it forced the monarchy to abdicate and to transfer power to a communist-controlled government (Chiritoiu, 1997). It was the end of the monarchy and the birthday of the Romanian People’s Republic. By now the wheel of fortune turned, and the Ministry of Internal Affairs started to harass their former masters. The RCP leaders thought that history was on their side and acted accordingly. However, despite playing well the anti-fascist rhetoric, despite an intensive propagandistic campaign for attracting new members and despite presenting itself as a champion of social justice, the fact remains that the RCP lost the elections to the National Peasant Party (NPP). Such loss could not be tolerated by Soviet plans and “the elections of November 19, 1946 had been falsified, an enormous electoral fraud that permitted the RCP and its allies to take a major step toward a monopoly of power” (Tismaneanu, 2003, p. 92). The foreseeable future would resemble Lenin’s dictatorship of the proletariat rather than parliamentary democracy and political pluralism.

**The Stalinist period: The obsessive decade**

The first steps towards dictatorship were taken in August 1947 when the NPP and the NLP were dissolved and the RSDP merged with the RCP. Revolution, not reform, was the answer RCP brought to the social, economic and political problems of the country. The period that followed is known in Romanian history as ‘the obsessive decade’ and it ran from roughly 1950 to 1964. The name comes from the abuses committed during this period. They sit heavily on the collective consciousness especially
as history had not yet shed light on the events and there was no closure either for individuals or the collective. Within the party fratricide wars were fought; many of the founding members were either imprisoned or executed. International communism entered an age of conspiracies, universal suspicion, and mass terror. Outside the party the grand master plan of transforming the economy into a socialist one and to impose communism as the single ideological doctrine led to actions that instilled fear and deep resentments into people who were treated like cogs in the wheel of the all-powerful totalitarian state machine.

The ‘achievements’ of this period were: 1) the nationalization of the National Bank, followed by the nationalization of industry; 2) the socialist transformation of agriculture, i.e. the collectivization; 3) the re-organisation of the Romanian Academy (by expelling politically un-trustable members); 4) Sovietisation of the national culture to achieve ideological regimentation. The leadership of the RCP was hyper-centralized, authoritarian-militaristic and conspiratorial (Catanus & Chiper, 1999). The fact that there is little documented knowledge about the victims, both in terms of numbers or identities adds to the collective obsession with this dark period in history.

In 1956 the Hungarian counter-revolution started with mass demonstrations against the communist regime in Budapest. This was perceived in Romania as a breath of freedom, especially by university students in large centres such as Bucharest, Cluj and Timisoara, who tried to start a similar movement but like their Hungarian neighbours, were quickly exposed to Stalinist-like persecution. Hundreds of students were arrested right from their campuses, to the horror of their classmates (Tismaneanu, p. 2003).
Ceausescu’s period

After the war the RCP had been led by a small group of people, who held the most important functions in the party and in the state. The leader of the party, Gheorghe Gheorghiu-Dej, distinguished himself because he was the single East-European Cominformist leader to survive all the purges and reforms, both under Stalin as well as after Stalin’s death, and to finish his career in power and not in disgrace. Dej was considered a sophisticated negotiator and a versatile man, as he was able to maintain good relationships with the USSR, both under Stalin and under his enemy, Khrushchev, and in the same time was able to develop a kind of ‘national’ communism, thus departing somehow from the USSR internationalist dogma (Boia, 1997). Dej became the leader of RCP because he was an ethnic Romanian (one of the very few in the party’s leadership), whereas Ana Pauker, born Rabinsohn, was a Jew (a majority in the RCP at the time). This was also an important consideration in naming the next RCP leader after Dej’s death (Catanus & Chiper, 1999). The person who followed Dej as the Secretary General of the RCP (the top leadership position) in 1965 was Nicolae Ceausescu, who at the time was leading the Union of the Communist Youth. Ceausescu was also an ethnic Romanian, had humble (read ‘healthy’) origins and spent time in prison during the illegal period of the party. In fact, the adolescent Ceausescu learned to read and write in prison taught by his fellow party members (Georgescu, 1991). Taking over from his predecessor and mentor he continued to strengthen the national ‘flavour’ by challenging Moscow’s domination of Romanian politics. Ceausescu also created for himself an image of a fighter for national independence, as he often disagreed with Soviet interventions in the international arena. To gain a favourable opinion in society at large, Ceausescu came up with the thesis that
the RCP was carrying on Romania’s secular struggle for independence, thus taking a 180
degrees ideological turn from RCP’s initial commitment for internationalism and the
dismantling of the country in ethnic enclaves. If Dej was a survivor, Ceausescu was a
successful careerist (Fischer, 1989). He was not only the top leader of the RCP but also
the top Army leader and the first elected president when the Romanian Popular Republic
was promoted to the status of Socialist Republic (RSR). Ceausescu was also a
fundamental believer in industrialization. Under his leadership Romania borrowed money
from major international development banks such as the World Bank to build a
manufacturing industry as large and complex as possible, and the necessary
infrastructure. Every single aspect of social life was considered subservient to the
Pharaohic effort to transform Romania into an industrialized, developed nation. The
coupling of these two obsessions - industrialization and independence - led to the
following: Romania was to become a totally independent nation by generating so much
industrial and agricultural production, that the output would cover all internal necessities
and the rest would bring enough revenue to cover all the country’s expenses, and in plus
paying the debts. Ceausescu’s dream was simple. Romanians would be frugal consumers
satisfied with locally produced goods, militarily independent, and in exchange the
country would be free from external financial and political pressures, free to pursue its
own external policy. Energized by his messianic task, Ceausescu surrounded himself with
self-interested but obedient followers (Fischer, 1989). His position at the top of the
strictly hierarchical ladder of the Communist Party and of the nascent state bureaucracy
was greatly consolidated by the fact that his rise to power coincided with the Romanian
de-Stalinization in 1964. De-Stalinization consisted of the liberation of the vast majority
of political convicts as well as the de-Stalinisation of culture, starting with the curriculum in schools and universities. The liberation of political convicts was legislated by the decrees 767/1963 and 411/1964 which, unlike other decrees, were kept unpublished. According to official statistics in January 1960 the number of people convicted for acts ‘against the security of the state’ (‘enemies of the people’) was 17,613 (Balan, 2004). Thus, Ceausescu leadership was perceived as a break with fundamentalist bolshevism, although he was not to be credited with the new direction RCP took.

The ‘good’ years

The years 1965-1977 were a period of relative calm and prosperity. After fifteen years of terror, no serious opposition was mounting. The Security infiltrated all sectors of the economy with undercover agents functioning as employees. Distrust, fear and a feeling of hopelessness due to lack of external support kept the opposition from organizing. Building of entire industries from scratch (textiles, heavy equipment, shipyards, pharmaceutical, etc.), greatly expanding existing ones (mining, constructions, chemical, wood processing, metal and electricity production, food, etc.) and large infrastructure projects (roads, electricity, railroads, gas pipelines, water and sewage distributions, irrigations, etc.) offered a large number of jobs and kept people busy. Wages were low compared with their Western counterparts, and even with other Eastern European countries, yet they offered a decent standard of living. Despite making a decent wage, life for the working class was difficult due to harsh working conditions, a 6 days working week (sometimes 7) and lack of housing. The rapid urbanization that was in full swing led to a drastic shortage of housing, but ‘the Party’ was taking care of the problem

2 There are no official numbers for those who ‘disappeared’ in the dungeons of Security, and never get ‘the chance’ to serve prison time. Disappearances were never officially recognized.
by building massively. Prosperity did not come from sound economic policies; rather, it was ensured by incurring debts. Economic development was directed in detail by ‘the Commander’ himself, although he never had any training on economics. At the top the concern was not competence, but allegiance to ‘the cause’.

Ceausescu used the Czechoslovak crisis in August 1968 when the reforms of Alexander Dubček, known as the ‘Spring from Prague’ (Pražské jaro in Czeck), which try to open Czech socialism to political freedom, were repressed by the Soviet Union, as an opportunity to proof his commitment to the ‘national’ communism doctrine and to his dear ‘independence’. Therefore he distanced himself from Moscow and refused to join the military invasion of Czechoslovakia, an act of real mutiny. Moreover, RCP had sought good relationships with those communist parties critical of Russian expansionism, such as the Greek, Yugoslav, Spanish and Italian communist parties. RCP skilfully played the local anti-Russian sentiment to build a rudiment of legitimacy.

The ‘bad’ years

The year 1977 constituted a shift in Ceausescu’s leadership (Deletant, 1995). Prior to 1977 he was fond of paying more or less announced visits to factories, universities, agricultural cooperatives, hospitals, various institutions, and to attend large gathering events (celebrations, gigantic shows, etc.). He fancied himself a ‘Father’ of the nation in the most paternalistic of fashions. He ‘Balkanized’ RCP’s leadership by imparting favours to those who made the effort to meet him personally during his visits. He ensured that claims handed to him directly were resolved satisfactorily. Ceausescu was skilful in building a personal network of indebted supporters, not to ‘the cause’, not to the Party, but to him as an individual (Fischer, 1989).
The presidential visits were drastically reduced after the events of August 1977; they also became carefully prepared ahead of time. In the Valley of the river Jiu - a coal mining area with a long socialist tradition - a spontaneous revolt of the miners led to the unthinkable: a strike and an uprising against the regime. Security and Army forces were immediately mobilized and a representative of the party was sent to discuss the strike requests with the miners. The leaders of the strike refused to discuss with any second-in-command leader and requested Ceausescu’s presence. They knew that any other person was simply not powerful enough to enact any change. To keep the conflict from escalating and reaching the foreign media, Ceausescu met with the miners, gathered in large numbers. Although he was surrounded by Security forces, Ceausescu felt physically threatened (Cesereanu, 2003).

The miner’s lists of requests had to do with working conditions and labour regulations. However, during the strike, there were slogans that directly attacked the establishment. Two are noteworthy: “Down with the proletarian bourgeoisie!” and “Lupeni ‘29”. The first statement is proof that working class miners did not considered the regime as their legitimate representative, but rather as a group of opportunists that replaced the previous bourgeoisie, not the worker’s exploitation. They felt exploited by the communist bureaucracy in the same way they had been exploited by the capitalist establishment. “Lupeni ’29!” reinforces this view, as is a reference to a famous mining uprising in the area in 1929. That famous strike was organized by socialist workers, with ties with the Communist Party. The Liberal-dominated government at the time used military force against the miners; many miners were simply shot on the spot. Such heinous repression generated a loud outcry in the Left, and RCP was at the lead of the
media protest that followed. Reference to the strike of 1929 was a slap on the face for the RCP, as it suggested that: a) the party is not the natural offspring of the Socialist movement, but rather its usurper, and b) by being on the repressive side, by bringing army troops in the Valley, RCP is no better than the regime it criticized and which place it took.

Insulted and physically threatened, Ceausescu left the Valley never to return. This episode acted as a cold shower, as he fancied himself as genuinely loved by people, not because he was a particularly narcissistic nature, but because the sycophants surrounding him showered him with compliments and praises at all times (adulation known as ‘the cult of personality’) (Fischer, 1989). In need of aids whose loyalty could not be questioned, Ceausescu promoted his wife, Elena (Helen), up the Party ladder, until she became the second most powerful person in the country.

As a textile factory worker, Elena joined the RCP in 1930. In the 1950s she obtained a degree in chemical engineering from the Bucharest Polytechnic Institute. After graduation she worked in a chemical research institute. In 1974 she became a member of RCP’s Executive Committee and the Chair of the National Council for Science and Technology. By late 1970s she was so involved in the running of the party and of the state (member in the Permanent Presidium, Chair of the Central Committee cadres (i.e. human resources) commission, first deputy Prime Minister) that she was referred to as ‘the Second Cabinet’. Elena was not the single relative promoted. Numerous members of Ceausescu’s family were assigned important functions. In fact, the leadership of the country was perceived by everyone as the dominance of a clan, collectively called ‘the nomenclature’. Romanian nomenclature was seen as not much different than the Mafia.
The glue that kept them together was made up of blood ties, guilt for old crimes, need for control and economic interests. In this respect, Romanian communism again made display of originality in a way embarrassing for the global Left.

The agony and the fall

Life in Romania during the last years of the communist regime had been difficult for everyone except the high rank officials. The real standard of life of the Romanian population had been extremely poor even compared with neighbouring communist states such as Hungary or the Federative Republic of Yugoslavia, despite economic statistical indicators about GDP/capita and economic growth. The two engines of the economy were the agriculture and the manufacturing industry. By now, decades of blatantly incompetent economic decisions had started to show their effects. Agriculture suffered from many causes: severe work force shortage, the degradation of soil due to pollution, erosion and unwise exploitation, lack of irrigation and lack of necessary tools. Agriculture relied on ‘volunteer’ work of people from all the other sectors of economy, of school children and university students. The manufacturing sector fared no better during those years. A majority of manufacturing plants, put in place during the 60s and the 70s, had been by now outdated and inefficient, compared with Western standards of productivity, not to mention the wear and tear due to years of functioning. Human productivity had been low as well, despite the fact that employees had been well qualified and majority of large companies had put in place some form of professional development. The reason was that the number of employees had more to do with the need to employ everyone in the work force than with the real needs of a company; therefore the vast majority of companies employed more people than they really needed in order to meet
their production plan. In sum, the Romanian economy had eaten many resources and had produced little. As a result, the country was unable to pay the external debt incurred during the heavy industrialization period after the WWII and to ensure a decent standard of living for its citizens. What had been scarified in this trade off had been the well-being of Romanian citizens. The sacrifice consisted in a period of internal consumption austerity, which spanned approximately a decade, but took drastic forms from 1985 until the end of 1989. The austerity translated into efforts to reduce fossil fuel consumption, minimize imports and maximize exports and reduce all internal spending to a minimum.

Limits were put in place for household electricity and natural gas consumption, cars owned by individuals were not allowed to run at all times, buildings were less heated. Maximizing export meant that food produced for internal consumption had been exported; food shortages occurred. The RPC’s answer to the shortage was to establish a system of food quotas/capita. Reducing internal spending affected all sectors of activity, some more than other. Education and health care were particularly hardly hit. The saying went that an inmate of a prison was better fed than a patient in a hospital. While this might have been a metaphor, the fact that one needed to ‘procure’ basic hospital stuff in order to receive treatment was a harsh reality.

The reader might be tempted to ask why such a disastrous situation did not lead to overt opposition. The fact is that it did, but it had been quickly repressed by the omnipresent and omnipotent Security. On November 15, 1987, a strike was declared at a large truck manufacturing company (named “The Red Flag”) in the city of Brasov, a heavily industrialized city. The strike workers marched to the streets and gathered in front of the RCP’s County Committee. This time the slogans were: “Thieves!” , “We want food
for our children!”, “Light and heat!”, “Down with Ceausescu!”, “Down with communism!” “Down with the tyrant!” The answer came immediately: the demonstrators were arrested and dispersed. More than 300 people were arrested and 61 workers were deported (Cesereanu, 2003).

As the situation became more and more severe, every day brought a new limitation of one sort or another. The last months of the regime embraced Orwellian forms. I will give three examples:

1) a ‘new’ Party rule assigned people to places selling bread. It was against the rule to buy bread from any other place. The vendor asked for a photo ID card; if the card was outdated, one was not allowed to buy bread.

2) a ‘new’ rule asked restaurants and coffee shops to remove their window curtains, so that customers can be watched from the street.

3) public gatherings of more than three people at a time were banned, with the exception of shows and sport events.

The internal political police – the Security – was quite busy trying to enforce rule after rule. Not even they – the most privileged of all – were totally content. The regime, reminiscent of Asian despotism, became an embarrassment for fellow East European countries and even for the increasingly reform-oriented new Soviet leadership under Mikhail Gorbachev.

On November 9, 1989, the Berlin Wall crumbled and with it the communist regime in East Germany. In Romania, November 1989 was the time for the 14th RCP Congress. Ceausescu raised the questions of the Romanian territories annexed by USSR in 1940. He also announced the payment of the external debt – $11 billion. In 2-3
December Ceausescu met with George W. H. Bush in Malta and in December 4th with Mikhail Gorbachev in Moscow to discuss the territorial question. On December 16 minor street protests took place in Timisoara, a large city in Transylvania close to the Serbian border. The local Security forces used water and tear gas to disperse protestors and made random arrests. The news of such measures irritated the people of Timisoara who joined the initial minor protest in large numbers. Thus, on December 17th, the main square of the city was full of people, although the mass did not come up with clear reasons for protest. No slogans were chanted. However, like in Brasov 10 years before, people gathered around the headquarters of the Communist Party. An attempt was made to set fire to the building. At this moment, the peaceful protest transformed into a violent confrontation with the forces of ‘order’ (Army, Police and Security forces). The presence of Army tanks and soldiers with real ammunition on the streets, as well as the presence of helicopters patrolling the zone at low altitude created an atmosphere of deep animosity. By evening fires had been shot and people had been killed and injured. Timisoara is one of the largest university centers. The student campuses received ‘special treatment’ during that night, being heavily guarded by Army troops. Despite the terror, the next day, on December 18th, the protests continued. People gathered again in large numbers in the same square as the days before. This time they knew what they want: the fall of the regime. On the same day Ceausescu undertook a planned visit to Iran, to sign the Long term plan for the development of economic, commercial and technical cooperation between the two countries, thus displaying optimism about the future. By the time he returned, on December 20th, Romania had one city free of communism. Timisoara negotiated a cease fire with the Army generals sent to stop them, and declared itself ‘free
city’. Here people started to organize for the future, and created the Romanian Democratic Front (RDF), whose mission was basically to bring down the regime. On December 21st, Ceausescu ordered a large meeting in the capital city of Bucharest. It is interesting to note that, days after the events in Timisoara, in Bucharest people still obeyed Party official’s orders. He condemned Timisoara and offered a modest rise in wages. People were unimpressed and left the square only to start protesting. The slogan was: “Down with the dictator!” A brutal repression started against them, which led to deaths and injuries. The presidential couple placed the task of dealing with the riots in the hands of the Ministry of Defence at the time, Gen. Vasile Milea. Milea committed suicide, and the two Ceausescu were forced to name immediately a successor for him. A close friend and protégé of Elena was chosen, Gen. Stanculescu. Then, the presidential couple fled the scene and let Gen. Stanculescu deal with the situation. He dealt with the situation as he saw fit: immediately joined the revolutionary forces and ordered the arrest of the presidential couple. Two days later, on December 24, Nicolae and Elena Ceausescu were arrested, and on December 25th, after a trial organized ad-hoc and presided over by Gen. Stanculescu, they were convicted, sentenced to death and quickly executed.

Conclusions

The Ceausescu’s couple personal tragedy was determined by the tragic condition of their party, which proved unable to gain historical legitimacy. Born on the fringes of Romanian socialist movement, the Romania Communist Party was never able to generate thinkers such as Antonio Gramsci, Rosa Luxemburg, Eugene Varga, Béla Kun or György Lukács. Ideologically, they proved to adopt extreme views, uninformed by the surrounding reality; intolerance remained a constant. The fact that they took power
through electoral fraud was never forgotten. The victims of the Stalinist-like terror that followed were never forgotten either. Although during the long ‘reign’ of RCP the country made important progresses in some areas, especially education, health care and infrastructure, communism in Romania was generally regarded as an impostor. Added to the crisis in legitimacy were the cult of personality, what could be called the ‘family-isation’ of the Party, a highly hierarchical and over-dimensioned state bureaucracy, contempt for working conditions, complete lack of democracy, contempt for anything innovative, tight cultural censorship, and the ubiquitous presence of the political police.

For the majority of Romanians, the reign of communism felt like a mild dystopia, which led to de-politisation and a general feeling of disdain for politics, the retreat to the private sphere, social atomization, as well as to reliance on state paternalism and strong leadership. Romanians grew accustomed in relying to state technocratic experts (domestic or foreign) in deciding what is good and desirable for society.

**Woman’s condition during Romanian-style communism**

The lack of gender perspective in the communist literature is a notorious flaw, which has been long exposed by various strands of feminism (de Beauvoir, 1973; Scott, 1978, 1982; Smith, 1987; hooks, 1983; Benhabib, 1992; Fraser, 1997; Cornell, 2008). Few theorists of the communist ideology were preoccupied by the ‘woman question’, and those who were exercised little influence on the policies and practices of the RCP. Basically, RCP considered the ‘woman question’ solved once and for ever by Friedrich Engels in *The Origin of the Family, Private Property and the State* written in 1884. Like Engels, RCP considered women’s status as solely socially determined, and not at all defined by biology, except in her role as mother, and they saw no contradiction here.
Woman’s unequal position in society was seen by Engels (1973) as having the same ‘essence’ as class oppression, thus obeying the same rules:

The first class opposition that appears in history coincides with the development of the antagonism between man and woman in monogamous marriage, and the first class oppression coincides with that of the female sex by the male (p. 482).

Like Marx, Engels considered the modern individual family in capitalist production as being founded on the “open or concealed domestic slavery of the wife” (p. 486). Housework had been analyzed through the prism of Marx’s theory of value, and it was recognized as a) producing values for use but not for exchange, therefore valueless in monetary terms, making woman a source cheap of labour and degrading all work performed by her and b) as work essential to the creation of surplus value. Thus, it follows logically that the planned revolutionary society should be one in which women would withdraw from private domestic service and return to socially meaningful participation in public production and service. The onus of Marxist thought on the matter is that communism, by abolishing private property, also abolishes the root cause of women’s inequality, thus creating conditions in which full equality will naturally follow. If only women will participate in the labour force, be granted full legal and social rights and achieve economic independence, equality will be ensured.

There is little wonder that RCP based its gender practice on Engels’s oversimplified understanding of the base-superstructure relationship. As noted, the party was dominated by men and by a male-oriented value system. It was also plagued internally by strife and conflict. The few women who attained top positions in the party embraced the same masculinist attitudes and values, as is often the case for those in the minority (Phillips, 1998). For example, Ana Pauker, one of the very few women to
become a central committee member was deemed “fearless comrade Ana” (Tismaneanu, 2003, p. 101). When her husband was shot as an ‘enemy of the people’ in one of the early purges in Moscow she not only refrained from expressing any disapproval but expressed her full support for the ‘witch-hunt’ organised by Stalin against foreign communists (known as ‘the Great Purge’). She was also considered instrumental in several executions although no one knows for sure if this claim is true (Bratescu, 1995; Tismaneanu, 2003). Male priorities are anchored in categories that are visible to men; the male dominated RCP saw the productive sphere as the most important component of social life. Although housework occupied some place in theory, in practice it remained almost invisible and always neglected.

Realisation of women’s right to work on an equal basis with men coincided with an acute need for workers caused by the ambitious plans of industrial expansion and the depletion of male workforce due to war. However, it would be an oversimplification to present this ‘recruiting’ process wholly as a response to the needs of economic planning. The cause was as much ideological as economic. Women were guaranteed employment by the Constitution, a network of day-care centres and kindergartens were built, the law guaranteed equal pay for equal work and job rights were protected during paid maternity leave (Scott, 1978). Women’s participation in higher education grew exponentially (Scott, 1978). One reason for women’s interest in higher education is clear: a woman had to have a university degree to earn as much as a skilled male worker in the heavy industry. While majority of the women worked in industry, many of them at jobs formerly filled by men, the vast majority could be found in a limited number of fields such as the ‘light’ industry (mainly co-operatives), administrative and clerical work, retail
trade, health, education, and social welfare, positions paid less than those in the ‘heavy’
industry. Women with a university education first crowded into teaching and medicine
until the ‘feminisation’ of these professions was seen as a threat, replacing the men who
sought prestigious jobs in the research institutes, which paid more than the school system
or the health service (Scott, 1978). Education and medicine employed more than 60% 
women (see Appendix 1, p. 356). Well-paid and high qualified positions in other non-
traditional occupations such as engineering and law were also sought by women.

Despite real and important achievements in terms of self-realisation, financial
independence and social status, not to mention gains in terms of laws and policies, gender
equality promised by the quasi-abolishment of private property was not to be found
overall in Romanian society. It was not true that all doors stood open, or that all rights
were guaranteed by laws and policies. As Engels (1973) warned, what goes on in real life
behind the scenes is not the business of the law.

The five-year economic plans had promised but failed to achieve a growth in
supporting services at a rate commensurate with the increase in women’s employment.
Child care became a problem especially as older generations tended to live in the country
side and working age people in urban areas. Traditionally, a Romanian woman received
help with raising her children from parents and in-laws, even from grandparents. The
generational split between rural and urban areas prevented many women to seek unpaid
help from older generations in her family. The alternatives were costly nannies or the
state-run daycare and kindergarten system, where these facilities existed. Meanwhile
information on ‘maternal deprivation’ was reaching Eastern Europe from Western
sources and dispelling some of the faith in collective child care. This faith was also
shaken by the fact that many paediatricians and child psychologists pointed to shortcomings in the daycare facilities and advised against it. Not surprisingly, women’s ‘natural’ role as mother was ‘discovered’ to be her primary role under the socialism too (Scott, 1978).

Romanian socialism failed to deliver the promise that household tasks would gradually be made into a public industry. Not only were full services not created but agriculture, housing and consumer goods industries were neglected at the expense of heavy industry. After all, they were under Elena Ceausescu, the Second Cabinet (remember Simone de Beauvoir’s famous essay the Second Sex?). Communist propaganda called for women to ‘bring their contribution’ in every possible way but never called for men to share the housework (Scott, 1978). Equality of opportunity given to people who were not equal to begin with did not produce equality. More and more women chose to have one child or no children at all. In the decade between 1956 and 1966 net reproduction rate fell below one and the birth-rate dropped 45% (Scott, 1978). As a result in a 1966 decree, abortion was made illegal except for women with four or more children, followed by a ban on all contraceptive medication. Other economic measures were introduced, such as child allowances and paid maternity leave up to three years. Fathers were not eligible for these leaves. Such measures were taken in the most undemocratic fashion - no public consultations or discussions. No women’s organisations were consulted. The reason for these changes publicly argued to be “to protect more effectively the health of women” (Scott, 1978, p. 194).

Socialism not only did not prevent full expression of long-standing customs such as placing housework on woman’s shoulders but it also managed to restrict women’s
freedoms over their own bodies. Although similar demographic policies were adopted in Hungary, Czechoslovakia and Bulgaria, Romania’s anti-abortion law took disturbing forms of enforcement such as compulsory gynaecologic exams. This policy alone was making it clear that woman’s freedom and well-being was secondary for some East-European regimes.

**Housework during the late 1970s and the 1980s**

The need to discuss housework during those years stems from the fact that the economic crisis created peculiar conditions which negatively affected the entire population but particularly those responsible for procuring and preparing the basics of consumption and reproduction. As we have seen, women were those mainly responsible for these tasks, as this was a centuries old division of labour unchallenged by the socialist realities.

In the urban areas, buying food required waiting in long lines, sometimes for hours. For women in the work force time also became a scarce resource. On rural areas, women gave up jobs to work family’s land plot, and to raise animals; this was an unpaid labour form unrecognized as such, and thus did not lead to any form of social protection. In Romania, social welfare was tightly coupled with employment; various rights were not accorded based on citizenship, but based on employment status. The assumption was that every person able to work will do so, as there was no unemployment. Thus, when she gave up her job to produce family’s food, a woman sacrificed not only a career, but also her current and future financial independence. While the share of the total workforce in farming steadily declined, the share of women rose. Official statistics show that they made up more than half of agricultural labour as late as 1976 (Appendix 1, p. 356).
Anti-discrimination legislation and affirmative action

The communist regime proclaimed right from its establishment that any form of discrimination – based on race, ethnicity or gender – was to be fought against. Gender equality along with equality between various minorities was emphasized in each and every official document, including the Constitution. The Constitution of the Romanian Popular Republic of 1948 stated in Article 21 that the woman has equal rights with the man in all spheres of life (economic, social, cultural, political, law) and that at equal work she is entitled at equal pay. The next Constitution, of the Romanian Socialist Republic of 1965, pairs the equality of rights between genders with the fact that the state protects marriage and family, and the interests of mother and child, under Article 23. It is telling that equality of gender for women is associated with marriage, family and child bearing. The Code of Work (Law no.10 from Nov. 25th, 1972), which was the main labour legislation, stated in Article 2 that work is guaranteed for all Romanian citizens, regardless of sex, nationality, race or religion, while Article 14 guarantees equal payment for equal work. Articles 151-158 are dedicated to women (night work, work during pregnancy, maternity leave, etc.).

However, for the RCP the figures looked bleak: in 1960, only 17% of women were party members, although the proportion of women in the population was 51% (Vese, 2001). The response was ostentatious promotion of women in political and social life and a campaign of recruitment in the party. By the end of 1970s women membership in the party rose to 32%. Representation in the Central Committee grew from 4% to 25% (Vese, 2001). The mechanism put in place to promote women up the party ladder was a system of quotas. These were not set only for women, but for other categories that needed
affirmative action in order to secure top positions, such as workers and members of ethnic minorities. In 1977 a 30% quota for women was set for the party activists. In a document of the Central Committee (CC), “The Decision of the CC of RCP from June 18-19th, 1973 regarding the increase of the woman’s role in the economic, political and social life of the country” it is clearly stated that an increased attention should be paid to “the even more active participation of party activist’s wives” to the political life (Solcan, 2005). The language is important, as all published documents of the CC of RCP were carefully crafted by the official ideologues of the regime. Again, no women’s organisations were consulted in the setting of the quotas. These decisions belong entirely to the men-dominated CC of RCP. Therefore the implications are: a) women were ‘granted’ more representation, not because they asked for it, but because the figures were embarrassing; b) the quota system was imposed in a paternalistic fashion; no reason for why 30% and not 50% was offered; c) the RCP top leaders made overt display of their paternalistic views, by reducing the role of women to the secondary position as wives. In other words, women were let to understand that they will get some share of the power, but only as second-in-command, and that they should be aware of their role as follower. They should also remember that they gained access to power grace to their husbands.

One undesired effect of the affirmative action policy was that any time a woman had been promoted in the world of work, there may had been suspicion that the decision was based on her gender or on her husband’s connections, rather than on her leadership abilities. Such suspicion was extremely pernicious, as it undermined the role model quality of women with real leadership qualities.
In sum the RCP, the single political force whose will could become reality and therefore the most consequential one for the whole society, reduced women to her productive and reproductive roles. She was supposed to produce goods and services, as well as to produce obediently and unquestionably the next generation, under the ‘wise’ guidance of the party.
Chapter 3 - The post-socialist condition

The collapse of communism in Eastern Europe coincided with the widening and deepening of globalization. Suddenly in 1990 - the aftermath of the fall of the communist regime - Romania became an unprepared player in a global economic market characterised by unprecedented dynamism and whose rules and ways of working were constantly renegotiated by a ruling neo-liberal discourse. That is not to say that at the time most Romanians were greatly concerned, or even aware of the country’s economic position and potentiality on the global market. The vast majority of Romanian population had experienced an enthusiastic even euphoric impetus to join the ‘West’. As the whole politico-economic system collapsed, the burning priorities at hand were to create new political parties and revive old, ‘historical’ ones, to organise free at last elections, and to try to exert some control over the Security and army. December 1989 constitutes indeed an inflection point in Romanian modern history and the start of a crystal clear political paradigm shift away from anything cognitively socialist. The strength of anti-communist and anti-socialist sentiment prevalent in the population at the time drew mainly from three causes: 1) deep resentment of the communist dictatorship; 2) the violent nature of its overturn, which led to human life losses and 3) the perception of the Western Europe as the epitome of social, political and economic success, a model to be followed in detail.

Market economy Romanian style

The ideological vacuum left behind by a discredited Communist regime has been quickly filled by the neo-liberal paradigm advocated by fervent Western advisors. As the society suffered from political infantilism, and was painfully aware of its lack of political
and free market economics knowledge, advice was sought and highly appreciated (Brucan, 1998). In universities the teachings of Marx and Engels were replaced by those of Adam Smith, John Locke and John Stuart Mill faster than the army generals suspected of giving criminal orders during the Revolution of December 1989. The desire to break with the past and the backlash against anything planned and social was such that the newly reconstituted, so-called ‘historical’ political parties (liberal and conservative) perceived the neo-liberal discourse of the West as being in fact too generous, too close to the failed socialist experiment. Any alternative to the model of laissez faire economy that might have been, any ‘third way’ were banished as ‘socialist’ and prone to failure on the long run (Marino, 2001). Although the initial number of political parties formed after December 1989 was quite large, many disappeared as soon as they emerged; the ‘solid’ ones crystallize into three dominant ideologies: Christian-democracy, liberalism and social-democracy. Thus, the single social-democrat party that formed after 1989, which managed to win the first elections, perceived the neo-liberal doctrine proposed by institutions such as the International Monetary Fund (IMF), the World Bank (WB) and the World Trade Organisation (WTO) (what Stephen Gill (1996) calls ‘the nexus of neo-liberalism’) as being the most balanced alternative, between an extreme right-wing and a ‘third path’ seen as utopian (Mungiu, 1995). One other reason they heartily embraced liberalism was the following: as many of their members came from the second echelon of the RCP, they tried to avoid public critical analysis of the dominant political-economic discourse in the world they tried to join, in order to minimize the chances to be called ‘communists’, ‘socialists’ or ‘nostalgics’, both from within and from abroad.
The emerging Romanian political class did not hold such views in isolation: the whole Eastern Europe embraced the reform package put together by the ‘Washington consensus’ group. Perhaps the best example is Poland, with its famous ‘shock therapy’, advocated by Jeffrey Sachs (ex-IMF economist) and designed by Leszek Balcerowicz (the former chairman of the National Bank of Poland). Poland took Sachs’s advice and immediately withdrew regulations, price controls and subsidies to state-owned industries, which immediately led to high levels of unemployment and to the pauperization of a large layer of society. However, even the Polish adepts of the shock therapy did not employ the same approach to the privatization of the state sector, a much longer process (Paci, Sasin & Verbeek, 2004). Besides, regardless of their political orientation, all newly formed East-European governments shared the belief that the economic advice received from the neo-liberal ‘nexus’ is based on sound, rigorous science, rather than on ideology. Understanding transition, therefore, requires an understanding of the discursive hegemony of neo-liberalism. Gharabaghi (1999) argues that the neo-liberal discourse in international political economy remains in theory and practice the foundation of all the transformations in Eastern Europe and in the Russian Federation. He contends that the international political economy contributed to the transition: ideas, ideology, culture and information, and that the main conduits for these contributions were international financial institutions, notably the IMF and the WB. “These institutions became involved in the transformation process early on, and their use of cross-conditionalities in exchange for much needed foreign currency, especially at the outset of the transformation processes, has shaped the process of marketisation ever since” (p. 25).
The new neo-liberal paradigm postulated that Romania must open up as soon as possible its antiquated economy to the international systems of finance and trade. Openness would immediately generate benefits such as attracting foreign capital in the form of direct investments and gains from trade. Moreover, the integration into the global financial and trading flow would automatically ensure solid economic conditions necessary for a true democratic process, by bringing Romanian economy and people’s standard of living at par with their Western counterparts.

This chapter provides a critical analysis of the assumptions embedded in the neo-liberal ‘blueprint’ for Eastern Europe’s transition to a market democracy in general and to Romanian transition in particular, as well as a discussion about the type of market and the type of democracy it leaded to, as we can observe them today. Also, it will take a broad look at the overall situation of women in the post-communist transition, and will discuss few causes for concern. The implications of transition led by neo-liberal pundits for Romanian higher education will be discussed in more detail in the next chapter.

**The assumption of individualism**

Neo-liberal pundits that acted in these early stages as advisors for Eastern European countries assumed that simply by adopting a market economy, the individual in Eastern Europe will be ‘released’ into a globalizing post-industrial, post-modern world, much in the same way in which the individual of the late nineteen century had been released from feudal and religious-transcendental certainties into the world of industrial society. This ‘liberation’ process, known as the ‘individualization process’ was theoretically shaped in the early twentieth century by Emile Durkheim and Max Weber (Beck, 1994). By emulating the institutions, processes, procedures, rules and regulations
generally attributed to a Western market democracy, the ‘individualized’ Romanians would be lead to align their behaviour to that observed in the Western part of the continent. The fact that individualization in the West has been taking place under the general conditions of the welfare state (i.e. expanded education, advanced legislation of labour relationships, low unemployment), conditions nowhere to be found in the newly liberated Romania, it did not seem to matter. Thus, the neo-liberal doctrine expected Romanians to take decisions, without being able, owing to the complexities of the world that just opened up for them, to make those necessary decisions on a well-founded and responsible basis, considering the possible consequences.

**The assumption of a self-regulated and apolitical market**

The liberal economic doctrine posits that no centralized system is capable of gathering and processing the information required for coordinating activities among consumers and producers as effectively as a decentralized market, which ensures efficient allocation of resources. Based on the rationale of the self-regulating market, the liberals often go as far as to separate the economic from the social and from the political (Geislerova, 1999). Naila Kabeer (1994) offers the following feminist critique:

> Despite the claim by economists that pricing mechanisms is a neutral arbiter of values, it is in reality deeply value-laden: it creates constant slippage in development thinking between using prices to *measure* value to using them to *confer* value. Thus the value of a ‘good’ is seen to lie, not in its ability to satisfy human need, but in the price that it commands through the interplay of supply and demand in the market place (p. 76).
Markets do not take into account the underlying power differentials that exist in any society. Power could be based on wealth, connections, social status, profession, gender, race, ethnicity, able-bodiedness. Left on their own, without political intervention, market-led policies often benefit those who structurally have more power, at the expense of the majority. Thus the market is subordinated to and reflects the structural inequalities and discrimination in a given society (Geislerova, 1999). In post-1989 Romania, the social segment that most benefited from the transition was the nomenclature, because they were those that hold more power, especially economic power.

**The assumption that free market leads to democracy**

Structural adjustment programmes in the developing world were meant to open up ‘backward’ economies to the competitive but ‘rational’ pressures of the global market forces. These programmes were built on the implicit assumption that spreading free markets equate with preparing the ground for stable democracy. In other words, market mechanisms and their related institutions constitute a vehicle of social change by providing an economic framework for individual initiative rewarded by economic success. Private ownership and entrepreneurship would eventually lead to economic growth, which in turn would provide the necessary resources for the institutions of democracy. Moreover, they could undermine the remnants of communist-style state bureaucracy and the vested interests of the ex-high rank communist officials. Another argument was that a large public sector was liable to be politicized sooner or later (Balcerowicz, 1993). Although it was supposed that the institutionalization of democracy would take time, there was no doubt that the new political and economic elites would
take on its democratic responsibilities and would prove accountable to their electorates, would transform a corrupt and discredited state machinery into a legitimate, accountable, professional and responsible body. Such uncritical faith on the market, despite painful past experiences related to democracy from other parts of the world (to name only Latin America) is deemed dogmatic by Gounko & Smale (2007). They cite Reddaway and Glinski (2001) as coining the term “market bolshevism” to refer to it (p. 76). I venture to argue that one reason for the new Romanian government’s faith in economic and financial ‘engineering’ stems from deeply entrenched technocratic attitudes, which were prevalent during the communist period in the society at large. Romanian communists displayed unrealistic faith in the application of technical expertise and abstract systemic models. No wonder in the absence of a democratic political culture and of grassroots initiatives all eyes turned to the ‘experts’.

**Not taking corruption into account**

What was not being taken into account, or better said, what was wrongly assumed, was people’s previous experience in ‘free-market-like’ transactions. Many of these transactions had an illegal character during the communist regime. The long period of consumption austerity forced Romanians to cross the line of legality so often that such steps lost their moral significance. The fault of not respecting some rule or regulation was almost inevitable, as these piled up and took grotesque forms. I dare to say that no one could escape doing something more or less illegal, such as buying overpriced food smuggled over the border (thus encouraging corruption), reading *samizdat* literature or bribing a local bureaucrat to do his/her job. The state was the enemy in an unfair struggle, and it simply made sense to cheat and abuse the system. Not everyone was a petty
trespasser though; serious offenders were running serious businesses on the black market. During the last decade of the regime, economic crime had time to organize. The regime change constituted a golden opportunity for them for few reasons: 1) they had money to invest in the legal market; 2) the old coercive structures, which may have been a threat, underwent changes and did not have neither the resources nor the inclination to pursue them; 3) the justice system proved easy to corrupt; 4) it was time for transferring state owned enterprises to private hands. They constituted a segment that saw market as an opportunity for speculation, rather than production. In one way one might say they were best equipped for the free market economy, as their main concern was to generate profits within the given conditions, rather than to build a culture of a democratic/open society (Geislerova, 1999). 

During the communist era in Eastern Europe and in the Russian Federation Western analysts attributed the high rate of corruption within the political and economic systems to the nature of those systems themselves. The argument went that centrally planned economies provide an incentive for corruption. However, if this would have been the only determinant for corruption, then a decrease in corruption should have had followed after the fall of centralized economy. This has not been the case; quite to the contrary, corruption has increased dramatically, and has infiltrated every institution and every ministry at all levels (Gharabaghi, 1999). Western analysts and consultants recognized that corruption constituted a serious problem in the transition process but their prescriptions proved to be “sadly simplistic and hardly creative: simply improve law enforcement, and corruption, as well as crime, ought to be reduced dramatically” (p. 163). Yet, some of the most corrupt institutions are precisely those entrusted with law
enforcement: police and the courts. Thus, a systemic tendency to abuse the system, coupled with an atmosphere of general suspicion and disdain for political office and process dominated the scene in the early 1990s.

**Post-communist market economy**

The valueless approach to reform key state institutions and systems assumed that these ills would simply wither away on their own in the face of the new legal market opportunities, or at least due to their challenges. Having the perspective of time we know now that they did not, but rather mutated in the context of neo-liberalism. Geislerova (1999) calls the state of affairs that was created “a permanently post-communist condition” (p. 56). She further describes the post-communist condition as being a “hollow shell” (p. 57) whose missing content was a large middle class and a real entrepreneurial culture. I would add to the list of missing content the self-regulating mechanism imposed by the existence of a segment of society critical of the status-quo, in fact the existence of critical analysis of any form of politico-economic discourse and of any ideology.

I do not wish to suggest that all changes brought about by transition are attributable to conscious will (either politically or economically or ideologically motivated). Many transformations took place without reflection, beyond knowledge and beyond consciousness. As old social contracts started to liquefy and as numerous urgent problems demanded public attention, important changes were contingent, brought about by the quasi-autonomous mechanisms of the transition.

The early stages of transition can be described employing Emile Durkheim’s (1951) concept of anomie. Durkheim introduced his concept of anomie in his book *The Division of Labour in Society* in 1893, to describe a condition of de-regulation in society
by which he meant that rules of how people should behave were breaking apart and thus people do not know what to expect from each other. Anomie is not the state of normlessness but rather the lack of enforcement of existing norms. Only these norms are complex, confusing and unclear. Enforcement of norms and external regulations should not be only behavioural but also ontological. Anomie is as much a problem of the individual suffering a lack of ontological guidance as it is a social malaise. In Durkheim’s analysis the domain of moral phenomena is not chiefly values as such, but the social relations that create values as rationalist abstractions, and that give those values their coercive power. According to him, morals are not the values that people want to be right, but the values they are forced to feel are right and which they can also see enforced. In Durkheim’s view morality is a human creation that has both means and ends. If either the ends of moral action are revealed to be empty, or the means are found to be inefficient, then we can speak of ‘moral bankruptcy’. Although all experience is of course realized through individuals, Durkheim attributed all moral imperatives to society and not to innate virtues, logic or instincts. For him moral reality was the essence of the collective nature of human life and was established through social solidarity. Society constrains us at all times, and this constraint is moral. Social constraint is enacted internally, through our consciences, and externally, through mores and other social rules. For Durkheim, constraint was a necessary mechanism for the re-creation of social solidarity (although not the only one), because he considered that people, being by nature *homo duplex*, have strong wills that need societal restraint and ontological guidance. Anomie thus simply refers to a breakdown of social norms and it represents a condition where agreed-upon social norms no longer control the activities of individuals.
In its first stages, transition brought the following social challenges, some of them ‘new’: unemployment, increase in black market activities, pauperization of a large segment of the population, homelessness, out-of-control inflation – on a lack of legal mechanisms of social protection. Thus, the first governments were torn apart between two opposite forces: the need to ease the internal pain of reforms and the criticism and disappointment of the international financial institutions with the speed of implementing the reforms. Any time ‘populist’ measures were adopted, they created scepticism abroad about the commitment of the government to the reform, so that foreign support was inconsistent (Stan, 1995).

Such state of affairs implies difficult to delimit deep insecurities of an entire society, with factional struggles on all levels, which are equally difficult to delimit (Beck, 1994). Fragmentation leads to social atomization, and social atomization, by undermining social solidarity, leads to widespread anomie. Adding to fragmentation, social solidarity has been further undermined by the nascent inequalities and inequities based on income and wealth, connections, race, ethnicity, gender and social status, and by the marginalisation of those left out by the market logic.

A major contributor to the state of anomie was the very backbone of transition, the privatization process. By privatization it is understood the process of transferring state ownership (real estate, land, production means) into private hands. The Land Law of 1991 had the purpose to restore ownership rights for the approx. 70% of Romanian agricultural land, owned by the state at the time. As one might imagine, a restoration process after 40 years proved complicated and time consuming. A major drawback was the fact that, due to both the lack of clarity of the ownership rights themselves and the
lack of the transparency of the process, land distribution did not coincide with the process of issuance of property titles. That means that a person who was given back the land, was not given the legal documents to attest his/her ownership (‘ownership certificates’) as well, those being pending. The restoration of land property proved a fertile terrain for illegalities and created numerous court trials. The Law on the State Owned Enterprise Restructuring from 1990 divided state owned enterprises into two categories: those operating in what were deemed as strategic areas of the economy, and all the others. The strategic ones were supposed to remain in state ownership and to be administered autonomously, whereas the others were supposed to become subject to privatization. The privatization was designed as a three-stage process: 1) state-owned companies will be transformed into commercial companies; 2) 30% of the whole state capital will be distributed free of charge to the whole population; and 3) 70% will be sold. The 30:70 ratio was later changed to a 40:60 one. Institutionally, the supervision of the whole process was given to a new authority called the National Agency for Privatisation, together with five Private Ownership Funds and one State Ownership Fund. Thus, control was spread over several newly created institutions. Those had the mandate to decide the details of the method to be used for each individual company, so that managers and workers may not block the privatization, as it happened in Poland (Stan, 1995). According to this law, state enterprises were converted into limited liability companies, with the state as the sole owner. As individual managers were left with little legal means of control, again the process was perceived as undemocratic, and, in a world were everyone was on his/her own, it made more sense to abuse the system rather than to change it. Thus, majority of these newly created commercial companies were first
brought to a state resembling bankruptcy (there was no legal provision for declaring bankruptcy) by their own management team and then bought by the same managers at a bargain price. Other management teams established private firms to do preferential and more profitable business with the ones they managed, or accepted unfavourable joint ventures and take-over offers that provided personal benefits, while rejecting favourable ones. Added to these practices are several scams that were common to all East European spaces: company management makes loans to shell companies, which then disappear, buying assets at inflated prices or selling them very cheaply, while the insiders buy or dispose of their shares accordingly, paying too high dividends, etc (Geislerova, 1999).

Romania was a particularly good environment for such schemes because a majority of enterprises, regardless of ownership, were caught in an internal vicious cycle of debt, which made the task of evaluating the real assets and the real economic situation of a company an accounting nightmare (Stan, 1995). The privatisation process in Romania was much more complex than outlined above but what is important is that it led to the creation of a materialistic and individualistic environment where the attainment of short-run gains was preferred over long-run development, and where the accumulation of wealth through illegal means went unpunished as the pool of marginalised poor grew. Perhaps the most important lesson to be drawn from privatization is that after 1989 Romania tried to reinvent or re-adapt industrial civilization at a time when sociologists were talking about its obsolescence/decline (Beck, 1994). In Romania, the certainties of industrial society (faith in technological progress, disregard for ecological hazards), be it socialist or capitalist, dominated thoughts and actions of people and institutions, and reflected a continuity between the old and the new.
Post-communist democracy

Although Romania has adopted the institutions of liberal democracy since 1990 (free and fair elections, relatively efficient legislature and government bureaucracy), there is cause for reflection as to the real nature of these transitions. While the first held elections enjoyed mass participation in time political absenteeism grew. The reasons are twofold: disenchantment with politics and labour migration. Another cause for concern was the degree of effective realization of rights. Pateman (2002) contends that substantive autonomy of citizens is necessary for democracy to function and this entails not only formal political equality but also access to education, health and cultural development (p. 43). Thede (2005) argues that democratic transitions have institutionalized political rights, but they appear unable to guarantee civil, economic, social or cultural rights (p. 14). The success of the democratic process depends on overcoming this weakness which only partly depends on economic success. Another characteristic of Romanian democracy is that economic elites tend to become political elites and vice-versa. Geislerova (1999) calls this situation “elitist superficial democracy” (p. 77).

Woman’s condition in the post-communist market economy

Post-communist changes were a mixed blessing for women in Romania. While the oppressive and invasive reproductive laws of the defunct regime were abolished other important aspects of life turned for the worse.
Economic insecurity

Abundant evidence shows that the newly created underclass of people living below the poverty line was disproportionately women (Roman, 2001; Fodor et. al., 2002; Oprica, 2008). In a study titled *Is the East European “underclass” feminized?* Henryk Domanski (2002) found that in Poland, Russia, Romania and Hungary a statistically significant net effect on gender remained which provided solid evidence for what he saw as the feminization of the underclass in these societies. Daria Popova’s study in 2002 compares poverty and income distribution amongst gender subgroups in Russia and four East European countries: Bulgaria, Romania, Hungary and Poland. She found that Romania had the most unequal distribution of equivalent expenditure and the highest poverty levels yet the gender gap in average expenditure was “nearly insignificant” (p. 408). Although Romanian men do not fare much better, Popova still found that female-dominated households had lower average equivalent expenditure and higher poverty shortfall than male-dominated households. Her study argues that a disproportionate prevalence of female-dominated households have a negative impact on inequality in countries with an already high gender gap in average economic standing, and produces an increase in overall poverty rates in countries with a high level of gender inequality in poverty. In both inequality and poverty measures Romania lagged behind Poland and Hungary, although the situation is better than in Russia or Bulgaria (Popova, 2002).

At least in the first decade after 1989, the major contributing factor for this phenomenon was the collapse of the antiquated and inefficient manufacturing sector. As the communist economy was characterized by a thin service sector, and as agriculture was severely under-staffed, the vast majority of gainful employment was to be found in
the industrial manufacturing sector. Construction industry, mining and the energetic sectors also employed a large number of people. However, we have seen that segregation between sectors had been manifest, so that women were concentrated in those areas considered more ‘suitable’ for them or which were considered ‘feminine’, such as textile, clothing, food processing industries, communications, education and health care, whereas the ‘heavy industry’ sectors mentioned above employed a much smaller percentage of women (see Appendix 1, p. 356). Within the manufacturing sector, those hit hardest by economic recession were exactly those sectors which employed more women than men – the textile, clothing and food processing, chemical, leather and footwear and the so-called ‘small’ industries, at least in the first years of transition. Yet, unemployment indicators show women’s rates to be somehow smaller than those of men (see Appendix 2, p. 357). The reason is twofold: 1) men’s participation in the labour force was higher to start with and 2) the ‘heavy’ industries were also hard hit, especially the mining, petroleum and chemical industries. Mammoth enterprises with thousands of employees, although did not collapse over night, gradually reduced their workforce, split up, re-emerging as small-scale companies with loss of employment, or even disappeared. Meanwhile the privatization of land was going on, so many people that used to held relatively well paid jobs in industry returned to their newly regained family farm. Thus this sector re-emerge with an increase importance, not as much for the economy as a whole, as for survival, and created a class of self-employed individuals. According to Denise Roman (2001), Romania had the second highest rate of self-employment among East European countries for 1997 – 45% for women and 35% for men – followed only by Poland. She also states that 90% of women’s self-employment is in agriculture. Her analysis of gender relations
in Romania also found that women are working mainly in underpaid areas such as education, trade, health and social assistance, and that Romania had at the time the highest rate of part-time jobs in Eastern Europe, 18\% (p. 56). The gender gap in wages decreased constantly from 21\% in 1995 to 17\% in 2002, not due to an explicit policy to eliminate it, but as the result of establishing the monthly incomes based on working time, qualification and length of service (Tesiu & Bocioc, 2005). For a snapshot of the extent of gender segregation in employment see Table 1 below and for a comparison of wages between men and women by activity sector see Figure 1 (p. 66).

**Table 1: Extent of gender segregation in employment, Oct. 2004**

<table>
<thead>
<tr>
<th>Activity (occupation)</th>
<th>Total employees</th>
<th>Male</th>
<th>Female</th>
<th>% Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>4,439,388</td>
<td>2,358,896</td>
<td>2,080,492</td>
<td>46.9</td>
</tr>
<tr>
<td>Senior officials legislators and managers</td>
<td>253,884</td>
<td>155,309</td>
<td>98,575</td>
<td>38.8</td>
</tr>
<tr>
<td>Professionals</td>
<td>559,246</td>
<td>246,391</td>
<td>312,855</td>
<td>55.9</td>
</tr>
<tr>
<td>Technicians and associate professionals</td>
<td>556,509</td>
<td>203,194</td>
<td>353,315</td>
<td>63.5</td>
</tr>
<tr>
<td>Clerks</td>
<td>293,820</td>
<td>81,835</td>
<td>211,985</td>
<td>72.1</td>
</tr>
<tr>
<td>Service workers and shop and market sales workers</td>
<td>549,578</td>
<td>225,213</td>
<td>324,365</td>
<td>59.0</td>
</tr>
<tr>
<td>Skilled agricultural and forestry workers</td>
<td>37,785</td>
<td>27,947</td>
<td>9,838</td>
<td>26.0</td>
</tr>
<tr>
<td>Craft and related workers</td>
<td>813,310</td>
<td>634,253</td>
<td>179,057</td>
<td>22.0</td>
</tr>
<tr>
<td>Plant and machine operators and assemblers</td>
<td>870,051</td>
<td>501,808</td>
<td>368,243</td>
<td>42.3</td>
</tr>
<tr>
<td>Elementary occupations</td>
<td>505,205</td>
<td>282,946</td>
<td>222,259</td>
<td>44.0</td>
</tr>
</tbody>
</table>

*Source: NIS, Romania – Statistical Yearbook, 2005, Table 6, p. 89.*

**Resurgence of traditional attitudes towards gender roles**

While such formulation might be seen as simplistic, I agree with Vlad Oprica (2008) who states that the traditional view of the ‘proper’ role of individuals in Romanian
society may be summed up as dominant men oriented towards high-income careers and subordinate women oriented toward home and children and to ‘feminine’ (p. 39) - and I will add ‘caring’- careers. In his analysis of attitudes towards women in post-communist Romania, he goes as far as to argue that the early 1990s witnessed the return of gender-based discrimination and a fall in the general status of women (p. 31). While I agree with the second part of the statement, I would say that gender-based discrimination did not start in the 1990s but rather took more acute forms. The fall of the coercive apparatus, followed by a period of legal chaos, coupled with a court system overwhelmed with cases and corrupt, constituted a heaven for abuse, including gender-based abuse. As Oprica contends, economic hardship during the 1990s preoccupied the majority, men and women, with much more immediate needs than gender equality, and, I would add, gender-based discrimination and even abuse. Resurgent traditionalism has been fuelled by many sources but the two most salient were conservative political parties such as the Greater Romania and the Christian-Democratic People’s Parties and the Orthodox church. Powerful conservative political forces advocated amongst other things for women to remain in the home where they would best serve their patriotic duty of being dedicated mothers and caretakers. Although they did not openly oppose greater female participation in politics or professional work they nevertheless advocated for the restoration of ‘traditional’ family values as key to Romania’s progress and a decline in immorality and corruption. These parties, especially the Christian-Democratic Party, expressed the wish to codify in law stricter norms concepts of marriage and the family, to provide incentives for women to stay at home and engage in full time caretaking, and for couples to have more children (Oprica, 2008). The Church in particular promoted a patriarchal, family-
oriented model of female servility and self-sacrifice towards husband, children and parents. In public and private spheres the Church supported directly and overtly patriarchal values and suppressed egalitarian attitudes they encountered. In rural and poor urban areas where religiosity was especially strong there were widespread attitudes of discrimination and social repression of women. It urged women to see their roles as ‘service’ to their husbands and children (Ramet, 2005).

**Low levels of participation in politics and in business**

In 2003 a Gallup poll measured for the first time Romanian’s willingness to vote for a woman for president of the country. According to the poll, 73% of eligible voters expressed willingness to vote for a ‘well qualified’ woman candidate. Support for a mayor position is even higher – 80%. More than half of the questioned people (58%) believed that too few women were involved in politics, while 45% said things would definitely improve in Romania if more women were to participate in politics. Three quarters of respondents (74%) stated that women should be supported and encouraged in a higher extent to take part in political life (Gallup Organisation, 2003, 2007). However, despite these views, participation of women in government declined steadily (Oprica, 2008, p. 33) (see also Fig. 2, p. 66).
Figure 1: Average gross wages for men and women by activity, Oct. 2004

![Bar chart showing average gross wages for men and women by activity, Oct. 2004.](chart)


Figure 2: Proportion of women's participation in Romanian Parliament 1990-2006

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>11.2</td>
<td>#10</td>
</tr>
<tr>
<td>2005</td>
<td>11.2</td>
<td>#107</td>
</tr>
<tr>
<td>2004</td>
<td>11</td>
<td>#33</td>
</tr>
<tr>
<td>2003</td>
<td>11</td>
<td>#33</td>
</tr>
<tr>
<td>2002</td>
<td>11</td>
<td>#31</td>
</tr>
<tr>
<td>2001</td>
<td>11</td>
<td>#73</td>
</tr>
<tr>
<td>2000</td>
<td>7</td>
<td>#108</td>
</tr>
<tr>
<td>1999</td>
<td>7</td>
<td>#102</td>
</tr>
<tr>
<td>1998</td>
<td>7</td>
<td>#30</td>
</tr>
<tr>
<td>1997</td>
<td>7</td>
<td>#97</td>
</tr>
<tr>
<td>1995</td>
<td>34</td>
<td>#5</td>
</tr>
</tbody>
</table>

**Definition:** Women in parliaments are the percentage of parliamentary seats in a single or lower chamber occupied by women.

**Source:** World Development Indicators database
Perceived as problematic by the general public as well as by the government due to the need to adhere to the European Union, several national organisations were founded for the purpose of increasing the political participation and representation of women, such as the National Agency for Equal Opportunities, Committee for Equal Opportunities of the Chamber of Deputies and the Senate Commission on Equal Opportunities for Women and Men. There were also private organisations established such as Business Opportunities for Women and the Romania Gender Network. On March 2002 the Parliament passed Law no.202/2002 regarding the equality of chances between men and women. The law states measures for promoting gender equity in order to eliminate direct and indirect gender discrimination in all spheres of public life in Romania. It also banes gender discrimination as illegal and states sanctions for not respecting the provisions of the law. The public authority designated responsible for the application of the law was the Ministry of Work and Social Solidarity (Law 202, 2002).

Despite these efforts and an egalitarian rhetoric from the government much of the efforts remain unfruitful. Although today the Chamber of Deputies is led by a woman she is one of the 38 female members out of a total of 334 people (11.3%, not much different from the percentages in the Fig. 2 above). In the Senate there are eight women and 129 men (less than 6%). At lower levels, the governing structure is even more men-dominated. There is no woman president at the county level and at municipal level only 3% of mayors are women (Cretu, 2006).

Finally, another descriptive statistic that says much about woman’s position in society is participation in business leadership. According to Oprica (2008), only 17% of
employed women registered as entrepreneurs, while 33% of men were under this
category. This situation, coupled with the average 17% wage gap, led to the adoption in
2003 of the National Action Plan for Equal Opportunities between women and men and
Chapter 4 - Higher Education in Romania

Unlike their Western counterparts, Romanian universities are of relatively recent origin. In this chapter I sketch a brief history of higher education in the territories inhabited by Romanians, emphasising the period after 1990. The period from 1990 to present is further divided in function of the most important reforms. The most recent reform is a result of the country’s integration into the European Union.

Higher education in the territories inhabited by Romanians from its beginnings to World War II (WWII)

The first ever university-like institution of higher education was founded by the Moldavian Prince Vasile Lupu (Basil the Wolf) in the capital city of Iasi (pronounced Yàshi) in 1640 - Vasilian College (Academia Vasiliana). This was followed in 1694 by the Romanian Prince Constantin Brincoveanu’s St. Sava Princely Academy of Bucharest, which in the early 18th century underwent reform under the influence of the German University of Halle (Sadlak, 1991). In 1707 the Vasilian College was reformed by the Prince Antioh Cantemir (the son of the philosopher, historian, composer, linguist, writer, ethnographer and geographer Prince Dimitrie Cantemir) and renamed the Princely Academy from Iasi. From this time on studies were in Greek and added in the 1760s were mathematics, natural sciences, and modern philosophy.

Higher education in the language of the land – Romanian – started in 1814, when Gheorghe (George) Asachi lectured a class of engineers at the Princely Academy of Iasi. Here he started a school of land surveyors and of civil engineers. Gheorghe Asachi was one of the most influential people of his generation, although a controversial figure for
his political anti-unionist and anti-nationalist views. Asachi was a product of the Enlightenment so his education and achievements covered many fields. He was a mathematician, polyglot, poet, painter, historian, translator, journalist, and civil engineer although his key contribution was in education as a civil servant and teacher. As civil servant he oversaw all Moldavian schools and from this position he created the Michailean College or Academy (Academia Mihaileana) in 1835 where Romanian replaced Greek as the language of instruction. During his appointment as educational reformer he employed foreign experts, mainly from France.

Until the first Union of 1858 when the two Principalities – Moldova and the Romanian Principality – united to form Romania the St. Sava Princely Academy of Bucharest and the Michailean Academy of Iasi were the only higher education institutions. Their scholarly activities and admission requirements were more or less similar to those of other higher education institutions in the same period in other European countries. Together with the museums of history and of natural sciences and with professional societies such as the Society of Physicians and Natural Scientists their main task was the introduction of natural and applied sciences in Romania through academic and professional courses. Although they played a seeding role in the history of higher education in Romania, these institutions alone did not cover the need for higher education, especially for more advanced studies. Thus, those who intended to take more advanced studies had to go abroad. The most popular destination places were universities in Central and Eastern Europe, such as those in Prague, Vienna, Cracow and Lwov, and francophone universities, such as Sorbonne and the University of Geneva (Sadlak, 1991).
For Romanians from Transylvania the most popular destinations were Vienna, Berlin and Budapest.

The first Romanian higher education institutions to be created under the ‘university’ denomination were the University of Iasi and the University of Bucharest shortly after the country’s birth in 1860 and in 1864 respectively. Under the first Romanian ruler, Prince Alexandru Ioan (Alexander John) Cuza, the first Public Education Law (1864) was issued to regulate the whole education system from primary to university education. By the end of the 19th century this first law was replaced by three others: the Law of Primary Education (1893), the Law of Secondary and Higher Education (1898) and the Law of Vocational Education (1899) (Ministry of Education and Research (MER), 2006).

The University of Iasi replaced the Michailean Academy and comprised three faculties: philosophy (including natural sciences), law and theology. Later, in 1879, a fourth faculty - medicine - was added. The University of Bucharest replaced the St. Sava Academy and started to function with the faculties of law, sciences and letters, and philosophy. Five years later in 1869 a faculty of medicine was added. Both universities functioned on the same formula until after the First World War (WWI) when the faculties of veterinary medicine and pharmacy were added.

In addition to the universities a Polytechnic Institute was founded in 1867 under the name of École des ponts, chaussées et mines (the School of Bridges, Roads and Mines), an Agronomic Institute in 1852, a Commercial College, the School of Fine Arts and Drama, and the Conservatory of Music, all of them in Bucharest. After WWI, all were granted a status equivalent of universities. As in France, the polytechnics were of
high standard and enjoyed high prestige. Admission to the Polytechnic required rigorous entrance examinations, whereas admission to universities did not require any examination. Thus, the Polytechnic was not only competitive with the universities, but was often given precedence over them (Sadlak, 1991).

The third historical Romanian province, Transylvania, became part of Romania as the result of the second Union, on December 1, 1918. Previously it was part of the Austro-Hungarian Empire ruled from Vienna and Budapest (situation changed as the result of the WWI). Under imperial occupation the Romanian population had been subjected to a process of denationalisation and forced Magyarisation and education in the Romanian language was strictly prohibited. The first higher education institution founded in 1872 in Cluj, Transylvania was a Hungarian University called the Royal Franz-Joseph University of Kolozsvár. Despite numerous appeals, Romanian was not accepted as a language of instruction (Sadlak, 1991). Three years later, in 1875, the Franz-Joseph University of Cernauti was founded in the Romanians-inhabited province of Bukovina, also part of the Empire. Here the language of instruction was German. In October 1919 when Bukovina and most of the province of Transylvania became part of Romania, the University of Cluj became Ferdinand I University and the University of Cernauti was renamed King Carol II University – now Romanian. The Hungarian part of the University of Cluj was transferred to Szeged in Hungary. The first university in Transylvania was born during a volatile political situation; from November 1918 to March 1919, Romania, at the request of the Great Powers, fledged war against the Hungarian Soviet Republic, a short-lived (March 21 - August 6, 1919) communist regime under the leadership of Béla Kun (Grecu, 2003). In 1928 the University of Cluj was named after Victor Babes (1854-
1926), a renowned Romanian scientist. The University of Cluj became again a Hungarian university in 1940, when a part of Transylvania was granted to Hungary under German dictatorship, and again a Romanian university after the war, when the territory was reconquered. After the war, in May 1945, a new university was formed in Cluj, to respond to the educational needs of the Hungarian population: the *János Bolyai University*. In 1959 the two universities in Cluj merged into the *Babes-Bolyai University of Cluj*, which kept this name ever since. The university in Cernauti was lost together with the province of Bukovina in June 1940, when the province became part of the newly formed Moldavian Socialist Republic, part of U.S.S.R. (except from a short period between June 1941 and August 1944).

In 1920, the *Polytechnic School of Timisoara* is founded by King Ferdinand I (renamed in 1948 the *Timisoara Polytechnic Institute*) and in 1937, the *Polytechnic School of Iasi* (which later, in 1948, is renamed “*Gheorghe Asachi” Polytechnic Institute of Iasi*).

In terms of numbers, between the wars (1914-1944) there were a total of 18,227 students comprised in the Romanian institutions of higher education in 1924, a total of 31,227 in 1931; the record number of students, 39,425, was reached in 1935. Universities were the most popular; here students were concentrated in high proportion (76%), followed by commercial colleges (11%), polytechnics (5%), and a little of 2% were studying agriculture. More than 40% of the university students were in the law faculty, 22% were in philosophy and letters, 15% in sciences, 11% in medicine, 5% in theology, 4% in pharmacy and 1% in veterinary medicine (Sadlak, 1991, pp. 199-200).
In terms of internal structure, Romanian higher education institutions were modeled to a great extent after the French, Napoleonic system of higher education, and less so by the German model than other East European countries. The first degree was called license (licența), after the French licence. In most disciplines it took four years to obtain a license, with the exception of medicine, where it took between six and eight years. The next higher degree to be granted was the doctorate, which was rarely granted. Majority of Romanians continued to go abroad for doctoral studies. In all institutions of higher education the faculties or departments were composed of sections, which were divided into chairs. Faculties worked with regulations decided by the Faculty Council. These regulations had to be ratified by the Academic Council, which was the institution’s governing body, in order to come into effect. They usually dealt with the teaching requirements and such matters as the numbers of students. Since the 1930s, the Academic Council started to be called the Academic, or the University Senate. The Council (or the Senate) was composed from full and honorary professors, and was chaired by the Rector. This body held the power to decide in all matters of interest for the institution as a whole. According to Sadlak (1991), in general, the standard of teaching and research facilities were considered to be good, and, in the case of medicine, even among the best in Europe (p. 198).

In terms of legislation, the laws governing higher education underwent important changes after the WWI, due to territorial transformations after the Great Union of December 1, 1918. Thus, in 1932, the Law for organizing higher education had been passed; it regarded universities as autonomous state institutions. It stipulated academic freedom in teaching and research. Each faculty was accorded legal status as juridical
person, which allowed faculties to take their own decisions and to adopt their internal regulations. The law of 1932 created the *Grand University Council*, a body composed of representatives from the four main universities, to supervise and coordinate the whole higher education system, and to liaise and work with the *Ministry of Public Instruction*. The law established a system of public grants for universities, which were supposed to represent approx. 40% of their budget. The rest was supposed to come from tuition and other types of student fees. Students paid fees for using facilities such as laboratories, libraries, for examinations and degrees, for constructions, maintenance and administrative fees. In the 1920s, about 6% of students received financial assistance from the state. During the years of economic depression (1929-1933), this assistance almost disappeared, to reappear by the end of 1930s, mainly for students of technology and applied sciences. Other sources of assistance were philanthropic foundations, local governments, private persons or businesses. Universities offered assistance in the form of subsidies and tuition/fee waivers (Sadlak, 1991).

**Higher education in Romania during the WWII**

Romania entered WWII in 1940. Thus, in the first years of the war it was not affected as markedly as other East European countries. In spite of this apparent advantage academic life had not been peaceful and undisturbed. By the mid-1930s higher education institutions became places of fierce political unrest. One reason was that both academics and students had been active in politics. The other reason was that the political spectrum became highly polarized into nationalist-fascist extremism and traditional liberalism. There were also traces of socialism and communism, but generally speaking, the ‘battle’ was done between pro-fascists and liberals. The first forms of disruption were
experienced starting with the late 1920s, when anti-Semitic students, mainly in the medical schools, demanded the *numerus clausus* for Jewish students (caps for their numbers). By the late 1930s, violent agitation was experienced by the Universities of Iasi and Cernauți against religious and ethnic minorities. Some academics also held extremist and nationalist views. One of them was Alexandru (Alexander) Cuza (no link with the Prince Alexander John), a professor of economics at the University of Iasi. Cuza was the leader of the *League of National Christian Defence*, an extreme-right, fascist organization. He managed to recruit a number of students among his followers; these were called ‘cuzists’ (*cuziști*), as well as the support of another reactionary student organization, the *Association of the Romanian Christian Students*. An even more radical organization was formed in 1934, by a former member of the *League*, Corneliu Zelea Codreanu. It was called emphatically *Everything for the Country*. These pro-fascist movements leaded to a quasi-military organization, the *Iron Guard*. The Iron Guard was organised into legions of *legionnaires*. Needless to say they were ultra-nationalist, fascist and anti-Semitic. As sporadic acts of violence were reported and as the government became more repressive the autonomy of the universities was reduced by an amendment to the law by 1937. Among other things, the amendment prohibited political organizations which had not been previously approved by the ministry. By 1940 political power in Romania was forcefully seized by a pro-Nazi government. The Iron Guard became its ally and a gruesome chain of political assassinations followed. Among its victims was Nicolae Iorga, a Professor of History at the University of Bucharest, ex-prime minister and minister of education in the early 1930s, and a fierce advocate of university autonomy and of the Humboldtian idea of university. In 1941 the Iron Guard
was suppressed by the army. On June 22, 1941 Romania, lead by the pro-Nazi dictatorship joined Germany against the Soviet Union. In 1942 a new Law on Higher Education restored academic autonomy; however, the activities of the majority of higher education institutions were disrupted by the war. The Romanian academics from Cluj sought refuge in the southern part of Transylvania, as Cluj fell to pro-Nazi Hungarian and German troops. The University of Cernauti was closed by the Soviet authorities. The University of Iasi closed between 1944 and 1945 because its buildings were damaged. Almost all institutions of higher education were more or less in a state of stasis during the war.

**Higher education during the communist era (1948-1989)**

In 1944 through a military coup the pro-Nazi dictatorship was eliminated and Romania joined the Allies. An armistice between Romania and the Soviet Union was signed in September. This opened up the country to the Soviet influence and to the introduction of communism.

During the first years after the war, the RCP infiltrated universities with student ‘agitators’, who acted as coagulation points for various organizations (the Democratic Student Front, the Anti-fascist Student Committees, the Red Student Assistance, the Anti-war National Committee, etc.). Being pro-democracy and anti-fascist some academics were genuinely attracted to them. Although physical facilities suffered damages during the war academic life took a new course and the number of students increased. Between 1937-1938 and 1946-1947 the total number of students in higher education institutions in Romania doubled to reach 54,000 (Sadlak, 1991). In 1948, the Romanian Worker’s Party,
later to become RCP, took power. From then until December 1989 communist influences would dominate higher education.

The *Grand National Assembly* (GNA) adopted its first new law on education in 1948 and this would indeed reform education in Romania at all levels. The new law declared that education had to be secular, based on the principles of Marxism-Leninism and provided only by state institutions. All high school graduates were granted the right to try for admission to higher education. The system of higher education was meant to be correlated with the needs of the national economy and the new social order. Thus a number of places in higher education institutions were established by a centrally controlled system of planning. Most institutions, especially Polytechnics, were to be administered jointly by the Ministry of Education and various industry ministries. As institutions of higher education tended to serve mostly upper and middle class people, measures were taken to increase the number of students belonging to the working class. One mechanism was to apply the criteria of class origin and political record to admissions. This mechanism was also employed for academic appointments, as allegiance to the communist cause was paramount in creating within universities an atmosphere favourable to the new regime. These new academics were supposed to form a “people’s intelligentsia” as opposed to the liberal-bourgeois one. Politically ‘unreliable’ academics, particularly those with links with the previous governments and political parties, were forced to retire, dismissed or even arrested and imprisoned. According to Sadlak (1991), more than 70 academics were imprisoned.

In terms of diploma structure, there were few changes. The first degree was granted after a *state exam* and was the equivalent of the license. The next degree to be
sought was still the doctorate; only that another, slightly lower degree was introduced – that of candidate in science. These degrees were granted by the *High Commission on Diplomas*, placed under the immediate jurisdiction of the Ministry of Education. The positions in the academic hierarchy became: *lecturer* (also called *Project Leader* in applied sciences), *reader* (*conferenţiar*), and *professor*. University education and professional training were separated; medicine and pharmacy were thus transferred into separate ‘institutes’. Some were called ‘academies’. Another tool to increase worker’s participation in higher education was the so-called “people’s universities” that provided full-time and evening courses to ‘worker heroes’. After graduation they were entitled to sit for the state exam, and, if they passed, they were offered the first-level university degree. Added to these, teacher-training colleges were established as institutions offering three year courses, and these were classified as equivalent in standing with traditional universities. The law of 1948 provided the legal framework for a new *Mechanical Institute* in Cluj, which was the continuator of the *Superior Industrial School* of 1920. In 1953, the Mechanical Institute was expanded with new departments (mechanics, constructions, electromechanics, forestry) and became the *Polytechnic Institute of Cluj* (Technical University of Cluj, 2008).

Institutions of higher education were still divided into faculties or departments, still headed by rectors only now the subdivisions of these were slightly larger than the chairs and were called *sections* or *cathedras*. The Academic Senate was also maintained, only that its role was restricted to measures to improve teaching and research, and the initiation of academic promotions. The true governing body was the *Executive Bureau* of the newly created *Scientific Council*. The latter was composed of the rector, pro-rectors,
the deans of the various faculties, the chair-persons of sections, the administrative
director, the representative of the RCP, several professors or readers, representatives from
local industrial enterprises and a representative of the student associations. The former
was much smaller in size and headed by the rector, who was appointed for four years and
was removable at any time by the Ministry of Education. All academic freedom and
university autonomy had been lost. The justification for the loss was that, when the state
itself became the promoter of progressive social development, the universities need only
join state’s effort; thus they do not need additional ‘tools’ for solving societal problems,
tools such as autonomy. After the horrors of the war, and the grotesque display of fascist
forces, numerous university professors at the time were quite enthusiastically embracing
the new paradigm, which, despite some questionable means, seemed generous in effect.

In 1950 part-time studies had been introduced as evening courses and as
correspondence courses. In 1957-1958 the number of part-time students reached almost
37% of the total student population and this later increased. The completion and the
quality of studies were negatively affected by the high numbers of part-time students. By
the end of the 1950s, the zeal of recruiting the ‘right’ students at the expense of the
overall quality of the educational provision had been tempered. New regulations
demanded competitive entrance examinations as the criteria for admission.

**Real democratization of higher education started in the 1960s**

Contrary to general belief, tuition fees and other fees although reduced and
waived for many disadvantaged categories were not completely eliminated by the 1948
law. Reductions and waivers were granted according to political considerations, the
economic situation of the students and their families and with academic performance.
Total exemption was granted to students who had lost one or both parents in the war or who had outstanding high marks. All fees and tuition were eliminated in the academic year 1961-1962 for all domestic students at all levels. This gratuity was conditioned by the willingness of the student to accept at graduation a three years formative job appointment. This system of job placement was called *repartition* and it had the following aims: 1) to ensure that each and every graduate had a career in his/her area of specialty; 2) to ensure that each opening in the job market found its match in terms of skills requirement; 3) to reward academic achievement, thus offering a strong incentive for students to learn throughout their entire study period. The last aims need a bit of an explanation. The number of openings for new students in any given academic year was not established by the institutions of higher education, but the number was established by the Ministry of Education in collaboration with all other ministries. These numbers resulted from the fact that the economy was planned every five years. Thus, it was known ahead of time how many job openings the industry, the agriculture, and in general each sphere of activity will produce. At the end of the academic year, the Ministry organized the nation-wide assignment of job placements to graduates, based on the equivalent of their final cumulated grade-points-average (GPA). Those having the GPA in the highest percentiles had the opportunity to choose among several alternatives; moreover, at least one of the alternatives had to be from their place of origin or the closest possible location to their place of origin. Usually these alternatives were in the largest cities and in the most prestigious of companies or other form of institutions (schools, hospitals, etc.), which offered more opportunities for professional growth. Besides, being located in university centers, they also offered more opportunities for future professional
development, and for being involved in research. Thus, the potentially best careers had been offered as ‘trophies’ to the most meritorious, at least in theory. All jobs had been filled to completion in the descending order of the GPA. The system was complex and not easy to handle, and ties arose. One of the criticisms was the fact that the system of notation, although common for all higher education institutions, had not constituted in fact a truly uniform tool of assessing the value of academic work. It became quite obvious during national repartitions that it developed local ‘flavours’. For example, there were universities that were traditionally known as ‘stingy with the marks’. The reason was that each University developed its own institutional culture, some being more generous than others. Life presented examples of people whose academic achievement had been marginal, yet they distinguished themselves in their professional work, as well as opposite examples.

For the system of repartition to work, the curriculum had to be the same nation-wide, and the conditions of instruction (laboratories, practicum, etc.) as uniform as possible. The most pernicious consequence of all was that any change in the curriculum or delivery had to be nation-wide; this was extremely difficult to achieve, slow and disruptive. Therefore, it led to stagnation in a field where stagnation often equals obsolescence. Despite its pitfalls, the system of repartition guaranteed each graduate a position requiring university degree in his/her specialty, although at a high price for the system of higher education.

The number of institutions of higher education rose from 42 at the end of 1950s to 51 in 1970-71, to stabilize at 44 in 1977-78. These included all forms of higher education institutions: universities, polytechnic institutes, academies, art schools (drama, music,
etc.), and variously vocationally-oriented institutes (such as those for the military). Four higher education institutions (HEI) were established between 1962 and 1974: the Universities of Timisoara (‘62), Craiova (‘66), Brasov (‘71) and Galati (‘74). The University of Timisoara was the smallest of all and it was meant as a teacher-training college; it had three departments: natural sciences, philology and economics. The University of Craiova included eight disciplines: natural sciences, economics, philology and history, agriculture and veterinary science, horticulture, mechanical engineering, medicine and pharmacy. The University of Brasov started as a fusion between a previous technological institute (1956) and a pedagogical institute, created in 1960. As education later disappeared from university studies, what remained comprised mechanical engineering, technology and machine engineering, forestry and wood processing, and mathematics. University of Galati also rose from a lesser status technological institute to serve local economic needs; it started with the departments of mechanical engineering, food technology and fishery, and education. As a result, by the mid ‘70s there were three types of HEIs: 1) the ‘old’, comprehensive universities, which lacked professional studies and had no medical or technical facilities; 2) technical and medical institutes with laboratories and facilities; 3) the ‘new’ universities, small-scale and mostly concentrated on teacher training and solving local technological needs, in accordance with the utilitarian view of the RCP. The democratization of higher education led to a steady increase in the number of students, from around 50,000 in 1948-1949 to around 150,000 in the late 1980s (with a spike for the ‘decree generation’ of 1967) (Sadlak, 1991). However, the total number of students admitted into higher education never increased over 8% of the total number of high-school graduates, whereas in the Soviet Union the
percentage was around 18% (Whitmarsh & Ritter, 2007, p. 10). Among university centres, the ‘traditional’ ones of Bucharest, Iasi, Cluj and Timisoara remained the most prominent, with the largest numbers of students and the most prestigious institutions. These are also the largest and the most industrialized cities in the country.

We have seen that, with the ascension of Nicolae Ceausescu and a new generation of Romanian communist activists to power in the mid-1960s, the policy of RCP changed in many regards. In the field of higher education (HE), the law of 1948 and the subsequent revisions had been criticized during the 9th RCP Congress for following closely the Soviet model of HE and for not keeping pace with important developments in science and technology, such as cybernetics, automation and genetics. Other sources of criticism were the ‘dogmatism’ displayed in sociology and history and the fact that educational plans had not been correlated with societal needs. Thus, it was felt that progresses in HE did not lead neither to solving concrete problems of the economy nor to satisfactory general cultural development of the nation. Romanian HE became backward, isolated from advanced Western methods and scientific discoveries and did not ‘correspond to the needs of the country’. The new RCP leader decided to reform education based on his ideas, i.e. to boost scientific research and produce more university graduates. One of the reasons RCP was so concerned with scientific research was that lagging behind in science led to dependence on foreign expertise and technology. Thus, the RCP leadership commissioned a comprehensive report on the state of HE in Romania, which was issued on 1967. Among its recommendations were the decentralization of administration in HEI, the establishment of a fixed appointment term for rectors and their immediate assistants, the re-establishment of the roles of Senate and Faculty Councils, as
well as improving teaching methods and the organization of studies. Based on the report and on the criticism of the 9th RCP Congress, a new law of education was passed in 1968 – the Law regarding education in the Romanian Socialist Republic. The role assigned for HE was to carry out the ‘scientific and technological revolution’ (GNA, 1968). The new law eliminated the family origin as admission criteria; thus admission was based solely on passing the written and oral examinations. While the law stipulates so, in practice there were the following exceptions: Law, Political Science, Journalism, Sociology and Psychology, military careers and those in the media. Gender mattered, because after high-school students were required to satisfy their compulsory military service, and this was organised differently for men and women. Men’s service consisted of a 9 months period away from their studies, in a military unit (if they have been previously offered admission in a university) whereas women’s military service was embedded with university studies. The result was HEIs had to decide ahead of time how many places were reserved for those conscripted (men) and how many places for those un-conscripted (mainly women).

Theoretically the system was designed to ensure quality but it also permitted tighter political control. Each faculty included an official party representative who sat on all governing bodies. Although he/she did not have the right to veto, his/her simple presence was enough to inspire prudence. Moreover, representatives from the Union of the Communist Youth, from the Union of Students’ Association attended the Senate’s meetings. At this point, what disappeared from the Senate meetings were the representatives of local enterprises, which is a move telling of the desire to break with the Soviet model and to embrace a more Western-like approach.
In their desire to open up to the West, Romanian authorities made efforts (provided some general support and auxiliary staff) to attract the UNESCO-European Centre for Higher Education (CEPES) to Bucharest; they succeeded in 1972. The presence of this centre in Bucharest gave the opportunity to few Romanian researchers to participate in international academic activities. They were few fortunate individuals, unrepresentative for the larger academic body. Travel outside Romania, including for attending conferences, especially out of the Eastern Block, proved to be extremely difficult, because one needed permission from the authorities. As many people chose not to return, these were reluctant to give permission for travel. Even writing to foreign citizens (especially those in Western countries) was seen as a suspicious activity, to be monitored, although it was common knowledge that the Security read it all. Despite hurdles, this was a time of freedom and intellectual engagement with the larger academic community (metaphorically called ‘spring’). Starting with the end of the decade, things deteriorated rapidly and Romania became to feel like a prison for those who lacked ‘good connections’. Overall, academics were a small privileged category, thus the pressure may not have been felt as harsh as for the majority of Romanians; yet, if it is to compare them with the international academic community in the affluent parts of the world, they worked in poverty and isolation.

The ‘winter’ of higher education in communist Romania (1978 -1989)

Higher education was once again reorganized in 1978, through the new Law of education and instruction. Under this law, two governing bodies were given special significance in overseeing higher education: the National Council for Science and Technology and the Academy of Social and Political Sciences. The President of the National Council for
Science and Technology was Elena Ceausescu, and the President of the Academy was Mihnea Gheorghiu, a close collaborator of the presidential couple. Another governing body was the State Council, whose chairman was Nicolae Ceausescu. Decisions that previously had been taken by HEI, such as the appropriate number of places for admission, to whether a particular person should be allowed into doctoral studies, became now presidential decisions. Additionally, the 1978 law introduced the Congress on Education and Instruction and the Supreme Council for Education and Instruction. The main task of the Congress was quite blur: to come up with ways by which HE could better carry out the decisions of the party and of the government, while the Supreme Council was to implement these decisions into the education system. The Congress, which could initiate legislative changes, was to meet every five years. The Supreme Council was supposed to oversee the activity of all Ministries responsible for education and the activity of all HEI. It had more than 200 members, that met twice a year or on the demand of three quarters of its members. Between meetings, there were executive committees carrying on various activities. Yet another Council was the Council for Higher Education, made up by persons holding leading positions in HEI. All these bodies were under direct jurisdiction of the Central Committee of the RCP (GNA, 1978). On top of everything stood Elena Ceausescu, the ‘scientist of world-wide repute’ (Olteanu, 2004). Both Nicolae and Elena aspired to academic titles, but her desire to be praised as a scientist had been stronger. She was always referred to as Academician Doctor Engineer Elena Ceausescu and every of her honorary degrees had been highly publicised (Olteanu, 2004). Chemistry was given higher precedence over any other field of study. The National Institute of Chemistry, the main institute in the field, whose chairperson she
was, received more funding than any other research institute (Sadlak, 1991). In 1985 the Supreme Council for Education and Instruction became the National Council of Education and Science, and Elena Ceausescu became its chairperson. This council was meant to speed up technology transfer between scientific research and its industrial application, as the ultimate goal was to eliminate the border between fundamental and applied research, in a utopian race for return-on-investment. It was a sort of super-ministry of higher education and research. Research in Romania was carried out mainly in research institutes, some within the Academy, whose honorary chair was Nicolae Ceausescu. The couple also had a son leading the fundamental research in physics (the Central Institute of Physics).

Financial constraints during this era led to the fact that fewer and fewer people were appointed as faculty members and the ratio teacher: student increased. Also, from 1976, all academics were required to undertake ‘productive activities’. There were three types of productive activities: 1) enterprises (had the status of any other business firm), 2) workshops-design units, which had no independent legal status, and 3) production sections and laboratories. This work was remunerated for both academics and students and it was used to raise money for research. At the Polytechnic Institute of Bucharest it contributed over one third of the annual budget for research and scientific equipment (Bala, 1983). While some academic departments, especially in applied sciences, tried to adjust to the economic depression by becoming more entrepreneurial in nature, others, such as humanities, were less capable to do so. After 1985 the situation deteriorated so much as heating the buildings during winter was a matter of concern. During my student’s years, we kept the coat and the gloves on in winter, as the buildings were heated
only up to 10 Celsius degrees, so that the buildings would not sustain damages from freezing (not out of lack of money, but to stay within the allotted fuel quota).

**Higher education system from 1990 to 1999**

**Initial corrective transformations (1990-1995)**

The events of December 1989 produced within the Romanian higher education institutions immediate, similar, spontaneous reactions which aimed at correcting the most despised characteristics of communist higher education: political control of academic life, the presence of communist activists and undercover Security officers and informants, the use of curriculum for political indoctrination, compulsory military training for women, ‘voluntary’ work in agriculture, and excessive centralism. These measures deemed by Birzea (1996) as “corrective reforms” (p. 99), were taken by each institution in the first academic year following the Revolution (1990-1991), without much preparation or correlation between HEI or with other reforms in other sectors of activity.

After the first ‘wave’ of corrective transformations, a new set of questions preoccupied the higher education community in Romania, regarding the long-term strategies and goals of higher education, and regarding the models to be followed. This is not to say that every change that occurred at this point in time was the result of thoughtful reflection and of wise decision-making, based on sound research and wide-ranging consultations with the interested parties. The best example is the founding of the private higher education sector immediately after December ’89, starting with 1990. As one might imagine the legal framework for the functioning of these institutions did not exist. Thus, private universities required a leap of faith, both from their initiators and from their first students. In Romania, private universities have generally a humanistic structure, with
specializations mainly in economics, law, linguistics and religion. The private sector appeared as a creation of the free-market, not as a strategic initiative of the higher education system as a whole. Thus, changes were both planned and contingent. However, by late 1991 it became clear that a systemic reform of education at all levels was needed and that the government should come up sooner rather than later with the required legislative framework. Education as an academic field of study was removed from higher education in Romania in 1982, with the exception of isolated pedagogical courses offered by universities. There was no degree or any other form of certification in education. Educational research was totally inexistent within higher education; moreover, no subject related to education was ever open to public debate. Thus, the need was there, but the knowledge was missing; there were very few curricular ‘experts’ (even fewer for higher education), and no political consensus on reform directions or priorities. In 1992 an Institute for Educational Sciences was set up in Bucharest, but the main hope was in getting the required expertise along with the equally needed structural adjustment funds. Therefore the government turned towards the World Bank, which conducted its first exploratory mission to support government efforts to reform the education system from 1991 to 1993 (OECD, 2000). During these early years of a more systematic reform of education in Romania, the focus was on the lower levels of education. Even so, as early as 1993 a new law regarding higher education was adopted, Law 88/1993 regarding the accreditation of higher education institutions and degrees recognition. It provided the legal framework for privately owned institutions, and stated that all higher education institutions should function on a not-for-profit principle (Art. 2). Accreditation and diploma recognition were issues of priority as well, because newly formed institutions
needed to provide some form of warranty in order to attract potential students. The
Parliament named a National Council of Academic Evaluation and Accreditation
(supposed to be refreshed every four years, at least in part) at the recommendation of the
Ministry of National Education (this ministry in charge with education has been going to
change names quite often).

**The first higher education reform (1995-1999)**

The first reform project began in October 1994, and was financed jointly by the
World Bank and by the Romanian government. It led to a new law – the Law of
Education 84/1995. This law brings major changes in all spheres of education, including
higher education.

Modernizing higher education involved first and foremost changes in curriculum. The
amplitude of these changes greatly depended on the nature of each discipline. For some
disciplines such as economics, sociology or political sciences, changes were profound;
for others, such as mathematics, they constituted a much desired update to the last
developments in the field. In addition to changes in curriculum, new disciplines of study
had been introduced, such as education and women studies, and departments and
cathedras had been reorganized and even started; this is the case especially in computer
science (CS), computer engineering (CE) and information technology (IT).

The law guarantees academic autonomy, and defines its role and mechanisms. From
now on, the set of rights and responsibilities, as well as the norms and rules that define
the life of academic community are to be defined by the HEI, approved by the Senate and
stipulated in the University Charter. Institution’s structure, functioning, governing,
administering, financing, academic activities (teaching and research, as service is almost
missing) – all are to be decided by the institution. Typically a university is divided into faculties (the equivalent of N. American departments), organised by disciplines, and further divided into departments and chairs (cathedras), organised by specialties, years of study, student series and groups (MER, 2006a). The faculty is governed by the Faculty Council or by the Senate. The chair is the basic unit of the Faculty in a specific academic field. A university usually comprises a number of faculties, university-colleges, departments, chairs, research institutes, design institutes and micro-production units.

One of the most important aspects of autonomy is that academic programming and curriculum can be changed at faculty and institutional levels within the national framework provided by the Ministry to respect national and international standards. Also, the institution can recruit and promote its staff within the legal framework. The institutions became free to establish the number of students they will take at all levels, to establish and offer bursaries, to establish institutes, foundations, centers for research, etc. They also became free to set tuition fees and other fees, and to handle them according to their will. Other sources of financing, such as donations, became now legally possible. University autonomy is also guaranteed by the 1995 Constitution (art. 32), and it is reified in all subsequent modifications of this law on education (MER, 2006a).

State HEIs are financed in part from the budget. The percentage allotted to education is set by the law at minimum 4% from GDP, but analysts set the minimum required to 6% (Ministry of Education, 2008, p. 3). However, subsequent governments were not able to respect even the minimum of 4% (see Appendix 3, p. 359). In 2006 the education budget ‘reached’ 3.7% of the GDP, HE receiving 17% form the total (UNESCO, 2006). These figures were considered insufficient by the four trade unions from the education sector.
During consultations with the government, they advanced the minimum figure of 6% of GDP for the 2006 education budget (Preda, 2004).

According to the Ministry of Education from 2006, the funds coming from state budget represent 65-80% of the whole budget of HEIs (MER, 2006a, p. 20). Private universities also receive funds from the budget if they are accredited; if not, they are self-funded. In 1995 there were 56 state and 20 private HEIs in Romania. At the end of 2007 there were 56 state HEIs, 27 accredited private HEIs, and 26 waiting for accreditation (mainly theological seminars).

**The second education reform (2000-2005)**

Although the above law of education had not been replaced, in higher education there were structural changes, inscribed in the larger effort to integrate into the European Union structure. Romania started negotiations to adhere to the European Union (EU) in 1992; the date for joining the EU was set to January 1st, 2007. During this time, efforts had been made to bring Romanian higher education into the European family. These were part of a larger, pan-European process of higher education co-operation and academic exchange, known as the *Bologna Process*.

**The Bologna Process**

The Bologna Process can be defined as the process of creating the *European Higher Education Area* (EHEA). The idea of a common higher education and research space builds on the previous work towards higher education credentials equivalence and recognition, which, in the context of globalization, became more and more necessary. To respond to this need, the Council of Europe (CE) and UNESCO jointly adopted in April
11, 1997 a common document – *The Convention on the Recognition of Qualifications concerning Higher Education in the European Region (Lisbon Convention)* - ratified by most European countries. The key points of the document are that each country shall recognize qualifications from another country as similar to the corresponding qualifications in its own higher education system unless it can show substantial differences between its own qualifications and those for which recognition is sought. The labour market should also recognise foreign credentials. For this, all countries should provide information on the institutions and programmes they consider as belonging to their education system, by providing a national information centre. HEIs should issue a *Diploma Supplement* to their students, in order to facilitate recognition, which is an instrument developed jointly by the CE, the European Commission and UNESCO (UNESCO/CEPES & CE, 1997).

The idea of creating EHEA was first advanced at a meeting of the Ministers of Education from France, Germany, Italy and the UK in Paris on May 25, 1998. The historical meeting produced a programmatic document known as the *Sorbonne Declaration*. The document reflected how the oldest universities of the continent were much better linked in the past when students were more likely to study in different countries than modern students were. It also stressed the central role played by universities in developing European cultural dimensions. The EHEA is presented as a way to increase cooperation, remove barriers to learning and enhance mobility throughout the continent. For this, the mechanism of equivalence and recognition of previous credentials - the system of transferable credits known as ECTS (European Credit Transfer and Accumulation System) was proposed in conjunction with organising study
into semesters. The document stresses this would allow for lifelong education in different European universities: “Indeed students should be able to enter the academic world at any time in their professional life and from diverse backgrounds” (Sorbonne Declaration, 1998, p. 2).

From this small nucleus of four countries the idea expanded and on June 19, 1999 another programmatic document was signed in Bologna, Italy. The Bologna Declaration was signed by the Ministries of Education from 29 countries who pledged their commitment to create the EHEA by 2010. The document is an action programme which defines a common goal, a set of specific objectives and a deadline. The common goal is to create a European space for higher education by 2010 in order to enhance the employability and mobility of citizens and to increase the competitiveness of European higher education.

The Declaration highlights the need to achieve a common space within the framework of the diversity of cultures, languages and education systems. Thus, at least in theory, harmonization does not equate uniformity. The document presents the process as an opportunity for individual universities to act as agents of change, and to create their own networks. The document also proposes a follow-up process: ministers are to meet every two years to coordinate the actions needed to advance the goal of the declaration; and a follow-up structure: a consultative group and a smaller follow-up group, in charge of preparing the next meetings. Besides the ministries of education, the process involves the

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3 The 29 signatories of the Bologna Declaration are: Austria, Belgium (French & Flemish), Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Swiss Confederation, United Kingdom.
European Commission, the Council of Europe, the UNESCO-CEPES, representatives of HEIs, and quality assurance agencies.

According to the plan, in 2001 European ministers in charge of higher education met in Prague to review the progress achieved and to set directions for the future. At this point, three new countries joined the initial 29: Croatia, Cyprus and Turkey. Prague was chosen in light of the new EU enlargement as Czech Republic was scheduled to join EU on May 1, 2004 and the University of Prague was the oldest in Europe. The objectives adopted by the Bologna declaration had been reified and few more points were added to the discussion. The specific objectives set by the process may be summarized as:

- The adoption of a common framework of readable and comparable degrees through the implementation of the Diploma Supplement;

- The adoption of a system essentially based on two main cycles: undergraduate and graduate, with the first cycle no shorter than three years and relevant to the labour market. The second cycle should lead to the master and/or doctorate degree;

- The adoption of an ECTS-compatible credit system, also covering continuing education and lifelong learning activities (for this, universities have to have means to recognize this type of learning);

- The adoption of a European dimension in quality assurance, with comparable criteria and evaluation methodologies;

- The elimination of obstacles to the free mobility of students, trainees, graduates, teachers, researchers, higher education administrators;
- Promotion of the European dimensions in higher education, particularly with regards to curriculum development, inter-institutional cooperation, mobility schemes and integrated programmes of study, training and research (the Bologna Declaration, 1999).

- Lifelong learning is declared to be an essential element of the EHEA, as Europe should be built upon a knowledge-based society and economy.

- EHEA’s attractiveness for European and non-European students should be promoted (Prague Communiqué, 2001).

The next meeting was held in Berlin in September 2003. In addition to the previous objectives, the Berlin conference stressed the need to strengthen the links between EHEA and the European Research Area (ERA), as the two pillars of the knowledge-based society, by increasing the role of research within HEIs. At this meeting, the member countries increased to 40 (the republics of ex-Yugoslavia, Albania, Vatican and Russia) (Berlin Communiqué, 2003). The next two meetings were held in Bergen in May 19th, 2005 and in London in May 18th, 2007. The two conferences led to the Bergen Communiqué and to the London Communiqué. For 2009 the next conference is scheduled in Leuven/Louvain-la-Neuve (Benelux), for 28-29 April.

**Changes in Romanian higher education attributable to the Bologna Process**

Romania heartily embraced the idea of increased mobility and university credential recognition, as it embraced the idea of European integration, which during the entire process has had strong popular support. The main reasons are not found as much in the cultural domain as in the economic. With an economy that did not offer many
opportunities for gainful employment, a poorer population incapable of much investment and much entrepreneurial activity, and with an almost non-existent social protection system, many Romanians were seeking employment in the Western part of the continent. Clearly Romania has been and still is on the receiving end of the ‘deal’. Therefore, the Bologna objectives of increasing student’s mobility and of improving their chances in an extended labour market made perfect sense to Romanian higher education. The system engaged in another set of changes which I will collectively call the second education reform. In order to better ‘match’ their Western counterparts Romanian universities tried to increase participation in graduate programmes and to reduce the number of specializations offered, in fact to adopt the most typical list of specializations offered in EU. Although no comprehensive new law of education replaced the 1995 law, a number of legislative tools (laws, Ministry ordinances, Government decisions, and amendments to the 1995 law) forms a package that outlines and implements the second reform. *Law no. 288/2004 on the organization of university studies:*  
- Eliminate short-term higher education and the short-lived university-colleges. All 3-years programmes that were in existence in 2004 would either be terminated or transformed into similar bachelor programmes.  
- Ensure the mandatory application of the ECTS system of transferable credits in all universities. ECTS as a standard for comparing performance, knowledge attainment, and the workload done by a student, across the countries adopting the Bologna Process. However, the Law 288 only states that the credit should be a measure of the student’s workload. One academic year corresponds to 60 ECTS credits, which are equivalent to 1,500-1,800 hours of study in all countries and
one credit corresponds to 25-30 hours of work. Credits are allotted to course units, modules, dissertation work, work placements, lab work, etc. and to entire qualifications. They are awarded to individual students, and, should they be recognized, may be transferred between programmes (European Commission, 2008a). The law also makes it compulsory for universities to issue free of charge the Diploma Supplement.

- Reorganize higher education into three consecutive cycles: 1) First cycle: bachelor (or license) degree studies (180 - 240 ECTS); 2) Second cycle: master’s degree studies (90-120 ECTS, and in particular cases 60 ECTS); 3) Third cycle: doctoral studies. For technical higher education, the duration of the first cycle is 4 years, whereas for all other fields of study, except medicine and architecture, it is 3 years.

- Sets a minimum of 50% for the number of places for the first cycle financed from the state budget (the places ‘without tuition’).

The above changes were implemented starting with the academic year 2005-2006.

The Governmental Decision no.88/2005 and the Minister’s Order no.3235/2005 reduced the number of study fields offered by HEIs. Of course, according to university autonomy, an institution has the ‘freedom’ to offer whatever specialty decides internally; only that specialties not found on Ministry’s list are not being financed from Ministry’s funds. According to MEC (2006a), reducing the number of fields of study allows for a better coordination of the study supply of Romanian HEIs with that of other HE systems within the future EHEA. Such coordination is necessary for student exchange programmes
between Romania and the rest of the EHEA countries. Student and teaching staff exchange programmes have been set starting in 1991 with the TEMPUS programme between Romanian universities and universities in EU, but exchange started in earnest in 1997, with SOCRATES, LEONARDO da VINCI and ERASMUS. During the academic year 2001-2002, 45 Romanian universities participated in ERASMUS, involving 2110 Romanian students, 1926 foreign students, and 2020 Romanian teaching staff (MER, 2006, p. 16). Starting with 1998, Romanian universities have taken part in projects developed within the Central European Exchange for University Students Program (CEEPUS). The program supports universities to create networks consisting of at least three universities from various countries in order to promote student mobility for full academic programmes (bachelor, master’s, doctorate), as well as to promote exchange between teaching staff/researchers. Another measure destined to encourage ‘the European dimension’ of the Romanian higher education is Government Decision no.41/2002, which provides incentives for universities to create, within the specializations accredited in Romanian language, activities in foreign languages. The Minister’s Order no.3617/2005 requires each university to set up a Career University Centre. Another ministry order (no.3714/2005) changed the way the Diploma Supplement is to be issued, according to a new pattern developed by the European Commission, the Council of Europe and CEPES/UNESCO. The document, which provides a standardized description of the nature, level, content, and results of the studies graduated by the holder, is to be issued in Romanian and English, in order to facilitate international comparability of titles, degrees, certificates, etc. Another important change in 2005 is the setting of post-doctorate programmes (Minister’s Order no. 3861/2005) as two years advanced programmes for
doctors and with the aim to attract back in country Romanian doctors working abroad.

Finally, 2005 brought changes in the quality assessment and assurance methodologies and tools (Minister’s Order on the assurance of quality educational services in HEIs no. 3928/2005, the Government Emergency Ordinance no. 75/2005 on quality assurance in education). According to the emergency ordinance, each HEI has to establish a Committee for Quality Assurance and Evaluation to evaluate institutional capacity, educational effectiveness and learning outcomes, academic performance of staff, adequacy of resources, and to keep a database on internal quality assurance. For the external evaluation of quality, two bodies were created: the Romanian Agency for Quality Assurance in Higher Education (the Romanian acronym ARACIS) and the Romanian Agency for Quality Assurance in Pre-university Education (ARACIP). ARACIS is a public, independent institution, which is supposed to function on its own funds, from contracts with the Ministry of Education, HEIs, accreditation and external evaluation fees, external funds (non-reimbursable), donations and sponsorships (i.e. hopefully from some Phare or WB funds). During subsequent years, a number of modifications to these provisions have been issued. As scheduled, on January 1st, 2007 Romania joined EU. A new provision worth mentioning is that starting with the academic year 2007-2008, citizens from UE, from states within the European Economic Space and from Switzerland can register for admission into all HEIs at all cycles of education in the same conditions as Romanian citizens, including taxation.

In 2008 the Ministry of Education came up with a project for a new law of higher education, the result of long consultations with top administrators in the higher education
system. However, the new law has not been discussed in Parliament and the project is still under debate.
Chapter 5 - Women, science and technology in the literature

Constructing gender, constructing science - Feminist critique of science and technology

The explosion of the modern feminist movement in the 1960s generated what is perhaps the richest body of social theory in the last twenty years (Aronowitz, 1988). Feminist theory has sought to explore the position of women in a great number of intellectual fields, including science and technology. Particularly the second wave feminist movement started to analyse science’s alliance with the economic, industrial and military powers (Harding, 1986). From these analyses two main theoretical avenues were opened: the political economy of science and the relationship between science and ideology.

Since, as Walter Benjamin once remarked, history is written by the victors, the hidden story of women’s struggles for equality and “escape from the yoke of male domination” (Aronowitz, 1988, p. 22) has to be told by other women who will explore the underside of dominant narratives. Women’s successes and failures in the field of science and technology is a gap in the history of science. A collection of essays titled Men, Women, and the Birthing of Modern Science (Zinsser, 2005) offers examples of the rhetorical and practical ways in which women’s contributions, scarce as they were, were marginalized, denigrated, or appropriated by men. This collection illustrates one of the two major roads of inquiry in the attempt to find women’s voices in science, especially in scientific discovery: to assert that women have participated in science and technology, if not as equals, at least in considerable depth. The other path is to formulate feminist
epistemologies. In *Reflections on Gender and Science*, Evelyn Fox Keller (1985), a scientist herself, shows how sex and gender relations work for the exclusion of women from scientific communities and that these relations are deeply rooted in the ideology of Western culture. According to her, the most eminent philosophical works of Western culture identify women with nature, describe women as ‘the other’, and ascribe to her the role of object of domination. Keller argues that Francis Bacon (1561-1626), one of the most influential figures in scientific circles in his time, was a proponent of the identity of science with male power. While making the case that gender has become a crucial element in the exclusion of women from science, she rejects the idea that Western science is a male science. The thesis known as ‘The cultural feminist standpoint’ (Aronowitz, 1988, p. 24), differs from Keller’s critique of the relations between gender and science in one important respect. According to the proponents of this theory, earth relates to humans as mother to child. Thus ‘man’s’ conquest of nature is analogous with men dominating women. As modern science and technology are to be blamed for man’s conquest of nature, it follows that the domination of women cannot be abstracted from their development (Merchant, 1980).

In a comprehensive review of feminist research the *Handbook of feminist research: theory and praxis* Sharlene Nagy Hesse-Biber (2007) identifies, in an attempt towards a possible taxonomy of feminist scholarship, the following streams of feminist research theory and praxis: a) feminist empiricism, b) feminist standpoints, c) postmodern, poststructural and critical theories, and their intersection with feminism, d) black, postcolonial and transnational feminist perspectives, and e) interdisciplinary approaches. Although a classification effort, reading through the chapters helps us to
understand that feminist streams of thought build on each other, rather than dismiss each other. The critique between different streams of feminism constitutes a constructive dialogue. Collectively, they challenge the androcentric bias in knowledge building. Therefore, while my research is informed by feminist critical theory, it is nevertheless inscribed within the larger sphere of feminist thought.

**Feminist empiricism**

*Feminist empiricism*, as the label suggests clearly, draws epistemologically from the philosophical tradition of empiricism, which considers *experience* as the basis for knowledge. However, feminist empiricists substantially revise traditional empiricism, on the ground that it captures well only the kind of knowledge that results from direct interaction with nature, i.e. natural sciences. In fact, feminist empiricism posits the thesis of “the under-determination of theory by data” (Hundleby, 2007, p. 29), which is to say that no amount of experiential data is enough to completely sustain a theory epistemologically; no statements or theories are meaningful on their own, even combined with logic. The under-determination theory posits that any of our empirical understandings could be altered on the basis of future discoveries. Thus, according to feminist empiricists, there is always room for sexism in science, because of the under-determination of the play of social values in science, which lead to the research of the gap between evidence and theory in science. To determine if data supports a theory and which particular claims it supports “the relation between hypotheses and evidence is mediated by background assumptions” (Longino, 1990, p. 75). Feminist empiricism is considered a conservative current in feminist thought because it draws from the Anglo-American tradition in epistemology and in the philosophy of science (John Locke,
George Berkeley, David Hume). Yet, feminist empiricists reject the traditional empiricist distinction of epistemology from political considerations and the view of knower as isolated individual. For them, science carries socio-political values, both desirable and undesirable. So, why do they still call themselves empiricists? The answer is that they emphasize the role of sensory experience in knowledge, giving it a central role, while in the same time downplay the role of innate ideas and inborn mental capacities. Their critique of science is not directed towards its substance, but towards its methods. Therefore, scientific knowledge is considered the best form of human empirical inquiry, inadequate only in so far as it houses gender prejudice within its institutions. The presence of gender prejudice in science is exemplified through the now famous case of the egg & sperm relationship, described by cellular biology in ways that are imbued with sexist assumptions (Martin, 1991; Longino, 1997). Then, the need to eliminate sexist assumptions in research becomes clear, and they present as method to achieve this feminist critique as a form of experimental control. Feminist critique may be employed to ‘control’ the metaphors used in scientific reports, so that these will not bring or perpetuate sexist prejudices:

Waking up such metaphors [n.a. about egg & sperm cells], by becoming aware of when we are projecting cultural imagery onto what we study, will improve our ability to investigate and understand nature. Waking up such metaphors, by becoming aware of their implications, will rob them of their power to naturalize our social conventions about gender (Martin, 1991, p. 501).

Harding (1986) argues that women scientists become ‘spontaneous’ feminist empiricists when they employ existing scientific practices, and in the same time ‘pluck out’ sexism; she also criticizes earlier forms of feminist empiricism for their contradictory view that social values both matter and do not matter in science. Harding
(1989) suggests also that feminism empiricism has a rhetorical advantage over the more radical socialist, poststructuralist and postcolonial approaches, because it employs mainstream language and theories in the dominant culture and in the culture of science. This advantage is the reason the critiques of feminist empiricism consider it analogous to liberal feminism, because it functions within the scientific tradition. “Scientific conservatism” (Hundleby, 2007, p. 39) poses a special problem for feminists because the patriarchal social system produces almost all the science available that might provide standards for evaluating knowledge claims. Longino (1990) and Nelson (1990) argue that empiricism is contextual, which is to say that scientific rationality and objectivity rest primarily, if not wholly, on communities. The practices of people shaped in their communal relationships allow individual experiences to become significant, qualify individual beliefs as objective, and confer the power of evidence to some observations and not to other (‘contextual empiricism’). Solomon (2001) goes one step further, arguing that scientific dissent leads to knowledge. She divides the factors employed by scientists to choose between competing theories in empirical and non-empirical decision vectors. Empirical decision vectors are salience of data, availability of data, egocentric bias towards one’s data (preference), and preference for a theory that generates novel predictions. Non-empirical decision vectors include ideology, pride, conservativeness/radicalism, elegance, peer pressure, competitiveness, etc. (social and political values). According to Solomon, what makes a particular scientific decision rational is an appropriate distribution of decision vectors. As individuals we should not expect to be free from bias, nor should we strive for freeing ourselves from bias, because non-empirical decision vectors are always at play. However, this understanding shall not
prevent us from pursuing empirical research. Solomon’s position is known as ‘social empiricism’. From feminist empiricism I draw: a) experience is a valid source of knowledge creation, b) socio-political factors are to be taken into account, and c) a multitude of interpretations exist for any given data.

Feminist standpoint theories

Feminist standpoint theories emerged in the 1970s and 1980s and are deeply indebted to the women’s political movements of the 1960s and 1970s and also to the antipositivist histories, sociologies, and philosophies of science then emerging in Europe and the US (Harding, 2007). The relations between politics and the creation of knowledge started to be questioned by the Canadian sociologist Dorothy Smith and by the US political philosopher Nancy Hartsock on the basis of gender. By 1983, the voices of the British sociologist of science Hilary Rose, of philosopher Alison Jaggar, of the historian of science Donna Haraway, and of the philosopher of science Sandra Harding, have all contributed to the standpoint accounts (Harding, 2007, p. 45). Taking from Marx and Engels, who argued for a proletarian science, standpoint feminism argues that a feminist science is possible. Unlike Marxist thought, which abandoned this view, feminist standpoint theories developed arguments about how one comes to develop specific views based on her insider/outsider positions. Haraway (1981, 1991) demonstrated how the field of primatology is socially situated, while Sara Ruddick (2004) looks at the ‘institution of mothering’ from the standpoint of everyday mothering concerns. The argument that those who benefit from white supremacy might not be able to get the same insight into the marginalisation of black people’s lives is built by bell hooks (1983), as well as by much recent work in multicultural and postcolonial studies. Sandra Harding
(1983, 1986) argues that distinctive social formations both enable and limit what a culture can know; she also conceptualises standpoint feminism as a distinctive form of epistemology. In her later work Harding (1991, 1998) states that one may contribute to research even if she or he does not belong to the category whose standpoint is employed; thus, she conducted research about how Western science is perceived in Third World cultures, and she acknowledges that men can contribute to feminist research as well. The standpoint theory developed by Dorothy Smith (1990) looks at the exploitation of women in the spheres of domestic and wage labour, and how exploitation, domination and oppression of women were legitimated through the conceptual frameworks of research disciplines and social institutions. She calls these frameworks the *conceptual practices of power*. Thus, she argues for research that starts from women’s concerns and practices of everyday life rather than those of institutions and disciplines. Smith refutes Harding’s idea that feminist standpoint constitutes a different type of epistemology; she argues that the differences account for methodology, not for the essence of knowledge itself. I agree with Smith that the claim to a new form of epistemology is a rather large one. I do embrace, though, the standpoint critique of objectivism in science. According to Harding (2007), in order to achieve a value-free research, science operationalised the notion of objectivity in a too narrow way; natural and social sciences did not examine critically how their own conceptual frameworks served hierarchical power relations in the larger society:

Some such values and interests, namely those that differed between researchers, would be detected by subsequent methodological controls. But those that were shared by virtually an entire research community and the larger society, as has been characteristic of androcentric, white supremacist, and Eurocentric values, for instance, could not be detected by standard research methods. If
the community of qualified researchers and critics systematically excludes, for example, all African Americans and women of all races, and if the larger culture is stratified by race and gender and lacks powerful critiques of this stratification, it is not plausible to imagine that racist and sexist interests and values would be identified within a community of scientists composed entirely of institutionalised racism and sexism (p. 49).

Standpoint theory extended the methodological controls back to the beginning of research, by directing it to start not from the dominant disciplinary conceptual frameworks but from the lives of oppressed peoples, as to include the context of discovery (Harding, 2007, p. 49). Standpoint theories posits that it makes a difference in the results of a research whose questions get to count as ones worth pursuing, and how these questions are being conceptualised and how the research designed in order to answer them. In starting inquiry from the lives of women, and because the feminist researchers themselves were mostly women, the critics of feminist research argued that they fail to respect the importance of impartiality, separation, distance between researcher and the researched. Feminists have been accused also of adding feminist political agenda to their research. The answer to these critics makes it clear that feminist standpoints do not accept the standards for objectivity and good method that constitute the base from which these critiques are made, because these standards themselves are not culturally neutral. From the standpoint theory I also embrace their view about the interplay of knowledge and power, which has clear roots in Marxism and in Critical Theory. Standpoint feminists also consider that knowledge and power are internally linked and act as positive feedback for each other. Material life and one’s position in society both enable and limit what people can come to know about themselves and about the world around them. Some activities, either assigned, or chosen, enable some insights, and block others. It matters if your daily work is to take care of children, to run a large corporation, or to
run a research institute. Material life and social position act also as a prism through which one sees the world. The dominant group tends to develop understandings that will support the legitimacy of their position, whereas dominated groups tend to question such legitimacy. Harding gives as example the women’s movement of the 1970’s, which revealed how women’s work was both socially necessary and exploited labour, while men and social institutions saw it as a ‘labour of love’ and as women’s natural inclination. Catherine MacKinnon’s (1982) research had to deal with violence against women; she argued that the state acts as a male when it regards as objective and rational a perception that a certain amount of violence against women is normally arising in social relations between genders. Such a view can look reasonable only from a male’s perspective. All understanding is socially located or situated; this is the logic of standpoint theory. Women do not automatically have access to a feminist standpoint; such position must be obtain through struggling against the apparent realities made to appear natural and obvious by dominant institutions, and against the political disempowerment of oppressed groups. These struggles, that are also political in nature, are necessary to reveal unjust institutional and disciplinary practices; in addition, they are producing knowledge (liberatory research). In consequence, a real feminist standpoint research should embrace a ladder approach, meaning that, starting from the lives of women, it will “study up” (Harding, 2007, p. 51) to identify Smith’s conceptual practices of power:

Standpoint theory is part of post-Marxian critical theories that regard ideology critique as crucial to the growth of knowledge and to liberation. The causes of the conditions of the lives of the oppressed cannot be detected by only observing those lives. Instead, one must critically examine how the Supreme Court, Pentagon, transnational corporations, and welfare, health, and
educational systems “think” in order to understand why women, racial minorities, and the poor in the United States have only the limited life choices that are available to them. Because the maintenance and legitimacy of these institutions depend on the services of research disciplines, one must critically examine the conceptual frameworks of sociology, economics, and other social (and natural) sciences to understand the thinking of dominant institutions (Harding, 2007, p. 51).

Another important lesson that I draw from the standpoint theories is that it requires an oppressed group to develop a group consciousness in order to develop a new perspective. Thus, it took the women’s movement to create a group consciousness, that later enabled feminist perceptions and feminist theories. In an often quoted remark, Haraway (1991) contends that feminist movements, as all social justice movements need “to have simultaneously an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognising our own ‘semiotic technologies’ for making meanings, and a no nonsense commitment to faithful accounts of a ‘real’ world” (p. 187). I depart from standpoint theory in its insistence on a ‘woman’s way of knowing’, which is based on the assumption that there is a category of beings out there that are fundamentally like each other by virtue of their sex. In other words, the ‘otherness’ is assigned to them by men only; I would suggest that women can assign it to each other in relations of domination. Due to the fact that it grew so complex over three decades, and encompasses research that deals with a variety of specific issues (motherhood, violence against women and rape, etc.) as well as research that does not focus on one issue, also taking into account various evolutions in its main assumptions (I refer to the tendency to abandon the ‘woman’s way of knowing’ tenet) and internal disagreements on epistemology, it is hard for me to know whether standpoint theory is an
epistemology, a philosophy of science, a methodology, a social theory, a sociology of knowledge, or a political project.

**Feminist postmodern, poststructural and critical discourses**

*Feminist postmodern, poststructural and critical discourses* are as difficult to label as they are varied. In addition, there is no much ‘purity’ of approaches; they usually intermingle. Like many other feminist researchers in the 1980s and early 1990s, Patti Lather (1991) also combined what she called a critical approach with postmodern and poststructural approaches (Gannon & Davies, 2007). In *Getting Smart: Feminist research and pedagogy within/in the Postmodern (Critical Social Thought)*, Lather located these approaches, along with feminism, within the overarching social science framework (see Table 2).

**Table 2: Postpositivist inquiry adapted from Lather (1991)**

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<thead>
<tr>
<th>Predict</th>
<th>Understand</th>
<th>Emancipate</th>
<th>Deconstruct</th>
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<tr>
<td>Positivism</td>
<td>Interpretive</td>
<td>Critical</td>
<td>Poststructural</td>
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<tr>
<td></td>
<td>Naturalistic</td>
<td>Neo-Marxist</td>
<td>Postmodern</td>
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<td></td>
<td>Constructivist</td>
<td>Feminist</td>
<td>Postparadigmatic</td>
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<td></td>
<td>Phenomenological</td>
<td>Praxis oriented</td>
<td>Diaspora</td>
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<td></td>
<td>Hermeneutic</td>
<td>Educative</td>
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<td></td>
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<td>Participatory</td>
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One criterion for this classification of theoretical frameworks is the position of the researcher vis-à-vis the researched. Earlier forms of research, where the researcher is understood as separate from the research and from the social world, are characterised as positivist and interpretive, adopting a naturalistic or realist approach. A further criterion has to do with questions of power, emancipation, freedom and agency. Finally, the last criterion has to do with how relations of power are understood as established and
maintained through discourse. Despite the diversity characteristic to feminist discourses that intersect with emancipatory and deconstructivist approaches to research, there are several principles common to these paradigms. One principle involves the discursive strategies a researcher employs to construct a particular version of the world. Researchers working within critical, postmodern and poststructural approaches need acute reflexivity, especially at the very moment of writing (unlike in the reflexive modernisation theory, the term *reflexivity* shall be understood here as reflection, rather than as reflex). Lather (1991) contends that “to write ‘postmodern’ is to simultaneously use and call into question a discourse, to both challenge and inscribe dominant meaning systems in ways that construct our own categories and frameworks as contingent, positioned, partial” (p. 1). Another principle consists in the fact that feminists working in poststructural paradigms seek to configure the notion of agency in such a way as to to claim agency as a possibility, although contingent and situated. One of the common themes of deconstructivist feminism consists of the binaries, or oppositional and hierarchical modes of thinking, where categories emerge to structure thought on axes of this/not-this, good/bad, man/woman. The binaries are implicated in relations of power and in maintaining the status quo. However, binaries are seldom ‘working’ in isolation; they tend to glue to each other. By drawing attention on how binaries insert themselves into thought, deconstructive writers provoke us to think how binaries act as an ordering device, defining what is appropriately male or female in terms of their opposition from one another. They also provoke us to think differently about the nuances and the possibilities of meaning in the language. Thus, feminists attempt to deconstruct the male/female binary, by asking how these categories are constructed and maintained, what
exclusions and inclusions are at play, how are social identities, particularly sex/gender performed and sedimented in people’s lives and in people’s minds. Cixous (1986) aptly explains the gender de-constructivist project:

Men and women are caught up in a web of age-old cultural determinations that are almost un-analyzable in their complexity. One can no more speak of “woman” than of “man” without being trapped within an ideological theatre where the proliferation of representations, images, reflections, myths, identifications transform, deform, constantly change everyone’s Imaginary and invalidate in advance any conceptualisation (p. 83).

Deconstructive writing does not draw only on rational argument, but also on metaphor, on poetic writing, on fiction, on music and on the performing arts (Gannon & Davies, 2007). Its purpose is to play with the binaries that limit and constrain modes of thought. This play is seen by the critics of deconstructivist approaches as being destructive; by destroying the binary categories, feminists make them unusable for the work of changing society. Others do not see the play of binaries as destructive. For example Judith Butler (2004) suggests that “calling terms into question doesn’t mean debunking them but leads, rather, to their revitalisation” (p. 178). Feminists embracing a deconstructive perspective draw attention to the constitutive power of these powerful categories and show how they can be mobilised for political action, rather than foreclose their use on behalf of those who are subordinated by them. What is destroyed are the certainties associated with these binary notions. Deconstructive approaches to feminism recommend continuous reflection on the ways in which identities, realities and desires are established and re-established.

Feminist theories are indebted to critical theory (Rose, 1994; Brown, 2006) not only ideas and concepts, but its way of reaching into all realms of social power:
production, language, the psyche, sexuality, aesthetics, and thought itself. As I draw heavily on feminist critical theory, this strand of feminism will be developed on the next chapter.

**Women - a minority in science, engineering and technology (SET)**

Traditionally science has been made, by and large, by a self-perpetuating, self-reflexive group whose members shared many aspects in common:

What the 1960s radicals discovered in their campaigns against a militarized and polluting science was that those in charge of ‘neutral’ science were overwhelmingly white and male occupants of positions of power within advanced industrialized society – whether the project of that society was capitalism or state socialism (Rose, 1994, p. 5).

In the last two decades there has been a revival of quite radical criticism of technology in the environmental movement and under the influence of Foucault and constructivism (Feenberg, 1996). Indeed, the Marxist enthusiasm with science as the ally of ‘scientific’ socialism was not shared by the second wave feminist movements, which were struggling to restore agency and responsibility into the impersonal, deterministic voice of science, and to locate science in the social context (Rose, 1994). Thus, feminist scientific methodology contends that an indispensable unity exists between subjectivity and objectivity in the act of knowing, and calls into question traditional definitions of objectivity in the philosophy of science, which deny the relevance of context and human agency (time, place, social context, authorship, personal responsibility). Those employing feminist methodologies submit to the thesis that subjectivity and context cannot be stripped away and that they should be acknowledged. We come to the subject matters we study with our particular personal and social backgrounds and with inevitable interests.
Once we acknowledge those, we can try to understand the world from inside, instead of pretending to be objective outsiders looking in (Hartsock, 1983a; Hill Collins, 1991; Hubbard, 2001).

That women constitute a minority in science, engineering and technology is well documented (i.e. Aronowitz, 1988; Rose, 1994; Rolin, 2000; Hubbard, 2001; Rosser, 2004; McNeil, 2007; National Research Council, 2006; Schäfer, 2006; Tang, 2006; Burke & Mattis, 2007; Phipps, 2007). Fig. 3 shows the breakdown between men and women working as scientists and engineers in 25 European countries. In no country do women outnumber men in science and engineering (S&E) with the notable exceptions of Lithuania, Latvia and Estonia. In Portugal their proportions are equal, in Ireland almost equal (3.5% women vs. 3.6% men), while in Belgium their proportions are comparable. In the majority of countries, though, men outnumber women substantially. On average, the number of women constitutes one third of the number of men employed in S&E.

**Figure 3: Breakdown of scientists and engineers, 25-64 years old, by gender, as a percentage of the total labour force, EU-25 and selected countries, 2004**


In order to establish a record of women in science and technology that would provide a basis for judging progress towards gender equity, the *Women and Science Unit*
of the Directorate General for Research of the European Commission launched a series of statistical reports called *She Figures*. The report contains employment statistics disaggregated by sex and supplemented with complementary data, such as the number of PhD graduates, and data on seniority, in order to form a picture of the hypothesized horizontal and vertical segregation by sex, and a picture of future trends. The series was launched in 2003; a report is scheduled every three years, thus there are only two reports published so far: 2003 and 2006. By comparing the two existing reports, one can conclude that women remain a minority among researchers in the EU, and that women remain under-represented in science, especially in leading positions. The patterns of horizontal (in terms of fields of work) and vertical segregation (in terms of promotion) are strongly present in the data. Few figures at a glance show that across EU as a whole, only 29% of researchers are women. In higher education, only 15% of those at doctoral level are women, and in engineering and technology this proportion falls to 5.8%. The percentage of women in scientific boards is above 20% in only few countries. Moreover, the gender gap in earnings still exists, as women scientists tend to be employed in less well paid positions, such as those in higher education research vs. those in business-led research. Women are seriously under-represented in the business enterprise sector, where the EU’s R&D is most highly intensive; so are they in senior academic grades and influential positions, where strategies are set, policies are developed, and the agenda for the future is determined. The report’s working definition of S&E includes physical, mathematical and engineering occupations, life sciences and health occupations, and excludes all other sciences, such as social and agricultural sciences. Although the report concentrates on Europe, some non-European countries were selected for comparison in a
number of statistics. One that stands out as offering a particularly chilly climate for women in SET is Japan, where in all sectors employing researchers (higher education, government and business), women make up very small proportions from the total (20%, 12% and 7%, respectively) (*She Figures*, p. 28, Fig.1.9). The report introduces useful indicators such as the dissimilarity index and the glass ceiling index (*She Figures*, Table 2.6, p. 48 and Fig.3.4). Longitudinal statistics are extremely useful; unfortunately, they are also very rare, and costly to obtain. This is why such reports are so valuable⁴. For Romania, the number of men and women working as researchers in science and technology (see Table 3) do not reveal large discrepancies.

**Table 3: Romanian R&D personnel in science and technology (S&T), 2003-2005**

<table>
<thead>
<tr>
<th>Romanian R&amp;D personnel</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>R&amp;D personnel</td>
<td>21,992</td>
<td>17,993</td>
<td>22,373</td>
</tr>
<tr>
<td>Researchers</td>
<td>15,061</td>
<td>10,907</td>
<td>15,621</td>
</tr>
<tr>
<td>Researchers as percentage of total employees</td>
<td>3.13‰</td>
<td>3.31‰</td>
<td>3.52‰</td>
</tr>
</tbody>
</table>


Feminists attribute the lower proportions of women to the fact that SET fields are racialised and gendered, despite the ideological claims of their neutrality (Rose, 1994; Wyer et al., 2001). The dominant feminist discourse posits that the interactions of gender stereotyping with the masculine image of SET disciplines and workplaces, and with the masculine structural dominance and dominance in terms of numbers, deter girls and

---

women from choosing SET subjects and from going into SET careers (Hanson, Fuchs, Aisenbrey & Kravets, 2004; Gunter & Stambach, 2005; Niemeier & Smith, 2005; Rosser, 2006). Boys and girls in industrialised nations consistently portray scientists as white men in lab coats wearing glasses (Pattatucci, 1998; ETAN Expert Working Group on Women and Science, 2000). This image is reinforced in virtually every aspect of culture. Parents also have different expectations from their daughters than from their sons when it comes to proficiency in sciences. Science is the private territory of men. Women aspiring for scientific careers are to be seen as trespassers (Pattatucci, 1998).

Since the mid-1970s an activist and pedagogic movement around women in SET has emerged in UK, beginning with initiatives aimed at improving girl’s experiences of science and technology subjects in school, as well as their level of achievement in these subjects (Weiner, 1994; Arnot, David & Weiner, 1999; Arnot, 2002; Phipps, 2006, 2007). Soon similar activities were growing everywhere in Western Europe and North America (Phipps, 2007). After thirty years there is little success to report, which suggests that the theoretical underpinnings of these efforts might be inadequate as the basis for a successful political strategy.

The above thesis of SET masculinism is dominant within Western feminism. However, with few exceptions which in fact strengthen the rule, it systematically avoids any serious look at the experiences of socialist countries. The ex-Soviet Union, the Eastern Block and China are all but absent from the discussion. This is not to lay blame on western feminism for excluding them from their analysis. One can imagine the difficulties of conducting research in these areas during the Cold War. Also, feminist methodology is highly aware of the dangers of drawing conclusions based on bare
figures, without developing first a deeper, qualitative understanding of social phenomena and their complex interplay. But the exclusion does leave a gap that needs to be filled.

As stated above, in Eastern Europe women’s levels of participation in non-traditional fields, including S&E, were substantially higher. This begs the questions: Why are there more women in science and technology? Is it that S&E are not perceived as masculine or is it that the socialist states ‘manoeuvred’ people into certain professions based on the needs of their planned economies? What has happened with women’s participation in science and technology after the fall of the Berlin Wall? While in the past, regional differences existed but were not too pronounced, what is the case now, after almost two decades?

The Academic Glass Ceiling – Gender as barrier to full academic membership

Institutions of higher learning have opened and then closed their doors to women for hundreds of years (Noble, 1992). In spite of a long history of exclusion, women have made great strides in becoming full members of the higher education endeavour, as demonstrated by enrolments, degrees completed, and the presence of women faculty, deans and university presidents. However, as many point out, this success is not proportional with the participation; although their numbers are increasing, women are still under-represented, especially at the highest tiers of administrative positions (Gryaznova, 1992; Kudryavtseva, 1992; Siemienska, 1992; García de León, 1993; Bain & Cummings, 2000; Toren, 2000; Rosser, 2004; National Research Council, 2006). In a comprehensive study comprising ten higher education systems worldwide, Olga Bain and William Cummings (2000) found that women constitute one-third of all academics, but
among full professors only one of every ten is a woman (p. 493). It is said that a glass of
un-stated norms and distorted expectations hinder women from reaching the top of
academe. This phenomenon is metaphorically called in the literature the ‘glass ceiling’.
The study aims to illuminate what is the essence of academe’s glass ceiling. After a
review of the literature dedicated to career advancement in academia, and borrowing
from a previous conceptual framework of Lynda Malik and Suzanne Stiver Lie (1994)
*The gender gap in higher education: a conceptual approach*, Bain and Cummings
classify the barriers faced by academic women in three categories: 1) societal; 2)
professional-organisational and 3) institutional. The social determinants identified by
reviewing the literature are society’s egalitarianism, the rate of expansion of HEIs (in
terms of creating new academic jobs), the relative empowerment of women (drawing the
concept of *empowerment* from United Nations Development Program (UNDP) *Human
Development Report* – the gender empowerment measure (GEM) indicator has been
used) and gender. The professional-organizational factors are: hierarchy, experience,
tenure and full-time, productivity, academic field, the rate this field is expanding and
female prevalence. All of these are self-explanatory, with the exception of academic
productivity, which is a thorny issue for feminists (Kudryavtseva, 1992, García de León,
1993, ETAN, 2000, Rosser, 2004; Frank Fox & Mohapatra, 2007). The procedures for
advancement in academia were decided long ago, when universities were the exclusive
province of males. It is reported that in most university settings, men continue to hold the
uppermost ranks, and they are reluctant to modify these procedures; ‘old-boy’ networks
may not only reinforce the male-friendly norms but also lead to gender bias in key
decisions. Alternate ideas such as extended child-care leave, recognition for part-time
work and greater appreciation for new research styles may change organisational features
of universities, to take account of gender-based differences and lifestyles (tellingly, the
report does not even mention the service component of academic work). As regarding the
academic fields, it is considered that languages and the humanities, social sciences
(especially psychology and education) and biological and health sciences are female-
friendly, whereas ‘older sciences’ (math, physics, chemistry, astronomy, etc.) are said to
be less attractive and less open to women. The study identifies six institutional types and
comes up with a diagram in which the vertical dimension represents the numbers of rungs
in the academic ladder (from 6 to 3), the horizontal one the proportion of academics in
each rank and the shaded portion represents the proportion of women (see Fig. 5, p. 129).
The data used for this study comes from ten countries, between 1991 and 1992. Again,
the ex-socialist countries are nowhere to be found in the analysis, although some data
from Bulgaria, Poland, Russia and East Germany was used for a table (p. 494). Women’s
percentages of full professors reveal three interesting exceptions: Australia (64% of
professors are women), Mexico (60%) and Turkey (20%).

The study aims to determine which of the identified barriers are less favourable to
women’s advancement. For this, several statistical techniques were employed, after
building variables out of the identified barriers. These include linear regression, the linear
probability model and logistic regression. What the study found is that societal
egalitarianism does not bear a significant influence on women’s academic advancement,
that the major organisational variables holding women back are their lack of experience
and their lower levels of scholarly productivity, and that in societies where there has been
relatively greater expansion of HE, and women are more empowered, there are relatively
fewer professorial posts. Perhaps the most interesting finding is that there is an insignificant association between gender and academic advancement. In conclusion, the organisational factors seem most influential, the institutional factors have some bearing and the societal factors have a negligible impact.

**Figure 4: Academic hierarchies in 6 university types**

![Diagram showing academic hierarchies in 6 university types](image)

Maria Antonia García de León (1993) opinions about societal egalitarianism differ; in a study about the position of women academics in Spain she analyses the effects of what she calls “historical vestiges” from the Franco dictatorship and not only (p. 80), mainly discrimination against women. She does not shy away from using strong terms like discrimination. She also challenges the view that lower academic productivity would be instrumental in preventing women achieve high positions. She analyses promotion through the prism of power relations, drawing from Bourdieu, showing that Spanish universities made an excellent springboard for achieving political, economic, cultural and social power, which gives rise to all sorts of very complex underlying tensions and influences:
To be a university teacher symbolizes a much desired status in Spanish society; however, not so much for itself, as the meagre and nearly non-existent scientific community does not provide a relevant professional framework, but rather for the other channels that it opens up the doors to Parliament to such an extent, for instance, that one can speak of a profcssocracy. It paves the way to becoming an intellectual or an expert in the mass media [...]. Therefore, when speaking of academic power, one must understand that the term academic is mere adjective, and that we are speaking of a power phenomenon in general, in which male competition is enormous (p. 83).

Thus, in her opinion, the *de facto* situation is that extra-academic factors bear more weight in the promotion decision. When women do attain an elite position, it is usually indirectly, through her personal support network. The old boys club effect (the unconscious accumulation of power through the cooption of the most powerful positions, which are freely assigned) ensures that women are eliminated even if deliberate discrimination is not at play. For example, the requirement that a rector should be a tenured professor drastically eliminates women, who account for only 3.7% of tenured professors. Thus, García de León (1993) calls the summit of university power a “*male mandarinate*” (italics in original, p. 85). Her analysis of barriers to career advancement identifies not-so-obvious factors, and not so easy to turn into variables, such as the fact that women need an extra effort to become acculturated in the university, and thus are subjects to over-selection. The PhD is a stage of dual selection too: the process *per se* and that imposed by the feminine condition, because women may have to make choices between the PhD and childrearing. More sophisticated forms of discrimination seem to stem from the peculiarities of research styles: the methods employed, the choices of subjects, the use of academic language, which may bias evaluation boards entirely made up by men. Another example is the kind of financing one can obtain for large studies, which influences the type of research one may conduct. While she acknowledges
improvements over time due to the modernisation of Spanish society (thus refuting once again the non-significance of societal attributes), she concludes that the dimensions of power are very complex and go beyond evolutionary and/or temporal transformations. The complexity of including women in a short period of time in the university institution gives rise to situations that need to be studied in depth. Her study employs a qualitative framework, supplemented with descriptive (headcounts) data. Her methodological approach makes total sense to me and I found her analysis of the under-representation of women at the top of academe being richer than the large longitudinal study of Bain & Cummings. I also tend to place more faith in her conclusions, because I can follow her logic, whereas the logic behind the variables describing barriers to academic success escapes me. A rather large body of work deals with the various barriers faced by women in academia (Bagilhole, 2000; Rosser & O’Neil Lane, 2002; Gunter & Stambach, 2005; Niemeier & Smith, 2005; Frank Fox & Mohapatra, 2007; Wachs & Nemiro, 2007; Eriksson-Zetterquist & Styhre, 2008; O’Connor, 2008), many of them social. Not only I consider that four variables are not enough to describe the influence of social characteristics, but I am afraid that narrowing those four variables into straight jackets, in order to employ them across borders, is the reason for the non-significance finding.

Similar studies from Eastern Europe are extremely scarce, but not inexistent. Especially during the early 1990s, when East European universities were looking for models to reform, some women professors shared their views on the matter. As education as a field of academic study did not exist at the time, the authors are women academics from various fields of study. They bring into the analysis their lifetime experience in the academia. Lyudmila Gryaznova (1992) reviews the career patterns of 282 men and
women academics at Belarus State University. She reports that in 1992 women made up 26.9% of professors, 36.2% of the associate professors, 53.9% of senior lecturers, and 46.9% of the assistants. Although the same narrowing effect towards the top is present, its amplitude is smaller than the world average. The principal factor hindering women’s academic career consists in household duties; the time which they devote to them exceeds the time they devote to their jobs. She exemplifies with women physicists, who rate the time devoted to lining up for food higher than the time spent on reading specific journals. She concludes that, against the background of socio-economic reality, factors linked to stereotyping and patriarchal mentalities become insignificant. Differences in burdens placed on men and women academics during the various phases of their lives, and deteriorating living conditions, are found to be root causes of the glass ceiling effect in Poland too (Siemienska, 1992). These studies are all limited at their national scene, and do not claim generalizability beyond national borders. Yet, a comprehensive literature review unearths a number of commonalities. Thus I found that national experiences may be of great value, which is a reassurance, because my research deals specifically with the Romanian context. It also reinforces my decision about methodology; while headcounts are illuminating, a more nuanced approach based on women’s narratives is necessary to cover the numerical skeleton. This is the methodological approach of Louise Morley (1994) in Glass Ceiling or Iron Cage: Women in UK Academia, who interviewed twelve women academics in order to locate the existing descriptive statistics within the authority of women’s experiences, while also acknowledging that all experience is mediated by a discourse. The main goal of her research was to explore the extent to which external, discriminatory factors influence women academic’s self-concept and consciousness of
their own abilities, and strategies they use to avoid the internalisation of negative
attitudes towards them. After an overview of research findings about women faculty in
academic science, technology, engineering and mathematics (STEM) in US, Xiangfen
Liang and Diana Bilimoria (2007) conclude that, despite increases in the numbers, these
remain low. Problems reported are low numbers of women faculty and administrators in
their institutions, poor interpersonal relations with other faculty, staff and even students,
poor mentoring, limited support from upper-level leaders, lack of transparency in
performance review, promotion and tenure evaluations, which all lead to overall lower
satisfaction levels.

In Romania, the number of female students in tertiary education increased four
times to almost 40,000 since 1990, and, after 2000, women students started to outnumber
men. Thus, Romanian higher education displays a slight feminisation of the base (see Fig.
5, p. 129). This is not a Romanian-only phenomenon; during the 1990s, higher education
institutions became increasingly feminized. This striking trend has been particularly
evident in Central Europe, the former Yugoslavia, South Eastern Europe, the Baltic states,
and the western Commonwealth of Independent States (CIS) (roughly the ex-USSR). For
example, a difference of more than 15% in gross enrolment ratios between female and
male students has been recorded in Bulgaria, Estonia, Lithuania, Poland, Russia, and
Slovenia. In Latvia, this difference reached 25% in the 1998/1999 academic year (Magno,
Silova & Wright, 2003, pp. 18-19). Thus, the thesis that women are under-represented in
the student population does not hold true for this region.
Figure 5: No. of students in tertiary education in Romania, by gender, 1990/1991-2005/2006

Source: Compiled by author after Romanian National Institute of Statistics (NIS). Romanian Statistical Yearbook 2008, Chapter 8 – Education.

What of the glass ceiling thesis of women under-representation at top levels? The She Figures report (2006) defined a statistical indicator to measure the glass ceiling effect - the Glass Ceiling Index (GCI), which measures the relative chance for women compared to men of reaching a top position. For higher education, the GCI is the ratio between the proportion of women in Grade A positions and the proportion of women in all positions in academia (A+B+C). Grade A represents the single highest grade/post at which research is normally conducted, equivalent to full professor in most countries. Grade B represents researchers and academics working in positions not as senior as top positions A, but more senior than newly qualified PhD holders (corresponding to associate and assistant professors, or to readers and lectors), and Grade C means the first grade/post into which a newly qualified PhD graduate would normally be recruited (She Figures, 2006, pp. 52-55). The value of GCI runs from zero to infinity. A GCI of 1 indicates that there is no difference between women and men being promoted. A score of less than 1 means that women are over-represented and a GCI score of more than 1 indicates a glass ceiling effect, showing that women are under-represented in grade A positions (at professorial level); in other words, the higher the value, the thicker the glass ceiling, and
the more difficult for women to attain higher academic or research ranks. Among the 25 EU countries, Romania has the second lowest GCI index, surpassed only by Turkey, which would indicate that the glass ceiling effect is almost nil (see Fig. 6).

Table 4: Researchers in Romanian higher education, by gender, 2003-2005

| Researchers in Romanian higher education, by gender, 2003-2005 |
|---|---|---|
| Year | 2003 | 2004 | 2005 |
| Male | 5685 | 6779 | 6791 |
| Female | 3841 | 4439 | 4701 |
| Total | 9526 | 11218 | 11492 |


The number of women in research in higher education is not dramatically lower than the number of men researchers either (see Table 4).

Figure 6: Glass Ceiling Index, EU-25, 2004

Source: She Figures 2006 – Women and Science Statistics and Indicators, European Commission, Directorate General for Research, Fig. 3.4, p. 59.
While the GCI index is nevertheless useful, I will caution on drawing conclusions based solely on it, because in some organisational models, such as the English model (UK) and the Latin model (Italy, Spain), unlike in the East Asian and N. American HE organisational models, the rank of professor is reserved for a small minority of all academics, cca.5% (Bain & Cummings, 2000). It is thus possible that a country will have a large GCI due to this tradition, yet gender equity within their HE system to be higher than in another country, with a smaller GCI. More meaningful is the ‘scissors’ diagram⁵, the relative share of men and women in a typical academic career (for Romania, see Fig. 8, p. 132). As we can see from Fig. 5 (p. 129) and from Fig. 7 (p. 132), the situation since 1995 has changed substantially in favour of women in terms of participation in HE, both as students and as teachers. Thus, it is expected that the scissors diagram today to display a narrower gap at professorial level, if the glass ceiling effect is almost inexistent and if it is the only one at play. The *She Figures* report expected in 2009 might help analysts shed light on this matter. Up to now what we know is that Romania had in 2004 the higher percentage of women professors among all academic staff (23%, vs. 43% for men) among EU-25 countries. We also know that three state universities have a woman Rector (including the Polytechnic University of Bucharest), that all major universities in Romania have academic women in the Senate and in the Senate’s Bureau and some deans or faculty heads are women.

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The problem with the glass ceiling theory is that it equates proportionality in representation with gender equality of opportunity and gender equity; if only women at the top will represent the same proportion at women at the base, gender equity will be achieved. If this would be the case, Romanian higher education is almost there. Field segregation is not taken into account, nor is the effort required to achieve. I also have to impute it the fact that it implicitly and simplistically assumes that all women are equally willing to take on a more senior assignment.
Not enough women in computer science and engineering!

In a book dedicated to the issues faced daily by women scientists and engineers in the academic workplace, based on a six years study of 450 women scientists and engineers, and suggestively entitled The Science Glass Ceiling – Academic Women Scientists and the Struggle to Succeed, Sue Rosser (2004) identifies several differences across disciplines. Substantive differences that characterise the cultures of the different disciplines in science and engineering contribute to notions of climate in each field, which are often viewed as particularly attractive to one gender. One of the examples she uses is that computer scientists working in their laboratories may be viewed as working in isolation, involved with hardware, and obsessed with hacking. Her study reveals several issues facing women as being the most salient when they plan their careers. Balancing work with family responsibilities stands out as the major issue for women from all SET fields; especially juggling academic career with small children provides a constant struggle. Among the most significant issues facing women computer scientists is the decrease of women entering the field. The respondents reported isolation, lack of peer group and peer group support, with the resulting discomfort. In the not very distant future, if numbers do not increase, this will result in lack of role models for new women entering the field and lack of mentoring.

The attrition of women in computer science and computer engineering in the N. American literature is usually expressed through the ‘leaking pipeline’ metaphor. Pipeline analogy suggests that women enter into the world of education, and progress through its various stages towards doctorate and teaching & research. ‘Leaking’ pipeline means women live the discipline at various stages in their career, including at tenure
level. Rosser found that more women then men are lost from science at every level of the pipeline. Some of the women academics interviewed confessed that they entertain thoughts of quitting the profession and moving into something else. Usually women think of themselves as unable to cope due to personal failure, not because of the obstacles to success - the so-called ‘woman as deficient’ model. A woman academic teaching computer science at a Research I university, who immigrated from Poland, argues that in the US the public views neither scientists nor academia as prestigious, despite the excellent system of higher education. She also points that “better daycare would help tremendously” (p. 17), view supported by the other computer scientist interviewed. This second respondent (Joan Frein) believes that culture stands as the primary barrier for women in computer science (CS). According to her, many women interested in CS have a creative, artistic bent, and they perceive that they do not fit into “the hacker, nerd culture” (p. 20). Although Rosser’s research sample is extensive, the research is not tied to theory. Its results are policy recommendations for academic institutions: adopt family friendly policies that stop the tenure clock for parental leave, postponing the time faculty come up for tenure. The University of California offers faculty an option called active service-modified duties, which permits a parent, spouse, or partner with substantial responsibilities for carrying for a young child to request a quarter or semester of active service-modified duties around the time of birth or adoption. As most female scientists and engineers (62%) are married to male scientists and engineers often in the same field, they experience more problems with the two-career issue. Institutions may find solutions to increase flexibility for individual faculty members and to hire partners. The study warns that the low number of women leads to a penury of mentors for new entrants, to
insure that the often unwritten laws of academia are learned; it also leads to women being asked to serve on more committees and to advise more students. Thus, it is important that Research I institutions ensure either that junior women faculty are not given extra teaching and service, or that the tenure and promotion committees recognize and validate such work, to compensate for lost research time and focus.

Another study focusing on the culture, norms and attitudes among students and faculty in a CS programme at Uppsala University claims that the computer culture is male dominated. Dominance can partly be viewed as exercised through the overwhelming emphasis on male interests. Thus, skills and subjects considered most important in CS today are closely linked to traditionally masculine interests in Western society. Femininity is often equalled with technical incompetence; thus certain values and interests are constantly discredited in favour of others (Bjorkman, Christoff, Palm & Vallin, 1997). Attitudes among students were surveyed through a survey asking background questions (age, sex, etc.), open-ended and multiple choice questions, while in-depth interviews were conducted with nine female students and six graduate women active in industry or academia. The study reveals that a conflict may arise between one’s identity as a woman and one’s identity as a computer scientist. Also, among men the contradictory view that gender is irrelevant, yet men and women think and function differently, has been revealed. Women under-representation in CS is lamented in *Women and Information Technology – Research on Underrepresentation*, a collection of articles edited by J. McGrath Cohoon and William Aspray (2006). Each article is valuable in itself, but for me the whole collection is more than the sum of the parts, because it makes manifest a certain ‘activist’ attitude that led to the publishing of the book. This attitude
favours action rather than reflection, and the purpose is to find ‘good practices’ and practical advise on how to attract more women and how to retain them more effectively. This new approach asks what works, rather than why it works. As the editors have formulated it, this is “an engineering approach to creating gender balance in computing” (p. 471), rather than a scientific effort to know and understand. Research into women’s under-representation in computing in N. America mushroomed after 2000 due to the support of funding agencies such as the National Science Foundation (NSF) and Alfred P. Sloan Foundation. Almost each article or book dedicated to the topic acknowledges the NSF support, including the books mentioned thus far. Many are evaluating the results of NSF’s various programmes designed to increase women’s participation in SET fields, such as the Professional Opportunities for Women in Research and Education (POWRE), the Information Technology Workforce (ITWF), the Broadening Participation in Computing, Gender and Science and Engineering, National Center for Women in IT. All this effort might seem a new initiative of NSF, but Cohoon & Aspray (2006) tell us that “almost thirty years of efforts have failed to produce a sustained increase in women’s participation in computing” (p. 137), which reminds me of the similar conclusion from UK (Phipps, 2006, 2007). These efforts clearly point out that external pressure generated by affirmative action policies is put on institutions to increase the number of women in CS and CE, which leads me to conclude that the treatment is directed to the effect, rather than to the cause.

EU does not differ much from US in this respect; affirmative action policies are recommended as the solution for gender imbalance by every report on the matter. If we do not find similar studies evaluating the results of similar programmes in Romania it is
because one cannot speak of women under-representation at undergraduate and master’s levels. In 1990, from 630 graduates in CS and mathematics, 62.5% were women (Wright, 1997). At doctoral level, from a total of 151 doctoral students in science, mathematics and computing, 45.7% were women in 2004 (Meri, 2007). Mild attrition starts at doctoral level, therefore the workforce outside academia (industry, government, military, etc.) does not suffer shortages due to women lack of participation. Ronald Burke (2007), Professor of Organisational Behaviour at Schulich School of Business (York U.), makes the philosophy permeating these efforts even clearer: advanced industrial nations may face shortage of workers knowledgeable and skilled in science, engineering, technology and mathematics (STEM), due to an ageing population. Immigrants from developing countries such as China, India, Russia and Singapore made up a significant percentage of the STEM workforce in N. America and Europe in the past (p. x). I question neither the desire to encourage women on embracing technical careers, nor the affirmative action methods. What I want to point out is the similarity of approach with the communist regimes in Eastern Europe, that have been known to ‘persuade’ people into different careers function of more or less well predicted market needs.

Underlying much of the work on the culture of computing is a theoretical perspective that ties computing to the masculine culture that dominates modern society. From this point of view, women are not participating either because they reject the culture or because they feel out of place, rejected by it (Beyer & Haller, 2006; Major, Davis, Sanchez-Hucles, Downey & Germano, 2007). Another thesis contend that the reason women do not pursue CS careers is to be found in early and ongoing social influences that maintain a gendered-segregated society, steering women away from it and
men towards it. This might occur through socialisation, stereotypes, social networks or discrimination. In this view, women’s participation is a cultural product, and can be influenced through social structures that sort people in and out of computing (such as those NSF programmes) (Barker & Aspray, 2006; Barker, Snow, Garvin-Doxas & Weston, 2006). A different theoretical perspective, expectancy-value theory of achievement motivation, is that men and women differ innately and that women’s taste exclude technical knowledge such as of and about computers; they advocate for including non-technical knowledge into the curricula (Wigfield & Eccles, 2000). Few voices found participation as the result of rational choice, or calculus, and suggest that the requirement to continuously update one’s skills makes computing unattractive for women who are likely to exit and re-enter their career due to childbearing (Hanson et al., 2004; Jesse, 2006). Women’s career ‘faithfulness’ is found to be weaker than men’s. There are more women in IT than in computer science and computer engineering. A lonely voice in the literature, Sylvia Beyer’s and Susan Haller’s (2006) study looks at differences between women majoring in CS, men majoring in CS and women majoring in other disciplines. Compared on a large number of variables, men and women CS majors do not differ substantially, with the exception of hardware abilities. Asked if they have ever installed RAM, only 44% of women answered affirmatively, while 88% of men responded yes. Finally a study acknowledges that women are not a homogenous mass, and that these differences may play an important role in the way they might be persuaded towards a career in CS. The study found evidence for substantial gender differences on social psychological variables such as values and computer self-efficacy. It also found that in many respects, female majors in CS were more similar to male majors than to female
non-majors. It is true that the level of significance/power of the study varies, due to differences in sample sizes: while undergraduates sample was ample (320 students), the size of women’s majors in CS was only 16 (speaking of under-representation), which forced Beyer & Haller to accept borderline levels of significance (p. = 0.08).

In an interview in *Computerworld* (October, 2007), Eileen Trauth, the interim associate dean for diversity, outreach and international engagement at Penn State’s College of Information Sciences and Technology, asked why are women so underrepresented in IT, identified the following factors as being most salient:

- **Cultural definitions of femininity that place IT outside the boundary of ‘feminine’**. As girls begin to develop their gender identities, they are influenced by cultural norms; in their early teen years they begin to view a technological profession as non-feminine.

- **Historical association of technology with power and of men with power**. This exerts pressure on men to keep control of technology in their hands.

- **Gender stereotypes**. IT professionals portrayed in the media are typically men, which reinforces the assumptions that IT is for men only.

- **Expectations**. Some people take the low number of women in IT to mean that women do not want to be in this field or are not able to work in it. They might transmit this view to their children, employees, etc.

- **Women have more options these days**. Because there are many other options, “women do not have to put up with hostile workplaces, unequal pay, harassment – all of the kinds of things women in my interviews have related to me”.
The critical mass conundrum. According to Trauth, this is a ‘chicken and egg’ problem. The fewer women in IT, the more it is a men-only club. And the more is a men-only club, the more women feel uncomfortable in it. It is generally thought that a critical mass would be reached around 25% to 30% women.

Trauth drew these conclusions after interviewing 200+ women working in IT in several countries. There are numerous studies, conducted especially during the 1990s, that bring evidence to the theory which posits that the related fields of mathematics, computer science, computer engineering and information technologies are generally perceived as being more appropriate for a man’s career than for a woman’s career and appeal more to boys/men than to girls/women (Estrin, 1996; Reinen & Plomp, 1997). In the words of Thelma Estrin (1996), Professor of Computer Science at UCLA “science is usually taught by males and is regarded as quintessential masculine intellectual activity” (p. 43). This view which places science and technology in the masculine domain is one of the points of criticism of science from feminist philosophy. Feminist critique of IT contends that one of the main reasons is that CS, CE and IT, as they have been developed by men, are imbued with cultural norms that do not appeal to girl’s cognitive development (Miller, 2005; Rosser, 2005). A study of “cultural imaginaries of the engineer” (Bastalich, Franzway, Gill, Mills & Sharp, 2007, p. 385) explore how women engineers in Australia negotiate the contradictions and limitations of prevailing cultural norms about women and engineering. The theme of women’s under-representation and the theme of CS, CE & IT perceived masculinity cannot be separated; they are the two facets of the same coin.
Conclusions and questions

Departing first from Western philosophical traditions such as critical theory, later to include non-white voices and perspectives, the feminist critique of science and technology posits that technology is not neutral, it is rather political. Feminists contend that science and technology has been for too long, and still constitutes both a masculine kingdom, and an instrument of domination. Thus women who enter such careers have to make the extra-effort to acculturate themselves to its masculine ethos, and face additional barriers related to their gender. Some feminist standpoint theories argue that women may create a different, feminist science, due to fundamental innate differences in the way women perceive the world and construct knowledge, based on biological determinism.

A comprehensive review of the literature dedicated to the positions of women in academia in SET/STEM fields in general and in CS, CE & IT in particular, reveals two major themes that become salient:

The thesis of under-representation. Under-representation may be understood a) in terms of numbers, and b) in terms of power. In order to understand under-representation in terms of numbers, I reviewed a series of reports and databases, in order to find out female’s levels of participation: in higher education in general, at doctoral levels in science, mathematics and computing, in teaching and research within HEIs. Unfortunately, in European statistics on academic staff by gender, field of science and grade, Romania is missing; I found no national body to collect and make public such information. In N. America under-representation in CS and CE is particularly severe, more than in other STEM fields. This is not the case in all countries, including Romania.
The glass ceiling theory posits that it is more difficult for women than for men to accede to the administrative and professional summit in HE, which explains their lower numbers in such positions. The higher one climbs in science, the fewer women one sees (Maynard, 1977), and that applies to science in academia as well. In sum, chief problems women academics face, especially in technical fields, are reported as being:

- University is a ‘man’s kingdom’;
- Under-representation;
- Difficulties in balancing work and life;
- Stereotypes and a masculine culture in CSE;
- Lower access to high levels of organisational hierarchies.

In March 1999 a report released at the Massachusetts Institute of Technology (MIT) created a stir that spread beyond MIT’s boundaries. A study on the status of women faculty in science at MIT documented that the 15 tenured women faculty in science had received lower salaries and fewer resources for research than their male colleagues. In addition to salary disparities, data in the report revealed systemic, subtle biases in space, start-up packages, access to graduate students, and other resources that inhibited the careers of women scientists relative to their male counterparts. Almost simultaneously, the NSF initiated ADVANCE, a new awards programme ($17 million for 2001), which provides awards for institutional, rather than individual, solutions (Rosser, 2004, pp. xiv-xv). In Romania, the salaries of academic staff are negotiated collectively by the unions with the Ministry of Education and the Ministry of Finance. Therefore, there are no differences between genders and there are no major differences between institutions, only between ranks. Thus, it seems that, when it comes to the income generated by the academic activity, the literature related to women discrimination does not apply either.

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6 In fact this is a simplistic presentation: differences may arise, because salaries are not fixed amounts; they can vary within a small range.
However, reality is a bit more complex, as one can accumulate income from more than one academic activity and from multiple teaching loads (the so-called ‘pay by hour’ and ‘multiple employment’). Thus, the discussion about income disparities makes sense only if it is situated in the right context.

We have seen that in Romanian context figures seem to contradict the main theses of the literature - under-representation and the glass ceiling. Is this contradiction real? Is it real for CS, CE & IT too, or only overall, across disciplines? Are women in CS, CE & IT really under-represented? At what levels? Do they perceive their field of work and study as masculine too? What about the atmosphere in universities? Is it chilly, stereotype- and male-dominated? Do they feel they face unfair barriers in their promotion due to their gender? Are these to be considered systemic or are isolated cases? What are the sources of work satisfaction? All these questions call for answers; this is another reason I consider that my study will help shed light on the factors influencing women’s academic careers in CS, CE & IT in Romania. Right now higher education in Romania is again in a process of reform (as we have seen, the so-called third reform), which I deem as enthusiastic and uncritical Westernisation. A look over the policy documents and reports in the last decade leads me to see higher education in Romania as a ‘YES man’ of the West. As many important changes due mainly to the Bologna Process accumulated, a new Law of Education is required, to reflect those changes and to steer higher education in the desired direction. The Ministry of Education prepared a project of a new law dedicated to higher education and launched a public debate on Ministry’s website. I have followed this blog for a while now and I can see that it failed to attract much debate; due to the social apathy manifest in Romanian society right now, it comes of no surprise to
me. Again the elements of change will be decided at the very top, where the desire to become accepted in the ‘club’ of EU reigns, and takes precedence over every other concern. What I want to question here are ‘modes of thought’ or dispositions that lead to action. One such disposition is to embrace the ‘truth’ of Western scientific social research in education in general, and in higher education in particular, just because higher education in the West proved more successful. Thus, if everybody says “bring more women into STEM” (as voices in the Western literature overwhelmingly say), affirmative action policies like those in US and EU are most likely going to be adopted, although, as we have learned from the same literature, they met with limited success for decades in the past. Knowledge of past events, theoretical formulations that collect this knowledge into particular arrangements and use of that knowledge for planning of future goals, are part of our social ecology and are influential in the creation of understandings, certainties and beliefs. There are many different ways of seeing, thinking about and imagining possibilities for the future. This is why it matters what influences the planning process, or, “it matters what ideas one uses to think other ideas” (Strathern, 1992, p. 10).

Therefore, I suggest that there is much need for developing an understanding of what it means to be a woman academic in science, engineering and technology in Romania today, which to inform future action, rather than to uncritically accept results based on different realities that may be valid, but only contextually. Although the majority of studies I reviewed adopted a feminist perspective, I feel like Alison Adams (2001), that:

This is the acceptable face of liberal feminism, where the *status quo* is left unchallenged, where women constitute the problem, for not entering computing in the numbers that they should, and where almost any attempt to boost student numbers in an under-funded and over-stretched university environment is seen as a good thing (pp. 332-333).
Chapter 6 - Theoretical framework

The second world in the second modernity

*Girl admirer: But…but…the leader hasn’t got a head!*

*Eugene Ionesco, The Leader*

For Romania, the contemporary era is an era of authoritarian rule, upheaval, unpredictability, utopian possibilities, the resurgence of the right (the left-right metaphor will be soon questioned within the framework of second modernity), political and economic crises, and yet unforeseen openings for social transformations. It is also an era which may witness the renaissance of social solidarity and – in my dreams – the birth of new social movements. The quest for real gender equity might be one of them. The future looks less like the past than ever before and has become in some basic ways very threatening. We have seen that in those almost two decades since the collapse of the socialist regime, Romanian society has had to construct potential futures in the context of global rearranging of modernity. The intensification of globalisation interact with, and causally condition, profound changes in day-to-day life. If it is to mention only the fierce competition in the manufacturing sector, where Romanian workers arrived to compete on who works cheaper with workers from China, India, and other developing countries, the massive real unemployment, which has determined work migration (footlessness) with incalculable and yet unforeseen consequences for social life and social solidarity, and the under-employment, which maintains a quarter of the population under the poverty line\(^7\) – and we see that the old system of industrial society, instead of changing from socialist to capitalist, in fact is breaking down. This is not happening only in Romania, and it is not

\(^7\) According to UNDP data for 2007/2008, available online at [http://hdrstats.undp.org/indicators/25.html](http://hdrstats.undp.org/indicators/25.html), 21.5% of Romanians live under the national poverty line (which is different than the $1/day poverty line).
happening only because of the transition. Ulrich Beck (1994, 1999, 2003) contends that the dynamism of industrial society, or, in his words – “the victories of capitalism” (1994, p. 2) – rather than its failures, undercuts its formations of class, occupation, gender roles, nuclear family, business sector, and, with them, the prerequisites and continuing reproduction of “natural techno-economic progress” (p. 2). For those unfamiliar with his work, Beck is a German sociologist best known for his concept of *Risk Society* (1986), but here I will draw more from the book *Reflexive modernisation* (1994) and Beck’s chapter in it, *The Reinvention of Politics*. He has been influenced by the works of Jürgen Habermas and Anthony Giddens, as well as by the Green movement. In addition to his academic work, Beck publishes regularly in the German press (Aiken, 2000, p. 3). Some sociologists (Beck, Giddens & Lash, 1994) consider that the profound changes that we are living since the end of the Cold War form a tide, or in their words “a critical mass” (2003, p. 2), that moves us from *bona fide* modernity to another form of modernity, *the second modernity*, in which new social contracts are waiting to be born. In the form of modernity that we are now living according to this *theory of second modernity*, political institutions’ ways of shaping social reality change in fundamental ways: “many of the changes or policy-making decisions most influential upon our lives today do not derive from the orthodox sphere of decision-making: the formal political system. Instead, they shape and help redefine the character of the orthodox political order” (1994, p. viii).

Crises, transformations, and radical social change have been always part of modernity; so why a second modernity, then? The proponents of this theory argue that the critical mass of changes that do not originate in political intention, some of which are contingent to recent technological progress and globalisation, and the mass of changes that were
originally intended to be much more narrow in their scope than they turned out to be, leads to a meta-change of modern society, thus to a new phase, or form, deemed second modernity. This process of meta-change is called reflexive modernisation, and constitutes the modernisation of modern society (1994, p. 1; 2003, p. 1). The ‘reflexivity’ in reflexive modernisation does not mean the self-referential quality that is a constitutive part of modernity; rather, it represents the radical character of the transformation. Not only key institutions are changing now, but also the very principles at the root of social life, or at least of the society identified with the nation-state. And, again, this change is unintended, contingent, and out of the full control of any political force. The proponents of reflexive modernisation are aware that their analysis undermines the very principles of democracy, which presume that, through our political institutions, we are at least in a certain degree of control over our collective potential futures:

The idea that the transition from one social epoch to another could take place unintended and unpolitically, bypassing all the forums for political decisions, the lines of conflict and the partisan controversies, contradicts the democratic self-understanding of this society just as much as it does the fundamental convictions of its sociology (Beck, 1994, p. 3).

In Beck’s analysis, a similar radical transformation of the very principles upon which social life resides occurred within modernity, first from ‘pre-modernity’ towards ‘first’, ‘early’ or ‘simple’ modernity. These periods saw the emergence of classes, wealth accumulation, scientific advance and the arrival of industrial and capitalist society. Now we are witnessing the transition from the early modernity to the ‘late’, ‘second’, or ‘reflexive’ modernity. In this phase, humanity is not concerned, as before, with ‘controlling’ nature for its benefit, but rather with the consequences of trying to do so – the consequences of scientific, technological and economic development itself. Thus, it is
the ‘destiny’ of this new phase in modernity to tackle the risks arising from development (environmental degradation and pollution, polarisation of communities, etc.). Among the small measures that lead to such larger-than-intended, cumulative effects, which have fuelled reflexive modernisation, are the increased participation of women in the workforce, and the challenging of traditional gender roles by feminist movements:

The revolt of women, unlike the explosion of the French Revolution, is a creeping revolution, a sub-revolution proceeding like a cat: on cat’s paws but always with claws. Wherever it touches it changes industrial society’s sensitive underside, the private sphere, and reaches from there (and back?) into the peaks of male domination and certainty. The sub-revolution of women, which directly cuts up the nervous system of everyday order of society, despite setbacks, can certainly give society a different face. One need only venture this thought experiment: a society in which men and women were really equal (whatever that might imply in detail) would without a doubt be a new modernity (pp. 26-27).

The gender division of labour challenges modernity also through the flexible employment practices, which constitute both a breakdown in the full employment society, and the premises for rethinking the meaning and the forms of gainful employment. As Beck, Bonss and Lau (2003) contend, the sexual division of labour is one of the premises of the first modernity, being the basis of the highly unequal organisation of paid labour, organisation which underlies the nuclear family as condition, reproduction and guarantee of the predominantly male labour power commodity. This organisation based on the sexual division of labour leads also to the differentiation and separation of social subsystems (economy, politics, culture, science, technical management), which are seen as separate, distinct and hierarchical. In turn, this separation generated the restructuring of social knowledge, in which the experiential and occupational knowledge has been devalued, whereas the theoretical knowledge has been
considered superior. Related to this ranking of knowledge was the creation of a hierarchy between experts and lay people, which was grounded on the monopoly of knowledge, held by professionals and scientists. The relationship of modernity with science is seen as constitutive for the phases of modernity. In the first modernity, science had the power to end disputes and to silence controversies through the discourse of scientific consensus, and held the monopoly of what was considered legitimate knowledge. In the second modernity, the function, nature and position of science in society changes in significant ways. Now the relationship science-society presumes growth of contradictory scientific camps, rather than consensus, recognition of extra-scientific justifications, increased account that science cannot foresee all un-intended side effects of its actions. Beck distinguishes between two types of science, which are beginning to diverge in the second modernity:

On the one hand, there is the old, flourishing laboratory science, which penetrates and opens up the world mathematically and technically but devoid of experience and encapsulated in a myth of precision; on the other, there is a public discursivity of experience which brings objectives and means, constraints and methods, controversially into view. Both types have their particular perspective, shortcomings, constraints and methods. Laboratory science is more or less blind to the consequences which accompany and threaten its successes. The public discussion – and illustration – of threats, on the other hand, is related to everyday life, drenched with experience and plays with cultural symbols. […] It is thus based more on a kind of science of questions than on one of answers. It can also subject objectives and norms to a public test in the purgatory of oppositional opinion, and in just this way it can stir up repressed doubts, which are chronically excluded in standard science, with its blindness to threats and consequences (p. 31).

This paragraph further illuminates the meaning of reflexive, in the theory of reflexive modernisation: in the second modernity, people do not lead more conscious,
self-reflective lives. Thus, reflexive does not signify an increase of consciousness, but a heightened awareness of the fact that mastery upon one’s life and upon nature is not possible. The mastery is the taken-for-granted assumption in the modern quest for development and progress, though. Thus, questioning the possibility of control and of the more-of-the-same type of development (increased differentiation, division of labour, complexity and control over nature) dissolves and undermines every aspect of the modern project: the nation-state, the welfare-state, the power of the legal system, the national economy, the corporatist systems that connected with one another; and the parliamentary democracy that governed the whole. “The normal family, the normal career and the normal life history are all suddenly called into question and have to be renegotiated” (p. 4). Therefore, industrial society becomes obsolete. The other side of the obsolescence of industrial society is the emergence of what Beck calls risk society (1994, p. 5). This concept designates a developmental phase of modern society in which the social, political, economic and individual risks increasingly tend to escape the institutions of monitoring and protection in industrial society. The fact that post-Decembrist Romanian institutions of social protection failed the nation is undisputed. More surprisingly, in light of the latest developments on the financial markets, which leaded, among other things, to Iceland declaring ‘bankruptcy’ in January 2009, and to hefty financial rescue-packages from a number of governments to their respective national economies, it seems to me that this sociological concept may be applied to Western economies as well. Risk society is not an option, that can be embraced or rejected through democratic process; it is the consequence of modernisation processes (industrial and technological development, decoupling of financial markets and production, globalisation, work migration), which are
“blind and deaf to their own effects and threats” (p. 6). The transition to second modernity is a quasi-autonomous mechanism, apt to shake the fundamental assumptions of the conventional social order. The concept of risk is related to the notion of uncertainty, thus escapes the sphere of instrumental rationality in the sense it was conceptualised by Weber. This is why Beck calls the rational handling of risk post-zweckrational (p. 9). Zygmunt Bauman (1991) calls it ‘the recognition of ambivalence’. Surfing is seen as an activity that continuously deals with uncertainty. Nevertheless, in industrial societies, the welfare state is subject to the demand to make human living situations controllable by instrumental rationality; Beck names it “industrial society’s security fictions” (p. 12).

The two sides of reflexive modernisation are individualisation and globalisation. Individualisation means that “the standard biography becomes a chosen biography, a ‘do-it-yourself’ biography, or, as Giddens says, a ‘reflexive biography’” (p. 15). What I found controversial about this definition is that free choice is a taken-for-granted assumption. Some aspects of individual biography – education, job, career – are not always a free choice for everyone, not even in the most developed of nations. Globalisation is the other facet of second modernity because it changes the relationship between the local and the global, between domestic and foreign, and, in doing so, it challenges all the certainties upon which the nation-state is built. The proponents of the reflexive modernisation do not intend to suggest that the state does not matter any longer; quite the opposite, they make it clear that the state’s role to provide security is even greater in an era of global terrorism (2003, p. 10); what they want to argue though, is that the nation-state does not have the power to define the shape of the future.
Unlike postmodernism, the perspective of reflexive modernisation does not claim an infinity of possibilities. According to the theory of second modernity, such a situation can exists over a long period of time only in cultural spheres, which are free from the burden of decision-making. In general, where decisions are to be made, procedures must be worked out and criteria must be agreed-upon, at least to the degree that the new solutions seem better than the ones they replaced, in these spheres, legitimacy is demanded and responsibility must be assumed. Such a sphere is the sphere of politics; therefore, in the *Reinvention of Politics* Beck (1994) calls upon the need to re-approach conceptually the old categories, such as the left-right metaphor, which is inherited from the bourgeois society. The concept of politics in simple modernity is based on a system of axes, one coordinate from left to right, the other from public to private.

The antagonisms of the political world, such as liberalism, socialism, nationalism or conservativism, which rule in heads, parties, parliaments and in the institutions of political education, are the products of emerging industrialism. Those political theories talk about the problems of shaping nature and environmental destruction with all the insight of blind people talking about colours, and the same applies to the issues of feminism, to the critique of experts and technology and to alternative versions of science (pp. 44-45).

Political antagonisms as those mentioned above are not the only fundamental distinctions blurred in the second modernity; other distinctions affected by forms of meta-change are:

- between gainful employment and other forms of activity, or about what counts as work
- between public and private, which appears to be blurring due to new forms of communication
- between global and local (as expressed through the term ‘glocal’)

between fiction and reality, under the influence of CS, AI and IT
between scientific and unscientific knowledge
between war and peace, as September 11, Iraq or the recent invasion of Gaza demonstrate.

Blurring of boundaries, or a multiplicity of boundaries, is seen as the ultimate test for the existence of reflexive modernity as opposed to postmodernity. Although the artificial character of boundaries is recognised, in practice they are treated nevertheless as legitimate boundaries.

What critics have reproached to the theory of reflexive modernisation is that it is thoroughly Euro-centric. This is openly recognised by its proponents, which state that it is completely Eurocentric, as it assumes the institutions of nation-state, welfare state, highly developed institutions of science and technology, and the institutionalised expectation of full employment.

Against a background of early intercultural exchange, Europe invented modernity. Therefore it has a special responsibility to ‘de-invent’ it, that is, to contribute to a reshaping of modernity at the global level. Thus the theory of reflexive modernisation has important normative and political implications (Beck, Bonss & Lau, 2003, p. 7).

What I want to imply here is that for transitional Romania, a ‘second-world’ country between the have and have-nots, neither the description of first modernity, nor that of postmodernity do seem to apply. Postmodernism as a political or social

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8 I also refer to the metaphor created by SF writer Joe Haldeman (1998) in *Forever Peace*. Here humanity is divided in First, Second, and Third World. The First World is made out of the highly advanced, affluent countries, which created nanotechnology and posses the nanoforges – devices that can manufacture any product (the equivalent of the ‘fabers’ in today’s scientific discussion of nanotechnology). They wage war against the Third World – poor, technologically underdeveloped countries without access to the nanoforges. The Second World are countries with relatively good relations with the First, and which at times are granted access to the nanotechnology, but which do not posses it themselves.
philosophy was never manifest in Romania, neither before the war not after; we might be able to speak about postmodernism as an aesthetic, cultural phenomenon, after 1960, but only in literature (Cartarescu, 1999). While the post-war, socialist period had been an era of forced and rapid industrialisation, in 1990 we cannot speak of an industrial Romanian society in the same way as we can speak about Western Europe. The countries in Western Europe were characterised in broad lines, at the time (which in the theory of reflexive modernisation coincides with the transition from the first to the second modernity), by low unemployment, stable employment, and a system of social protection that had been in place for some time, democratic systems of government, and a civil society that can be considered active (if it is to think only to the environmental and to the feminist movements). These societies were gainful employment societies (Beck, Bonss & Lau, 2003, p. 4); individuals in these societies were theoretically free and equal and their associations were voluntary. Beck, Bonss & Lau notice that this freedom and equality was moulded by social institutions – for example the gendered division of labour – which were in many respects coercive.

Romania, on the other hand, resembles today much more the description of risk society, where the institutions of the state are unable to cope with the numerous challenges of dissolving boundaries, and unclear and sometimes conflicting responsibilities. The individual, left without the social safety net, is forced to take decisions affecting her biography, not as much through careful reflection, as in reflex to the immediacy and urgency of the need to finding solutions for survival. Therefore, phenomena as labour migration, black and grey labour markets, bring about a new, specific form of blurring of boundaries: those between legal and illegal, moral and
immoral. Like Beck, I also challenge the idea that the democratically elected institutions of the state are in control of the national economy and that their decisions are to be considered deterministic for the future. The reason is not the integration in the supra-state form of organisation that is the EU that would blur the physical boundaries; rather, it is that, like the proponents of second modernity theory, I see a much deeper rift between the realities on the ground and the picture of the ‘terminus point’ for the transition, as described by the neo-liberal discourse. After all, during the early 1990s the state was unable to pay its employees in time; after 18 years of neo-liberal reforms, in 2009, the state is again unable to pay its employees in time. As we have seen in the background chapters, Romania engaged in the transition with the dream and the promise to become ‘like the West’. Meanwhile, we find out that what we have seen through the Iron Curtain was not the whole picture, and that the West itself changes in ways we cannot fully grasp or predict. We discover that not the politico-economic force steers the boat; it rather floats on currents shifted by scientific and technological progress, and by the consequences of this progress. As in Ionesco’s play, where after waiting for so long to see him, the girl finds out that the leader hasn’t got a head…

**Critical Theory and feminism**

Critical Theory as a formal description of a particular mode of research and analysis, as well as a particular sociology, first emerged in Germany in the Frankfurt School of Social Research, during the 1920s and 1930s. Its main thinkers are Theodor Adorno, Max Horkheimer, Henry Marcuse and Jürgen Habermas. Although they started from the works of Marxists, they developed a reflexive and critical social inquiry that questions its Marxist roots and that see social scientific knowledge itself as implicated in
the complex modes of producing ‘regimes of truth’. According to these theorists, a ‘critical’ theory may be distinguished from a ‘traditional’ theory to the extent that it seeks human emancipation from the circumstances that oppress them. The Frankfurt School is to be credited with the historicising and contextualising of social research (Gilloch, 2002). Critical Theory questions the Western rationalist and liberal humanist thought, questions the belief that reason is universal, disinterested, and dispassionate and that it can set us free. However, this is not to say that Critical Theory does not believe in reason and in the rational subject. Quite the opposite - rather than demolish them, they reconstruct them as socio-cultural forms (Gilloch, 2002). As Lather (1991) writes, “within the context of the Frankfurt School of critical theory, critical reason was used as the interlocutor of instrumental reason, the driving force behind modernism” (p. 3). It also rejects the view of historical materialism as a ‘science’ of societies which yields law-like generalisations across culture and history, as it rejects the view of social classes as the most important collective actors in history (Benhabib & Cornell, 1987).

Epistemologically, Critical Theory is concerned with determining the nature and scope of our understanding in order to discover in what areas we can hope to attain knowledge and in what areas we must be content with belief (Peters, 2003). Its critique of science and technology is of particular importance for this study.

Science and technology has been the object of sociological critique from the epoch in which sociology started to be regarded as a modern science, in the 19th century. Max Weber, one of the founders of modern sociology, dedicated an extensive critique to the role technology and science play in modern society. I feel the need to shortly mention Weber here not only because he started the sociological critique of technology, but
because his theoretical contributions constitute the foundation for further critique, firstly by the Frankfurt School, and subsequently ecological and feminist critiques. In the  
_Protestant Ethic and the Spirit of Capitalism_ (first published starting 1904) Weber advances the idea that the great technological-bureaucratic order, based on the institutional structures of modern society – the bureaucracies of the market and the state – constitute an ‘iron cage’ in which ordinary citizens are destined to live but over which they have little, if any, control (Weber, 1958). His discussion of the role technology and science play in society, as well as the discussion about the meaning of science, were inscribed into a larger one, about the ‘disenchantment of the world’. By disenchantment, Weber meant the removal of magic from the primeval world, consequence of human societies controlling and altering nature. Weber saw science as a dynamic social force that relentlessly destroyed previous forms of knowing and ways of seeing, thus constantly undermining itself as well as the knowledge it produced. In this sense, modern science was progressive; however, for Weber scientific progress did not mean increased enlightenment, freedom or happiness for humankind. He warned that ordinary citizens had little control over its design and implementation.

As technology becomes more sophisticated, we know less about how it actually works, as “we become more dependent on complex networks of technology to simply function every day in the most mundane routines of our existence” (Maley, 2004, pp. 69-72). The force behind disenchantment is instrumental rationality (Zweckrationalität). The understanding that there are no mysterious, incalculable forces that come into play, leads to the idea that one can, in principle, master all things by calculation. The effect of seeing all things as calculable is, according to Weber, to see nature and people instrumentally as
well (or, in other words, exploitable). Perhaps his most important contribution, though, is that he treated technology as *social practice*. For him the most important modern technology of his time was not a particular scientific discovery or any technological artifact. It was the bureaucratic model of organization and the “tremendous cosmos of the modern economic order” (p.181) constituted by it, no longer determined by subjective ends of autonomous individuals. Thus, the ‘cosmos’ becomes an iron cage of compulsion.

Building on Weber, the Critical Theorists asserted that Western culture is thoroughly technological. One of their declared aims was to establish the link between science and technology, thus, like Weber, departing from the concept of science as a knowledge sphere distinct from technology. Another aim was to assert the dominance of technology over science, as well as its domination over contemporary social relations.

The *critique of technology as such* characterized the early Frankfurt School and especially its leading members, Theodore Adorno and Max Horkheimer. In the *Dialectic of Enlightenment* (1972) they argue that instrumentality is in itself a form of domination, that controlling objects violates their integrity, suppresses and destroys them. If this is so, then technology is not neutral, and simply using it involves taking a valuative stance.

Particularly interested in the relations between a) science and technology, and b) values and rationality, were Herbert Marcuse, Jürgen Habermas and Martin Heidegger. Like Weber, Marcuse advanced the technocracy thesis that there is a tendency towards total administration in advanced societies, known as the ‘dialectic of Enlightenment’ thesis in the Frankfurt School (Gilloch, 2002). He also saw technology as socially determined.

According to Marcuse, a ‘new’ science has to be created, one free of technological
domination. However, after evaluating the gloomy record of technological domination of modern science and of modern life, Marcuse still concluded in *The Social Implications of Technology* that technology has the potential to become a great vehicle of liberation, if it would be subordinated to new ends, which will replace those of domination (Marcuse, 2004). Habermas polemics with Marcuse in *Technology and Science as ‘Ideology’* (1971) argues that instrumental action, including technical action, has certain characteristics which are appropriate in some spheres of life, and inappropriate in others. Habermas's approach implies that in its proper sphere technology is neutral, but outside that sphere it causes the various social ills that are the chief problems of modern societies. However, he is mostly known for treating technology as a medium, in his famous *theory of communicative action*. Here he contends that technology and science organises human action, while minimising the need for language; moreover, the technocratic tendencies of modern societies are just another form of manifestation, a mere symptom of the colonisation of the *lifeworld* by the *system*. By lifeworld he understands the sphere of everyday communicative interactions and by system the media regulated, rational institutions of modern society (Feenberg, 1996).

In *The Question concerning Technology*, Heidegger (1977) has an ontological interest in what he calls the ‘essence’ of technology and on how we can gain a ‘free relationship’ with it. He contends that technology exercises control not only over the world of science and its practical applications but on every aspect of contemporary life; art, religion and culture, all exhibit the clear marks of the ruling ‘essence’ of technology; hence the outmost importance to understand the essence of technology in order to learn how to experience it in its own bounds and “free” ourselves from its compulsion.
According to him, technology at its essence is a way of revealing the world. Heidegger gives this way of revealing the world the name “enframing” (Gestell) (Heidegger, 1977, p. 19).

The way of revealing that is technology orders and arranges nature into a “standing reserve” (Bestand) (p. 17) of energy and resources, placing an unreasonable demand on nature to supply endlessly and efficiently. Even people, the supposed masters of technology, are challenged and ordered into standing reserve as human resources. Enframing is a way of ordering people to see the world – and each other – as a mere stockpile of resources to be manipulated. Enframing happens both in us and outside us, in the world, it is the revelation of being standing reserve. Particular technologies only respond to the enframing – they are consequences, not causes – they merely help to reveal things as standing reserve (Kaplan, 2004). Here Heidegger shares Weber’s view that the essence of technology is (also, but not only) technological rationality of efficiency. The danger of technology is twofold: first, we as humans become mere standing reserves and second, we tend to think that we are the masters and everything is under our control. Yet in truth we cannot see clearly our position; enframing keeps the essence of everything concealed, as it obscures other ways of seeing things. The essence of technology is ultimately poiēsis, which is a broader form of revealing than technē. Heidegger contends that we need to realize that the essence of technology is not technological, overcome the simplistic view of it as merely instrumental and the illusion of our complete mastery and control. The good news is that, as poiēsis, technology contains, or better say it is, the “saving power” (p. 42). According to Heidegger, technology has a dialectic character: it is both the danger and the saviour (p. 42). The
saving is from the burden of seeking efficiency for its own sake and from seeing ourselves as mere resources, and the saving power is the power to understand that technological rationality and calculative thinking are just historical products and we can liberate ourselves from them.

Overall, the aim of discourse in Critical Theory is emancipation and liberation from oppression, whatever the causes of oppression might be (instrumental rationality, class, gender, race, etc.). Critical Theory uses discourses of equity, inclusion, social justice, which are familiar and compatible with feminist agendas. In the original sense of the word ‘critical’, as it is used in Critical Theory, it is used to refer to social theory that was genuinely self-reflexive, which is to say that it can account for its own potentially transformative effects and for its own condition of evolving. Because of the multiplicity of oppressing circumstances, many ‘critical theories’ have been developed, usually in connection with various social movements. This is the reason why Critical Theory inspired various streams of thought, such as Critical Pedagogy and this is why it is also regarded as a meta-philosophy (Bohman, 2005, 2008).

Critical Pedagogy emerged during the 1970s in the US, as a set of practices and as a field of study, in an attempt to transform education and pedagogy. Critical Pedagogy is to be considered inscribed in a larger social project, which aims to encourage the development of a more democratic culture and a more politically active citizenry. This current is based on Critical Theory, of course, but it draws also from the work of Paulo Freire. In N. America its main exponents are Henry Giroux, Stanley Aronowitz and Peter McLaren. Freire had remoulded the discourses of his day – phenomenology, liberation theology, Sartrean existentialism, Critical Theory and Marxism – to produce a new
synthesis: a libertarian and humanist pedagogy outlined in his famous book *Pedagogy of the Oppressed*. His work, and the adoption of Marcuse’s *One-dimensional Man*, with its critique of technological rationality and advanced industrial society, constituted what was called the *New Left constellation* (Peters, 2003, p. 35), or *New Left Theory*, or *neo-Marxism* (Gannon & Davies, 2007, p. 77). It also inspired other currents of thought such as critical race theory, critical multiculturalism, critical psychology, and critical feminist theory. During the 1980s, a plethora of new theoretical discourses emerged – postmodernism, poststructuralism, postcolonialism, cultural studies, and the politics of identity and difference in the intersection of new discourses concerning gender, race and sexuality. All these new currents challenge both Critical Pedagogy and Critical Theory in numerous ways. Despite the criticism, there is still much sympathy with these lines of thought, particularly when it comes to emancipatory agendas. It is really challenging to determine with a high degree of preciseness to what combination of currents of thought a particular author belongs, or how ‘dangerous’ is to label one critical theorist. Joe Kincheloe and Peter McLaren (2003) adopt the following strategy: they characterise as ‘criticalist’ any researcher who believes that:

All thought is fundamentally mediated by power relations that are social and historically constituted, facts can never be isolated from the domain of values or removed from ideological inscription, relationship between concept and object and between signifier and signified is never stable or fixed and is often mediated by social relations of capitalist production/consumption; that language is central to the formation of subjectivity; …that certain groups in society are privileged over others (p. 453).

Based on this description, I subscribe with no reserves to a ‘criticalist’ paradigm.
**Feminist Critical Theory**

Although the 1980s signalled something of a fall out of fashion, or, as Megan Boler (2000) puts it “critical theory has largely mutated into poststructuralism” (p. 362), there are feminist authors who insist that the outcome they envisage is *real social change*, thus distancing themselves from postmodern and poststructural approaches, and defending the tenets of critical social feminism against these approaches. Among the most prominent exponents of feminist Critical Theory are the philosophers Seyla Benhabib, Nancy Fraser and Drucilla Cornell. In their influential collection *Feminist Contentions: A philosophical exchange* (Benhabib, Butler, Cornell & Fraser, 1995) Benhabib, Cornell and Fraser advocate on the side of Critical Theory, while Butler on the side of poststructuralism. According to Benhabib et al, feminism must be able to assume a subject who remains capable of self-reflection and of agency – the gendered identity category called ‘woman’. In her opinion, postmodernism brings a sense of instability and indeterminacy in the categories of sex and gender. Butler agrees that there is a sense of ‘trouble’ within postmodern feminism, as if the indeterminacy of gender might eventually culminate with the failure of feminism. Secondly, they argue that utopian ideals, abandoned by postmodernism, are necessary for feminist ethics and social and political activism. Feminism can benefit from incorporation of some diluted versions of postmodern ideas, with the condition that they will not impede political action. Benhabib, Cornell and Fraser also acknowledge some of the contributions of postmodernism to feminism, such as the constitutive effects of language, and the rejection of abstract universal reason, but their commitment remains with Critical Theory. The reason is that Critical Theory is seen by them as enabling political activism and emancipation in a way
that they consider postmodernism does not. The three critical theorists make it abundantly clear that their goal is not only to interpret social life but *to transform it as well.* Any theory of liberation presumes a notion of subjectivity that allows for some agency, some choice and some freedom. How can we effect change in the world, they ask, if radical thought and activism collapse? The term empowerment, as Lather (1991) explains in *Getting Smart,* is not used to signify individual self-assertion, upward mobility and the psychological experience of feeling powerful, but rather, it is understood in Gramscian terms of counter-hegemony, as analysing the causes of powerlessness, recognising systemic oppressive forces, and acting both individually and collectively to change the conditions of our lives. Benhabib, Fraser, Cornell and Lather in her early work argue that postmodernism profoundly challenges the politics of emancipation, because is apolitical, or politically conservative. The ‘dialogue’ between critical theorists and postmodernists/poststructuralists slides towards analysing which part of the spectrum between Left and Right they may be considered to occupy. Susanne Gannon and Bronwyn Davies (2007) reify Beck’s idea expressed in his theory of second modernity that the old political landmarks should be revisited, when they say that “no theory can be purely “left” or “right” or any other category” (p. 92).

Seyla Benhabib (1992) argues that both feminism and postmodernism are profoundly critical of the principles and meta-narratives of Western Enlightenment and modernity. Where she departs from postmodernism is in the latter’s claim that the end of meta-narratives or “the death of Man, History and Metaphysics” (p. 210) allow only one set of normative options. Benhabib argues that this position renders the whole feminist project as a struggling social movement incoherent. For her, utopian thinking is both a
moral and a practical imperative, without which hope and radical transformation are not thinkable. She is aware of the fact that any utopia might become subject of criticism as being prescriptive and freedom-limiting in the way any meta-narrative is; to this she answers:

What scares the opponents of utopia, like Lyotard for example, is that in the name of such future utopia the present in its multiple ambiguity, plurality and contradiction will be reduced to a flat grand narrative. I share some of Lyotard’s concerns insofar as utopian thinking becomes an excuse either for the crassest instrumentalism in the present – the end justifies the means – or to the extent that the coming utopia exempts the undemocratic and authoritarian practices of the present from critique. Yet we cannot deal with these political concerns by rejecting the ethical impulse of utopia but only by articulating the normative principles of democratic action and organisation in the present. Will the postmodernists join us in this task or will they be content with singing the swan-song of normative thinking in general? (p. 229).

In *Moral Images of Freedom: a future for Critical Theory*, Cornell (2008) confesses that at the heart of the book is the argument that there can be no end of history, no death of the subject, and that the future is always open to the re-imagining and re-envisioning of great ideals. The book is part of a series called *New Critical Theory*, which aims to reinvigorate early critical theory (Adorno, Marcuse, Benjamin) from post-colonial and post-patriarchal vantage points. New Critical Theory represents theoretical and activist concerns about class, gender, and race, seeking to learn from, as well as nourish social liberation movements (Huntington & Beck Matuštíc on the inside cover of Cornell, 2008). Cornell, unafraid of being accused of normative thinking, brings again into the discussion the issues of ethics and of freedom. She starts the analysis of ethics from the work of Kant, and she also draws from his ideas about the limits of theoretical knowledge and of reason. Cornell, like Kant, departs from the three great questions of philosophy:
What can I know? What am I to do? and What can I hope for? (p. 4). While the book constitutes more a dialogue with philosophers such as Heidegger, Husserl and Cassirer, as well as with black existential philosophy, I take from it that Cornell appeals to us to reconsider how we understand the political actualisation of freedom, as well as an appeal to our ‘redemptive imagination’. In an utterly non-postmodern fashion, she declares herself an incorrigible optimist and socialist:

I am today, still a socialist. I write “still” because we have all encountered many commentaries on the supposed death of socialism. Over and over again throughout the 1990s we heard that the dream of a redeemed humanity, one that finally realises the truth of its freedom in democratic control over the means of life and death, had itself died. There is an obvious irony here in what it means to condemn a dream to death. After all, isn’t a dream exactly what cannot be killed off because it does not have actual existence? The death of a dream, at least on the part of those determined to put it to death, clearly has an implicit, if not explicit, agenda to marginalise those who still identify themselves as socialists and dreamers (p. 137).

Contributing to the same project of redeeming the social and the cultural left and justice Fraser (1997) claims in her book *Justice Interruptus: Critical Reflections on the “Postsocialist” Condition* that the key to building a credible vision of an alternative to the present order is to overcome the false oppositions to ‘post-socialist’ commonsense. Fraser attempts a conceptual framework for the notion of gender equity and then she builds two models of social welfare: the *Universal Breadwinner* and the *Caregiver Parity*. The Universal Breadwinner model aims to foster gender equity by promoting women’s employment. The centerpiece of this model is the state provision of employment-enabling services such as day care. The Caregiver Parity aims to promote gender equity chiefly by supporting informal care-work; the centerpiece of this model is the state provision of “caregiver allowances” (p. 43). She then goes on to compare the
two on a number of strengths and weaknesses. The project is theoretical; Fraser does not want to imply that either a model or the other would find applicability in the future; in fact, she makes it clear that in her opinion the future will perhaps bring a combination of the two; hopefully, this combination will retain the best features in both, while ejecting the worst ones. She calls this possible model the *Universal Caregiver*. However, the whole project is useful, as it produces a set of evaluating standards for the notion of gender equity, as well as a better understanding of how gender equity relates to the world of work. This is why I employ her *gender equity concept* and her *social welfare models* in my study.

In what some call (including Fraser) the postindustrial society, whereas others call late capitalism, the gender order that descends from the post-war era in the West is now disappearing. This gender order has been based on the ideal of the family wage. People were supposed to be organised into male-headed nuclear families (heterosexual), and the male to be the principal breadwinner. The wife was supposed to be either supported by her husband or to be employed in a part-time job. As Beck (1994) aptly describes the arrangement:

> **Even the empirical-operational definition of the class concept makes use of the family income, that is, the income of the ‘head of household’, an inclusive word, but one that clearly bears masculine features in practice. That means that women’s labour participation either does not ‘register’ at all in class analysis or is ‘averaged away’. Turned the other way around, anyone who takes male income and female income separately as the basis must draw the image of a split social structure, which can never be put back together again into a single image. These are only examples of how the industrial society categories of life situations and life conduct presume one another in a certain way (p. 13-14).**
Although countless lives never fit into the pattern, it still provided a normative picture. In Eastern Europe the normative picture was different in a major respect. People were also supposed to be organised into heterosexual nuclear families, model that was called, employing an organic metaphor, the basic cell of society. Not only were they supposed to live like that, but, at least in Romania, the state actively encouraged family life through its policies. However, both partners were supposed to be breadwinners and the implicit assumption that the male would be the main provider was not favoured and was discouraged by the official ideological discourse, which stressed the aim for gender equality in income distribution. Although, as we have seen in the previous chapters, in practice gender equality had not been achieved, and labour segregation had undermined income equality, women did participate in their vast majority in full-time employment. Today, according to Fraser, the family-wage assumption is no longer tenable in the West (in Romania, the two breadwinners model, moreover, the nuclear family model also start to crumble, mainly from two reasons: lack of housing and work migration). Thanks in part to the feminist and gay-and-lesbian movements, “many people no longer prefer the male breadwinner/female homemaker model” (Fraser, 1997, p. 42). As a result, a new world of economic production and social reproduction is emerging, a world of more diverse families and less stable employment. According to Beck (1994), previous arrangements are being replaced not by a void, but rather by a new type of conducting and arranging life, no longer obligatory and ‘embedded’ in traditional models, but based on welfare state regulations, which is part of the individualisation process (p. 14). Fraser is looking into new forms of welfare state to better suit the new realities, and to provide the framework for gender equity.
**The complex conceptualisation of gender equity**

Feminists have treated gender equity in two ways: either as equality, or as difference. Equality means treating women in the same way as men, whereas difference means treating women differently insofar as they differ from men. The proponents of difference have successfully demonstrated that treating women equally is disadvantaging women and is imposing a masculine standard on everyone. Egalitarians have argued that, by treating women differently, we reinforce the essentialist notions of femininity, thereby reinforcing existing stereotypes and justifying existing labour divisions. Many feminists have retreated from this dilemma into poststructuralism/postmodernism. Fraser (1997) argues that none of the feminist responses thus far are satisfactory. She contends that we need a vision of where we are trying to go, and a set of standards for evaluating various proposals. In order to resolve the above dilemma, Fraser unpacks the idea of gender equity as a compound of seven distinct normative principles.

1. *The Antipoverty Principle* – should be satisfied in ways that will respect the other principles as well. For example, targeted, isolating or stigmatising poor relief to single-mother families fail to respect all of the necessary principles.

2. *The Antiexploitation Principle* – needy women are usually liable to exploitation and are holding less bargaining power. Fraser posits that at least three kinds of exploitable dependencies should be prevented: on an individual family member, on employees and supervisors, and on the personal whims of the state officials.

3. *The Income-Equality Principle* – feminists have shown that in US, women’s earnings are approx. 70% of men’s, and many women suffer from ‘hidden poverty’ due to unequal distribution of income within families. This principle
entails equal pay for equal work and rules out the under-evaluation of women’s labour and skills.

4. *The Leisure-Time-Equality Principle* – women suffer disproportionately from ‘time poverty’. Welfare arrangements that would equalise incomes while requiring a double shift of work from women but only a single shift from men are ruled out. It also rules out arrangements in which women will waste their time having to ‘patch’ income from several minor sources.

5. *The Equality-of-Respect Principle* – this principle rules out those arrangements that objectify and deprecate women, by representing them as sexual objects, or in any other way.

6. *The Anti-marginalisation Principle* – social policy should promote women’s full participation on a par with men in all areas of social life – in work, politics, in the organisations of civil society. This principle requires the dismantling of woman-hostile political environments, and of masculinist work cultures.

7. *The Anti-androcentrism Principle* – social policy should not require women to become like men, or to fit in institutions designed for men, in order to enjoy comparable levels of well-being. Policy should strive to reconfigure androcentric institutions so as to welcome both genders. This last principle asks for de-centering masculinist norms, thus it entails changing men as well as changing women.

Fraser makes it abundantly clear that this model should be considered in conjunction with other factors that differentiate women (race, ethnicity, class, etc.), and that she does not intend in any way to treat women as one homogenous mass. The gender equity model is
further employed to construct two future scenarios. First, the Universal Breadwinner model, entails promoting women’s employment and self support through wage earning. In this model, women are citizen-workers. This model requires reforming the workplace to remove sexual discrimination and sexual harassment, sexist stereotypes, social services such as day-care and elder-care, and, of course, available jobs. It also entails that care-work will shift to the market and to the state, as well as a tier of social welfare for those that cannot participate in the workforce. The Caregiver Parity model aims to promote gender equity mainly by supporting informal care-work. Thus, women with significant domestic responsibilities would be enabled to support themselves and their families either through care-work alone or in combination to part-time employment. Childbearing, childrearing, and informal domestic labour are to be elevated to formal paid labour. This model may allow people to alternate periods of full employment with periods of care-work.

Both models present us with difficult trade-offs. Fraser posits that the plausible approaches are: a) to make women more like men are now; b) to make women’s differences costless; and c) to induce men to become more like women are now, mainly people who do primary care-work. She calls this last vision *Universal Caregiver*. Of course, for this model to work society and institutions should be restructured to enable both men and women to do both types of work. Fraser (1997) cites the Swedish Ministry of Labour as stating that: “To make it possible for both men and women to combine parenthood and gainful employment, a new view of the male role and a radical change in the organisation of working life are required” (p. 62).
Chapter 7 – Designing and conducting the study

Feminist methodology

In her introduction to *Feminism and Methodology*, Sarah Harding (1987) asks if there is such a thing as feminist methodology. After analysing the feminist contributions to the practice of research, she refutes the idea of a distinctive feminist method of inquiry, but calls attention to the interrelatedness of epistemology, theory, methodology and method. Therefore, she claims that a study is feminist insofar as it is informed by feminist theories. Sharlene Nagy Hesse-Biber and Deborah Piatelli (2007) aptly explain that:

Methodology can be thought of as a bridge between epistemology and method, shaping how we approach and conduct research. Whether one’s epistemology is rooted in empiricism, standpoint, postmodernism, or postcolonial critique, a feminist methodology challenges status quo forms of research by linking theory and method in a synergistic relationship that brings epistemology, methodology, and method into dynamic interaction across the research process (p. 143).

According to Shulamit Reinharz (1992) feminist research focuses on analyzing and understanding gender within the context of lived experiences, is committed to social change, and is committed to challenging thinking about researchers’ subjectivity.

At the centre of my epistemological, theoretical and methodological framework stands the feminist contribution to the renaissance of critical theory. In order to do justice to feminism, I must acknowledge how other streams of feminism contribute ideas and concepts.

In her introduction to the *Feminist Studies – Critical Studies*, Teresa de Laurentis (1986) considers the nature of the feminist critical framework. She finds the answer in Catharine MacKinnon’s (1982) contention that the “critical method” of feminism consists
in the practice of self-consciousness (p. 535). According to de Laurentis, consciousness
of self, as well as class or race consciousness is a particular configuration of subjectivity,
or subjective limits, produced at the intersection of meaning with experience. We produce
different forms of consciousness grounded in our personal history, which we interpret
and reconstruct within the horizon of meanings and knowledge available to us in our
culture at given historical moments, a horizon that, according to her, includes modes of
political commitment and struggle. Therefore, consciousness is never fixed, never
attained once and for all, because discursive boundaries change with historical
conditions, view shared by critical theory and postmodernism. In this perspective, the
feminist concept of identity becomes a political-personal strategy of resistance, which is
at the same time a critical practice and a mode of knowledge:

Identity is not the goal but rather the point of departure of the
process of self-consciousness, a process by which one begins to
know that and how the personal is political, that and how the
subject is specifically and materially en-gendered in its social
conditions and possibilities of existence (de Laurentis, 1986, p. 9).

Therefore, feminist critical theorists treat feminism as a political-theoretical project
aimed at resisting patriarchy and androcentric thinking and structures that continue to
oppress women socially and psychologically, as well as other forms of oppression, such
as class and race. This study is with, about and for women, and is committed to the
central idea that captures the essence of critical feminist research: social justice. For me
the feminist project resembles a chorus rather than a cacophony. The dotted line
expresses the difficulty of setting solid boundaries between streams of feminism and the
cross-fertilisation and sharing of ideas and values (see Fig. 9, p. 175).
As the intersection of meaning with experience is the locus of self-consciousness, the primary source of data for feminist critical theorists consists mainly in the diverse lives and personal narratives of women (Bloom, 1998). According to Leslie Bloom (1998), this is one of the four characteristics that distinguish the feminist tradition from other forms of inquiry. Another characteristic is placing gender, or the social construction of gender as an essential category of inquiry. The third feature is that feminist inquiry must answer questions women have about their lives. A fourth concept in feminist methodology is that the researcher may engage in critical self-reflection. Bloom asserts that, “by disclosing and analysing her identity and values, the researcher asserts both that what she knows cannot be separated from who she is and that her warrants for making knowledge claims are subjectively situated and historically contextual” (Bloom, 1998, p. 148).
First Modernity/Second Modernity

**FEMINIST EMPIRICISM**
- Experience as valuable source of knowledge
- Centrality of context (contextual empiricism)
- The undetermination principle

**FEMINIST CRITICAL THEORY**
(S.Benhabib, D.Cornell, N.Fraser)
- Gender equity
- Focus on ethics and community
- Agency
- Redemptive imagination
- Emancipatory agenda
- Return to utopia

**STANDPOINT FEMINISM**
- Conceptual practices of power
- Context of discovery
- Critique of scientific objectivity
- Knowledge/power
- State masculinism
- Liberatory research

**POSTMODERN FEMINISM**
- Language as constitutive to the social world
- Micro-practices of power
- Deconstructing binaries
- Making new theoretical connections

**TRANSNATIONAL FEMINIST SOCIOLOGY**
- Gendered geographies of power
- International binaries

**Experience as legitimate source of inquiry**

The study employs a qualitative research framework, which aims at understanding social reality and cultural meaning, and focuses on interactive processes and events, rather than measuring objective facts and variables (Neuman, 2002). As we have seen, feminist scholars have long argued that conventional science operates within a paradigm.
that is male dominated (Smith, 1990; Harding, 1991; Hartsock, 1983a; Haraway, 2000; Reinharz, 1992). My research, in a truly feminist tradition, privileges *lived experience*. I acknowledge that experience is relational and mediated and that all knowledge claims must be interrogated. I also acknowledge that I am the principal instrument of research and I will employ my own subjectivity in analyzing the data, while maintaining rigour through a sense of responsibility. Ethnographers posit that the researcher may maintain a sense of responsibility by constantly reflecting upon, examining critically and exploring analytically the nature of the research process and of personal bias. This process of constant reflection is called reflexivity (Anderson, 1989; Fonow & Cook, 1991; Denzin, 1997; Pillow & Mayo, 2007). According to Gary Anderson (1989), reflexivity consists of a dialectical process embedding the researcher’s constructs, the research data, the researcher’s ideological biases, and the structural and historical forces that shaped the social construction under study. Later in the chapter I will revisit reflexivity as strategy to maintain a sense of responsibility in a note on my subjectivity.

The challenge in doing qualitative research is to resist the creation of a singular representation or account of reality, with pretensions of authenticity. Rather, qualitative research allows multiple readings of the same reality to surface (Cheek, 1996.). Willem Vanderburg (2004) contends that:

> To nurture a free and open society, it is essential to respect a diversity of vantage points. Collegial and respectful dialogue between members of society having different vantage points is essential for creating a growing awareness of the limitations of our own vantage point in terms of what it may overlook, diminish, or exaggerate (p. 5).

The choices of what and how we contextualise and interpret a particular situation reflect our commitments and priorities. Unlike a quantitative approach, which would
isolate specific variables within the context of the study to seek correlations and relationships, and test for causality, to verify some hypotheses, my design focuses on a holistic view, via documents and interviews. Jean McNiff (1993) makes the point that much of our professional life and personal life is based on tacit, intuitive knowledge, and that the way to help one make her personal knowledge explicit is through engaging in a dialectic of question and answer. Qualitative approaches to research are “multi-method in focus, involving an interpretative, naturalistic approach to subject matter” (Denzin & Lincoln, 1994, p. 2). These approaches emphasise inductive, subjective, constructive and generative processes (Goetz & LeCompte, 1984). According to Miles and Huberman (1984) “epistemological purity does not get the job done” (p. 21). Qualitative research is supported by and dependent upon a line of thought that is oriented towards meaning, context, interpretation, understanding and reflexivity (Knoblauch, Flick & Maeder, 2005). In *Interpretation and Social Criticism*, Michael Walzer (1987) contends that:

> It is better to tell stories – better even though there is no definitive and best story, better even though there is no last story that, once told, would leave all future storytellers without employment. I understand that this indeterminacy prompts, not without reason, a certain philosophical apprehension. And from this there follows the whole elaborate apparatus of detachment and objectivity, whose purpose is not to facilitate criticism but to guarantee its correctness. The truth is that there is no guarantee, any more that there is a guarantor. Nor is there a society, waiting to be discovered or invented, that would not require our critical stories (p. 65-66).

Walter Benjamin analyzed the quality of experience in modernity in two essays, *The Storyteller* and *Some Motifs on Baudelaire* (Gilloch, 2002). In them, Benjamin articulates the difference between the knowledge of experience elicited through information – *Erlebnis* – and the experience that draws and develops meaning from remembering, and the passing on, or communicating of experience over time – *Erfarung*. Thus *Erfarung*
is coherent, communicable experience, which may become fragmented and replaced by a plethora of disparate, discontinuous impressions based on information (*Erlebnis*). The telling of stories elicits the coherent, communicable experience, by engaging the audience in an active contemplation of the world.

The result is both the work of the storyteller and that of the listener/observer. The notion of the observer as the recipient of that which is disclosed fascinated Benjamin. For him, truth is contingent and transient, and it is not pursued and grasped by an intentional subject, but unfolded from within under the patient critical gaze of the observer. Like memory, truth appears unbidden and the moment of such recognition is also transient; like the artwork, the past perceptible and legible only fleetingly (Gilloch, 2002). Renée Heberle (2006) approaches experience as ethically relevant, as truth-telling in itself. Our experience is not transparent to us, but always subject to interpretation; thus experiential cognition is itself an interpretive process. That experience is also subject to interpretation and will take on a life beyond the intention, will, or control of the teller as she moves on, and the world moves on, should not be thought about with dismay or resignation.

Feminist theory remains critical because it is situationally grounded and contextual (Heberle, 2006).

**Critical feminist ethnography**

Ethnography adopts a complex orientation towards culture (Foley & Valenzuela, 2005). The objective of ethnography is to come to a deeper understanding of how people in particular contexts experience their social and cultural worlds (Alexander, 2005). Critical methodological approaches align themselves with the epistemological tradition of situating research in its social context, to consider how knowledge is shaped by the
values of human agents and communities. These methods are also concerned with regimes of power. Critical ethnographers favour the idea of democratizing relationships and of changing institutions. A critical approach in ethnography questions the traditional separation of theory and method, favouring the concept of praxis, as well as the separation of categories subjective and objective, interpretation and data. Critical ethnography treats these categories as interconnected, informing each other and making mutual contributions to knowledge (Anderson, 1989; Denzin & Lincoln, 2005).

Culture – in the context of my research within institutions of higher education – is treated by cultural ethnographers as heterogeneous, conflictual, negotiated, and evolving, as opposed to unified, cohesive, fixed and static. Also, as critical ethnographer, I explicitly assume that cultures are positioned unequally in power relations; and that most ethnographic cultural critiques study ruling groups (Foley & Valenzuela, 2005). Being positioned to account for how women participants think, or avoid thinking, about gender relations, is a goal of feminist critical ethnography.

Because of its experiential nature, ethnographic knowledge is necessarily tied to particular contexts and time periods. Thus, I acknowledge that my inquiry has delimited boundaries and an evolving nature. I also recognise my descriptions are influenced by my own bias, my own identities, and my own commitment to research that promotes a more equitable society.

**Feminist interviewing**

Interviews have become central to contemporary life and governance – the way we apply for jobs, for social assistance, talk to the media, and so on. Gubrium & Holstein (2002) suggest that we are living in an interview society. A culture that is merely lived
out is not always open to critical reflection for insiders (Foley & Valenzuela, 2005).

Interviewing has the quality of ‘going to the people’ (Taylor & Bogdan, 1998).

According to DeVault and Gross (2007), “this definitional task is especially important for
scholars who wish to claim a distinctiveness for feminist interview methodology” (p. 174).

Feminist theory insists that feminist research tradition bring forth the previously untold stories of marginalised peoples, particularly women. My research departs from this tradition in the sense that I follow stories of women that are deemed by some authors (García de León, 1993; O’Connor, 2008) as elites. However, as I have argued before, universities need to be sites of gender/social change, and the women inside need to tell their stories too.

An ongoing concern when conducting feminist interviewing is to establish research relationships that are trusting, and, if possible, non-hierarchical and non-exploitative. Ann Oakley (1981) contends that, although it is not always possible to establish a long lasting friendship with the person interviewed, it is possible to be perceived as a “friendly stranger” (p. 34). Thus, Oakley challenges the prevailing rules of distanced objectivity on the grounds that they contradict the principles of feminism. Rather than objectifying women informants as sources of information, feminists should see the interview as an encounter between women with common interests, who would share knowledge. Dorothy Smith (1987) developed the idea of the researcher as one who discovers lines of fault in women’s experiences because their activities and perspectives are tied both with a mundane world of the everyday and with a more ideologically structured realms, in which those everyday concerns are relatively invisible. Gesa Kirsh (1999) lists a number of feminist actions which the researcher can follow:
- ask research questions which acknowledge and validate women's experiences;
- collaborate with participants as much as possible so that growth and learning can be mutually beneficial, interactive, and cooperative;
- analyze how social, historical, and cultural factors shape the research site as well as participants' goals, values and experiences;
- analyze how the researchers' identity, experience, training, and theoretical framework shape the research agenda, data analysis, and findings;
- correct andocentric norms by calling into question what has been considered 'normal' and what has been regarded as 'deviant';
- take responsibility for the representation of others in research reports by assessing probable and actual effects on different audiences; and
- acknowledge the limitations of and contradictions inherent in research data, as well as alternative interpretations of that data.

My interviews were designed with these actions in mind. Thus, the questions were meant to acknowledge and to validate women's professional experiences and to challenge androcentric norms. The study also analyses how social, historical and cultural factors shape these experiences. On a later note on my subjectivity, I take responsibility for the representation of informants in the report.

Interviewing can be a powerful research tool for any researcher interested in exploring women's experiences, because it involves relatively direct exchanges of views and perspectives among researchers, participants and readers. Of course, these exchanges are mediated by language, and if one employs a Derridean approach to deconstructing a text, the limits for analysis become a matter of subjectivity for the researcher, as bona fide deconstruction cannot end, or better said, cannot arrive at ultimate conclusions. I found interviewing to be a powerful research tool not only for the discussion per se but
also for the physical encounter with women participants and with their daily professional environment, which brought a wealth of information that would have been almost impossible to transmit otherwise.

**Research questions**

My research begins with the assumption that it is vital that Romanian society effectively utilize the talent, experience and expertise of women, especially today, when the country is experiencing so many challenges and transformations. The practice of full and equitable partnership of women and men is in itself a significant reform in gender roles, and, as we have seen in the introductory chapters, it is yet to be achieved at a societal level. To the extent that this partnership is underdeveloped, so is the ability of society to address other critical areas of reform.

My research assumes that education in general, and universities in particular, have a special formative and exemplary role to play in fully engaging talented women in all aspects of academic life. I see institutions of higher education as morally obliged to become frontrunners in the social quest towards gender equity. I also see them as better equipped institutionally to adopt policies that will lead to a more equitable climate, because they enjoy an important degree of autonomy. But what do we know about the role gender plays in higher education in Romania today? Of course, this cannot possibly be the question of a single research study; rather, it guides the large sphere where my inquiry is inscribed, a sphere where much future research is needed. The lack of research in education, sociology, psychology and women’s studies in Romania constitutes both a powerful gap and a strong incentive for future work.
In previous chapters I explained that Romania is committed to implementing post-Bologna European educational policies. This research assumes that it is not possible to design a reform of higher education in a simplistic way, meaning only through the creation/adoption of policies and procedures. An entire reform process should be not only learned, assimilated, understood, and customized, but it should be absorbed, digested and accepted.

Perhaps no other field of higher education is more connected with the economic and with the democratic aspirations of Romanian society today than the field of information technologies and computer science/engineering (IT & CS/CE). The high social visibility these fields enjoy is coupled with a rather widespread view that they constitute masculine domains of human intellectual work and creativity. My study aims to help begin to fill the gap between existing and more equitable conditions.

**Primary research question**

The research explores the personal realities of seven Romanian women academics working in the fields of CS, CE and IT, to interpret and illuminate their assumptions, actions and subjective experiences, in an attempt to record their individual account of what it means to be a woman academic in Romania in a technical field and what it meant in the past. Such accounts shed more light on the changing construction of individual and gender group identities within higher education in general and within the field of CS, CE & IT in particular.

**Analytical research questions**

1. How gendered are the fields of CS, CE & IT perceived to be within academia, and in society in general?
2. How did the women come to embrace a career in these fields?
3. How do they balance professional and personal life?
4. What are their feelings vis-à-vis the Bologna process?
5. What are the top difficulties they experience in their professional life and what role does gender play? Do they feel marginalized by their male colleagues?
6. Do they acknowledge or recognise large gender disparities in their student populations?
7. Do they feel gender constitutes a barrier for upward academic mobility?
8. What would attract a woman to embrace an academic career in IT & CS today?
9. What are the mechanisms used by their institution to help women academics succeed?
10. Do they feel the need to organise based on gender? Do they feel the need for better policies?

**Site and participant selection**

As we have seen in Chapter Four, in Romania the oldest, largest, and most prestigious HEIs, which serve the largest numbers of students, are found in four cities: the capital city of Bucharest, Iasi (the oldest university, and the capital of the province of Moldova), Cluj (the cultural capital of Transylvania) and Timisoara (the most economically active city after Bucharest, in the western part of Transylvania, near the Serbian and to the Hungarian borders, and also relatively close to Budapest and Belgrade). We have seen also that in these university centres each comprehensive university has a technical and a medical counterpart. Traditionally (although here the ‘tradition’ is not so long), comprehensive universities prepared secondary education and
high-school teachers in various disciplines including mathematics. Informatics courses, as everywhere else, started to be offered in the mathematics faculties. These courses focused on computational algorithms and on programming. Because education in Romania experienced a strong feminisation effect, in comprehensive universities training teachers women became more numerous than men in the student population. One of the unexpected effects of this was that more women than men were being trained in mathematics and in computer programming. Polytechnic Institutes were mainly training engineers for industry. Here computer sciences grew in the departments of electronics and telecommunications. Therefore, in polytechnic universities computer science resembled what we call today computer engineering, focusing on hardware design. Of course, one cannot study computer engineering without being prepared in programming as well; thus, in polytechnics graduates used to have a more rounded computer science education, and programmes offered by polytechnics were more prestigious. However, within the Romanian HE system, there was, conceptually, a ‘division of labour’ between universities and polytechnics: universities trained programmers, polytechnics trained computer engineers. This is not to say, of course, that a polytechnic student did not have a choice of embracing either path. There were people graduating from polytechnics that went to work as programmers, although a graduate from a comprehensive university could not work as computer engineer due to the gap in his or her training (i.e., the programme in polytechnics was one or two years longer). As a result, in computer programming traditionally there were more women and in computer engineering more men. Thus, programming took on a more ‘feminine’ aura, and computer engineering a more ‘masculine’ one.
There is not a single reason for these gendered phenomena, of course. Again we should look for the root causes in the gender stereotypes at play in society. These phenomena also led to the actual gender composition of the academic staff, where one finds more women teaching programming in universities and more men in hardware.

I chose to look for one participant from the comprehensive and one from the polytechnic university in each of the four major university centres, except Babes-Bolyai University. I took this decision after visiting universities websites and becoming aware of the scarcity of women teaching such courses.

All my contacts were ‘cold calls’ in that I did not know any of the people contacted before sending my invitation to participate to the study. I initially contacted 13 women academics from technical universities and 8 from comprehensive universities. The difference in favour of technical universities comes from the fact that the Faculty of Mathematics and Informatics of Babes-Bolyai University employs 15 women faculty (from a total of 29 academics) in the Programming Languages department and 9 women (from a total of 26 people) in the Computer Systems department. Here, at doctoral level, it seems that the above observations apply: in the programming languages department, all doctoral students are women, with one exception; in the computer systems department, all doctoral students are men.

My criterion was to build a sample that would include lectors, readers and professors. As I designed the study from afar, I had to rely on the contact information from university websites. Some departments do not offer email contact for all of their academics and some email addresses proved outdated. I requested participation via email. From the 21 people contacted, only 11 responded. From these 11, three withdrew from
the study for various reasons. Therefore, I planned an interview with eight participants from seven universities. However, as an old Romanian proverb says, “the calculus at home does not match the calculus in the market” and, due to a minor bus accident, I had to reschedule three interviews. One of my participants-to-be withdrew at the last moment. The most common reason for refusal/withdrawal was lack of time.

**Data analysis – Noticing, Collecting, and Making sense**

Feminist analysis focuses on the interpretation of the content (interviews, documents) and on its juxtaposition in the larger socio-political context. Qualitative research works up from the data. Feminist critical ethnographers see meaning as mediated and situated and, as a result, pay attention both to content and to the process of meaning-making. In other words, data analysis consists in analysing not only the content, but also includes the assumptions brought to the study by the researcher. Reinharz (1992) suggests that the researcher should also pay attention not only to what was said, but also to what is missing. The researcher should identify lacunae, missing topics, and should try to understand the implications of these gaps. Therefore, data analysis is a study both of texts that exist and of absent texts. Critical ethnographic analysis relies on the tensions between the emic (insider) and etic (outsider) perspectives (Anderson, 1989). My outsider (etic) perspective offers me interpretative angles that are not available to the insiders.

**Early data analysis**

According to Pillow and Mayo (2007) “analysing data cannot be separated from data collection and writing” (p. 165). David Silverman (2005) contends that the
researcher should analyse the data already found in the public sphere before even starting to collect her own data. From the moment my research topic took shape, I paid attention to everything in the media related to my topic. I read and amassed a number of articles, such as “Tough year ahead for the IT industry, warns OECD” (OECD, 2008), “Where are the university students of the past?” (Athanasiu, 2008), “2006 brought $8 Million in ITC” (Market Watch, 2007), or “Four students placed Romania on the first place on the Balcanic Olympics in Informatics” (MER, the Press Bureau, 2008), “Romanian women are paid less than Romanian men” (Cimpoeru & Botezatu, 2006), or “Observations about the progress of the higher education law” (Radu, 2008). While none of these articles constitutes a source of data, paying attention to the media provided a great element of comparison with the set of data constituted by my interviews and by carefully selected documents from academic sources. Thus, I noticed no great discrepancy between what the media claimed and what my participants told me. In fact, I noticed a great deal of consensus between my research participants, scholarly articles and the media. I also used direct observation to corroborate some findings. For example, I questioned my research participants around large gender differentials in the number of students (since, as noted above, Romanian universities do not make this data available). To do this, I visited the buildings that host computer departments and I observed the lists of students posted in the hallways to communicate exam results. While not perfect, this method still offers reliable information, as very few students chose not to attend examinations. Seeing the lists, I could convince myself that approximately half were men and half were women in Informatics and that some 2/3 were men in computer engineering departments.
According to Silverman (2005), the preparation of a transcript from an audio recording is a “theoretically saturated activity […] sorting out what you are seeing and hearing is never just about collating data – it is data analysis”. Therefore, the analysis of my interviews began with transcribing the audio recording.

**Developing data analysis**

My main process of data analysis consisted in reading the transcripts over and over, noticing ideas in the text, collecting those ideas into themes, and making sense of the emerging patterns. The process is simple to describe, not to perform. For me data analysis proved to be an emergent process. While some of the categories came as no surprise, as they were related to the questions I asked, other themes and categories emerged with what seemed to me to be little or no connection to the questions. Examples of emergent categories include the issues of sacrifice, brain-drain, and multiple employment. My process of data analysis was also iterative because the cycle or reading and coding tends to repeat. It was recursive as well because one part referred to an earlier finding. The best label for my data analysis process is narrative analysis or what some call conversation analysis (CA) and the one I choose to use (Reisman, 1993). CA is defined as a method for “investigating the structure and process of social interaction between humans. As their empirical materials, CA studies use video and/or audio recordings made from naturally occurring interactions” (Peräkylä, 2005, p. 875). In CA, talk is understood first and foremost as a vehicle for human action (Schegloff, 1991). There are two forms of narrative analysis, top-down and bottom-up. In the top-down approach the researcher starts with a set of rules and principles. I employed the bottom-up
approach, in which the researcher derives context-dependent cognitive units to produce an infrastructure that generates and explains a story (Manning & Cullum-Swan, 1998).

Coding began with the first reading of the transcripts. After the first coding, I checked if the categories are internally homogenous and externally heterogeneous. Internally homogenous means that everything in one category holds together in some meaningful way, and externally heterogeneous means that the differences between categories are clear (Patton, 2002). After re-reading and revising of codes, I built the following category system:

1. **Attractors** (what attracted them to the profession)

2. **Under-representation** (men outnumber women)
   a. *Participation* of women in academia in CS, CE & IT
      i. Between 1965-1990
      ii. From 1990 – 2007
   b. *Participation* of women in CS, CE & IT in the world of work

3. **Masculinity** of CS, CE & IT
   a. Perceptions
   b. Social conditioning
   c. Stereotyping and determinism

4. **Influence of gender**
   a. Gender bias in academy
   b. Gender bias in the world of work
   c. Advancement/glass ceiling
   d. Affirmative action
5. **Balancing work and family**
   a. Priority
   b. Sacrifice
   c. Flexibility
   d. Mobility
   e. Support

6. **Under-financing**
   a. Working conditions
   b. Multiple employment
   c. Work in academy as hobby
   d. Brain drain

7. **Market influence**
   a. Number of students
   b. Admission standards
   c. Collaboration with the industry

8. **Influence of the Bologna process**

While I find it hard at times to fit into these categories, I think that my classification system is mutually exclusive, exhaustive and meaningful. After coding it became clear to me that these topics fit naturally under two overarching themes: 1) what it means to be a woman in academia teaching and doing research in CS, CE & IT and 2) what it means to be an academic in a second world country. Therefore I grouped the themes into two chapters.
The philosopher Charles Taylor (1988) distinguishes between meaning and its expression, which can embrace a multitude of forms. According to him, meaning is for a subject, it is not for a situation in vacuum. Also, meaning is for something (text, situation, action, etc.); there is no such thing as un-attached meaning. It is also in a field, which is to say that is in relation with other meanings. Therefore meanings are interrelated and cannot be considered independently. Meaning is also of something (attached to an object or an idea). For communication to occur, the speaker and the listener must agree on being ‘on the same page’; i.e. to attribute the same meaning to the signifiers used for communication (words for speech and text). Taylor calls the meanings common to a society intersubjective meaning. Intersubjective meanings are constitutive of social reality, determining and determined by that society. Thus, meaning has a contractual character, negotiated among members of a society. Negotiation is a continuous process, with society and language continuously evolving at once. As subjects of communication, we are engulfed in it and are in intimate relationship with the discursive logic which informs the metaphors by means of which we make sense of the world. Therefore, the most important part of the data analysis process – the meaning-making – is not my task alone, but is shared with the reader.

Evaluation of the study

A note on researcher's subjectivity

Reporting critical ethnographic studies, as Reinharz (1992) argues, calls for thinking about researcher subjectivity, and therefore for greater reflexivity on the part of the researcher. Feminists have claimed that writing and choosing how to tell the stories of our research are political acts as well as places of responsibility (Pillow & Mayo, 2007).
Nelson, Treichler and Grossberg (1992) contend that the qualitative researcher may be described as a *bricoleur* who chooses which research tools to use, and which research practices to employ. The choice of research practices depends upon the questions being asked, and the questions depend on the research topic. According to Nelson, Treichler & Grossberg (1992), research questions depend also and on what is available in the context and what the researcher can do in that setting. As researcher, I chose the research topic, the context, the questions asked, and the research tools (theory, method and analysis).

Denzin and Lincoln (1998) posit that:

> Three interconnected, generic activities define the qualitative research process. They go by a variety of different labels, including theory, method and analysis, and ontology, epistemology and methodology. Behind these terms stands the personal biography of the gendered researcher, who speaks from a particular class, racial, cultural, and ethnic community perspective (p. 23).

Therefore, the issue of my subjectivity must be acknowledged. I admit and acknowledge that I bring into analysis a series of impressions I developed about the higher education system in Romania based on observations of the material base (telling about the financial situation of various institutions), of announcement boards (displaying the results from the last exams, or offering job placements for students, etc.), of student life and accommodations. I also bring into analysis my first-hand experience of it as a student.

Laurel Richardson (1997) contends that “whoever writes for/about/of whatever is using authority and privilege” and that there is “no resolution to the problem of speaking for others” (p. 58). One way feminist ethnographers approach the issue of representation, authority and power is reflexivity. I have tried to pay attention to the ways my own subjectivity and biography may impinge on the research process. To control and
compensate for such bias, when I had doubts about an opinion based on my knowledge and on my data, I tried to find that opinion expressed with clarity and authority by other reliable sources.

**Validity, Reliability, Generalizability and Transferability**

In qualitative research, objectivity is not attainable; research is always undertaken from a particular perspective or standpoint. Carol Harris (2004) contends, in a recent participatory study, that “political bias had to be not only recognized, but built into our research approach” (p. 206). In qualitative research, the lack of objectivity is not seen as leading to a lack of validity. Peter Park (1993) asserts that “the presumption that knowledge that is not objective is not valid and therefore not worthwhile stems from the epistemological prejudice of positivism, which narrowly equates valid knowledge with what natural sciences produce” (p. 16). Human sciences are hermeneutical, are sciences of interpretation. They attempt to make clear, to bring coherence to a text; this presumes the existence of the reader - for whom the text is coherent or make sense. Hence, the validity of the interpretation is continuously negotiated with the reader and it is ultimately making appeal to a *common understanding* of the language and of the expression, as well as of the logic of the argument presented.

As strategies for validating data I looked for discrepancies in the interviews collected and I verified different data sources to see if they bring the same findings (triangulation). The main data sources I used for verification are: statistical databases, various reports used to present numerical and statistical data, official documents released by the Romanian Ministry of Education and Research (MER) (laws and ordinances), the official documents related to the Bologna process (the Bologna Declaration and the
subsequent Communiqués). Other sources were the press releases from the MER’s website, the blog dedicated to discussing the draft of a new law for higher education in Romania, other blogs and websites dedicated to higher education in Romania, such as Ad Astra, Edugate, the Institute for Educational Sciences (ISE), the websites of national agencies for higher education (quality assurance, qualifications, partnerships). Important sources of data were CEPES, the OECD, the European Commission, NIS and the National Authority for Scientific Research (NASR), Eurostat. Reports that proved especially useful are the ENWISE Report 2003, the Human Development Report 2007/2008, the reports of the Helsinki Group on Women and Science (especially the She Figures Report 2006) and the ETAN report (2000).

Reliability is the extent to which a research process will generate the same results regardless of how, when and where the research is carried out (Holloway, 1977). It must be seen in the general context of validity of research findings. Dependability is an alternative word for reliability; research is dependable when persons external to the research can remake the path of the researcher and draw the same conclusions. Other alternative terms in use in qualitative research are “credibility” and “trustworthiness” (Golafshani, 2003, p. 600). This is difficult to achieve, because I am the main instrument of research. However, despite its finitude, historicity and positive exploitation of researcher’s subjectivity, the knowledge gained by human sciences becomes believable because of its coherence, insight and instrumental utility. The strategy I employed to attain reliability is what Clive Seale (1999) calls the application of low-inference descriptors. According to Seale and to David Silverman (2005), detailed data presentations that make minimal inferences are always preferable to researcher’s
presentation of their own, high-inference, summaries of their data. Low-inference descriptors involve: “recording observations in terms that are as concrete as possible, including verbatim accounts of what people say, […] rather than researcher’s reconstructions of the general sense of what a person said” (Seale, 1999, p. 148). Following this guideline, my research reports sometimes include long, verbatim speech acts.

*Generalizability* (external validity) is defined as the degree to which findings can be taken from the study sample and applied to an entire population. Qualitative studies are not generalizable in the proper sense of the word. The specificity and uniqueness of the personal accounts of research participants prevent generalizability as it is understood in a narrow sense. Yet, due to the specific context presented by Romania, I argue that there is a high degree of probability that the professional biographies of women in CS, CE & IT who are now working in higher education and graduated their first degree before 1990 present numerous similarities. This is because a) they represent a very small pool of people who share a common or similar professional area of interest and b) secondary and HE in Romania before 1990 were highly uniform; all programmes were identical in terms of length, curriculum and practicum assignments, and in all other requirements. The high degree of similarity between universities is still a characteristic of the Romanian HE. Understanding context is important for intelligibility and comprehension. “The significance of context for interpretation and understanding, and the inevitability of reflexivity for all sense-making offer ethnography an additional resource for its authority” (Altheide & Johnson, 1998, p. 307). The interpretive agency of the reader is a built-in assumption in feminist ethnography (Pillow & Mayo, 2007). My
research persuades by reason, but it is ultimately the reader’s judgement that will assign or not external validity to the findings. According to Eisner (1997) “in qualitative research there is no statistical test of significance to determine if results ‘count’; in the end, what counts is a matter of judgment” (p. 39).

Transferability - meaning that findings in one context can be transferred to similar situations and/or participants (Holloway, 1977) - is a better alternative for generalizability. Thus this report aims to show how the context of research is similar to other contexts. In this case, it is the reader who finds resonance between the described personal accounts and her own situation. A second way of achieving transferability is to link the insights from the research study to existing theory. Thomas Greenfield (1979) contends that:

The logic of the researcher’s analysis can have no force in the everyday world unless it conforms to the logic that people use in everyday situations. Unless there is a close match between the world as researchers construct it and the world as the people perceive it and act in it, the researcher’s efforts to establish social truths will be a self-contained and ultimately, self-deluding pastime (p. 170).

A common feature shared by many studies dedicated to women in STEM is that they are less interested in developing grounded theory as in influencing the policy process. Although there is no grand theory about women in STEM, I found numerous similarities in the realities presented, the ideas, the opinions and the findings of existing research.

Feminist critical ethnography is not valuable only insofar as it may be considered valid or dependable, but also values the social usefulness of the research, and the ways it addresses issues of social justice, gender equity and human development.
Ethical considerations

Research involving people is premised on a fundamental moral commitment to advancing human welfare, knowledge and understanding, and to examine cultural dynamics. The cardinal principle of modern research ethics is respect for human dignity. This principle aspires to protect the multiple and interdependent interests of the person, including psychological and cultural integrity (Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS), 1998, 2005). The need to protect the interests of research participants requires special consideration in qualitative research that makes use of discussions between the researcher and the research participant as the principal instrument of data collection. The Tri-Council statement requires the researcher to respect the following ethical principles:

- respect for human dignity
- respect for free and informed consent
- respect for vulnerable persons
- respect for privacy and confidentiality
- respect for justice and inclusiveness
- balancing harms and benefits
- minimizing harm
- maximising benefit (pp. i.5 – i.6).

In accordance with these principles, I informed my participants about the title, nature and scope of my research in the moment I solicited their voluntary participation; I also let them know that I was eager to answer any concern or question they might have had. In addition, I started the meeting by presenting the research once more and by handing them
a Participant Consent Form (see Appendix 6, p. 367). Together, I and the participant went over the form, me explaining anything that was not clear. The single issue that raised questions surrounded the notion of gender, in the sense that several participants wondered what would be the best translation for the term. Romanian language does not contain a similar word, or better say, it does contain, only that its use is restricted to grammar. They had a good understanding of the English term, and all of them are fluent in English.

Also, when designing my study, I strived to embrace an approach consonant with the above ethics principles and values by adopting code names and pseudonyms during analysis and reporting. This was stated in the invitation letter, in the Participant Consent Form, and I also reiterated it at the beginning of our conversations. Thus, in order to protect my participant’s anonymity, I will not make use of their real name at any time. Moreover, because I made clear in the research report which universities are included in my study, I will not make use of the real names of universities in conjunction with pseudonyms. This extra level of protection may seem exaggerated. I argue that, given the fact that my research is concerned with a very limited pool of people, it becomes rather easy for the knowledgeable reader to figure out the identity of my participants, if they know the institution they belong to. Thus, I will refer to the universities either as technical, or as comprehensive. The names chosen as pseudonyms are English names, for making the report more readable to an English-speaking audience, and for reminding the reader that these are not my participant’s real names, but pseudonyms.
Chapter 8 - Being a woman academic in computer science

This chapter introduces participants and outlines four of the six major themes that emerged from the in-depth interviews with the seven women academics in computer science, computer engineering and information technologies (CS, CE & IT) in Romania. The focus of this chapter is the position of women within the CS, CE & IT fields in Romanian academia today, while women’s position as academics in CS, CE & IT in the Romanian second world economy constitutes the focus of Chapter 9.

Profile of participants

I sketch below a profile of my research participants. Age refers to 2007, when the interviews were conducted.

Agnes is a Lecturer (Assistant Professor) in the department (cathedra) of Optimisation and Artificial Intelligence in the Faculty of Informatics, within a comprehensive university. She is 43, single, and has no children. Her specialty is numerical analysis and systems theory and she teaches these courses. She obtained her PhD from the same university in the Faculty of Mathematics.

Dorothy is a Professor in the department of Informatics within the Faculty of Mathematics and Informatics at a comprehensive university. She is the chair of her department. Also 43 and recently divorced, Dorothy has one daughter that now studies English in the same university. Her interests and research areas encompass parallel and distributed calculus, grid and cluster architectures, numerical models, mathematical software and computer graphics. She teaches parallel calculus, computer graphics and distributed systems. Dorothy is the director of a research institute and the recipient of an
European award for women in science. She obtained her PhD in numerical analysis from her present teaching university’s Faculty of Mathematics.

**Edith** is a Reader (Associate Professor) (*conferențiar*) in the department of Computers, within the Faculty of Automatics and Computers, in a technical university. Her PhD, from the same university, is on signal processing; she teaches discrete mathematics and computer programming. Edith is 45, single, and without children. She used to work in research before embarking on an academic teaching career.

**Faye**, 41, also has no children. Faye married recently, after completing her PhD. She works as Reader in the department of Informatics within the Faculty of Mathematics and Informatics at a comprehensive university. Faye’s PhD is in Mathematics from her present teaching university. Her teaching and research specialty is Artificial Intelligence. She teaches computer programming and computational linguistics.

**Ingrid**, a Senior Lecturer (Assistant Professor) in the department of Computer Science at the Faculty of Automation and Computer Science in a technical university, holds a PhD in Informatics from another, comprehensive university located in the same city. Ingrid teaches computer programming, computer graphics and graphical processing systems. She is 37, married, and has two children.

**Linda**, 45, is married and has no children. She works as Professor in the department of Automatics and Applied Informatics in the Faculty of Automatics and Computers in a technical university. She received her PhD in medical informatics from the same university. Now her research interest is in computer applications in medicine (medical informatics). Linda also used to work in a Research Institute after graduation. A few years later she started to keep some courses in parallel with her job in the research
institute; she then chose the academic teaching career. Now she teaches computer
programming and informatics applications in medicine.

Pamela, an Associate Professor (Reader) in the department of Computer Science
at the Faculty of Automation and Computer Science in a technical university, is 53,
moved, and has one child. Pamela’s teaching and research interests include image
processing, high performance computing, parallel systems and computerised graphics.
She graduated from the comprehensive university in the same city. She holds a PhD in
Mathematics.

Attractors to an academic profession in CS, CE & IT

As we have learned from reviewing the literature, there is a global body of work
that deplores women’s under-representation in SET/STEM professions. While Eastern
Europe is treated as a ‘special case’, here too women constitute less than half the
population in certain professions, and the vast majority in others. A question that became
salient during the review of literature dedicated to women in STEM is: what are the
factors that would attract a woman to these fields? One of my analytical questions asked
how participants came to embrace a profession in computer science – an open-ended
question that generated almost the same response from each: passion for mathematics and
for computers. The three most important attractors to an academic career in CS, CE & IT
that became salient from my interviews are inclination for mathematics, passion for the
fields of mathematics, or physics and/or computing, and family tradition.

Pamela’s account of how she arrived at the decision to pursue an academic career
in IT is symptomatic of her generation. During her secondary education, Pamela was an
outstanding student in all disciplines, but she has been particularly attracted by the most
intellectually challenging subject matters, namely biology, mathematics and literature. In her words, “I never hesitated from attacking the most difficult and demanding matters”. Mathematics, though, won the competition for her passion early by grade 5, as later did computers, although Pamela has remained interested in literature: “Thus, initially, I was good at math. It was my passion for mathematics. But not necessarily; I am very talented in literature as well.” Several important factors shaped Pamela’s interests and options. Her mother was a math teacher and she would have loved to see Pamela following in her steps. Pamela joined a mathematics circle on grade 7. From there, she was only one step away from computers, due to a favourable environment specific to her city that can be traced to the work of an outstanding Romanian mathematician, Tiberiu Popovici. Being a member of the Academy and a distinguished professor of mathematics at a prestigious university, and being surrounded by a strong mathematics team, Professor Popovici was instrumental in the creation of a local branch of a research institute named the Institute of Calculus Technology (ICT) in 1957. This research institute had been a spin-off from the Academy’s Institute of Mathematics. The branch of the ICT institute in Pamela’s city had been fairly active in the nascent Romanian computer science; in 1959, a first computer with electromechanical relays called MARICA (the acronym stands for the arithmetic machine of the Academy’s Calculus Institute) was built. Between 1959 and 1963, ICT had built a computer named DACICC 1, the second in the country. A few years later, ICT produced a second generation of DACICC (-200) for another research institute – the Central Agricultural Research Institute (Draganescu, 2001), followed by subsequent generations. The ICT institute created a special circle for gifted children, one of whom was Pamela.
As she discovered her passion for mathematics and computers, Pamela decided to try admission in one of the special classes organised in her city for gifted high-school students. There were only three such classes, one for each fundamental science. Being part of the special mathematics class in her geographical region, Pamela continued to enjoy the opportunity to work with the ICT. She also benefited from special class hours taught by researchers and professors from ICT. She remembers the time of her high-school with evident pleasure: “thus, everything had been done with pleasure, with passion” and she recalls having enough time for studying literature as well. Pamela links the activity of ICT, which was structured on a software lab and on a hardware lab, on the model of the large US corporations such as IBM to the political opening to the West I described in Chapter 2 and in Chapter 4. The passion for IT nurtured by being co-opted in real work that was pioneering in Romania at the time (late 1960s, early 1970s) and which had tangible results and direct practical applicability made Pamela’s decision process for her future career easy. Another influential factor was that she encountered scientists who served as role models. She recalls being present at the launch of a book on IT written by the wife of Acad. Popovici as an important moment that cemented her decision to pursue a research career in IT.

Passion for mathematics and a nurturing family environment, where parents either acted as role models or encouraged their talent and preoccupations were the dominant factors in all the other cases. Ingrid says: “I went to Informatics because I like it. My mother worked in Informatics. Well, at that time there were 2-3 languages, less evolved.” Agnes recollects her decision process:
This is what I wanted to do since I was little; I have only mathematicians and physicists and chemists in my family, and no, I was never fond of something else […]. But for me this was easy: math and informatics – I liked them. I don’t think I would have done something else. Maybe I would have done something different, but technical nevertheless.

Linda considers her high-school years decisive for her career decision, when she developed a passion for physics, nurtured by “very good math and physics teachers”. After graduating from university, Linda started to teach invited by her former professors, while she was working in a research institute in the same city, having close ties with the university. She accepted the task because her former professors were overworked; however, she liked teaching and gradually moved into teaching and to the university. Like Linda and Pamela, Edith also started her career in research. After graduating, Edith worked for two years in an IT state firm that offered IT services to other state companies; then she worked for some 13 years in a research institute for seismic engineering. After being hit by a devastating earthquake in 1977, Romania started to pay more serious attention to seismic research. Edith worked with the electronic signals collected from structures tested to earthquakes. As research institutes in Romania became extremely under-funded after 1990, and salaries became ridiculously low, like many of her colleagues Edith left research for teaching.

Dorothy’s option for informatics was somehow precipitous, in the sense that she decided right before undertaking the admission exams, without knowing very well how she would going to like working with computers. However, she had a ‘taste’ of what it involves working in IT during a visit at the working place of an aunt. While she visited
the working place of her aunt, she felt impressed by the place and by the work: “I thought there was something fascinating in how those tapes were turning, and the perforators, and stuff like this, it seemed something special”. Speaking about turning tapes and card punchers, Dorothy makes us think at how dynamic CS, CE and IT are and how much has been changed in the last three decades. Faye is highlighting this idea of professional evolution and the intrinsic necessity in these fields to keep up with continuous changes:

I graduated this university in 1984. It was called the Faculty of Mathematics. Today it is called the Faculty of Mathematics and Informatics, but only for two or three years now. When I graduated, there was no Informatics cathedra. Majority of the Informatics disciplines now taught at the time did not exist. My own discipline – Artificial Intelligence – when I was student and I attended this university, I haven’t heard of it, not to mention that I had no course in it whatsoever. I haven’t even heard of it. It is a newer discipline, which developed very much during the 1980s in US. Well, it started in the 1950s, but during the 1980s has developed substantially.

Although not mentioned as a decisive factor to embrace a career in IT, almost all my research participants told me that for being an academic, one should also like to teach. While all of them confess passion for CS/IT, feelings vis-à-vis teaching varies from being passionate about it (Pamela) to not like it very much (Dorothy). Dorothy confesses that she likes teaching graduate students and doing research better than the undergraduate teaching load. Being the head of her department and of a research institute she now has the opportunity to focus on the type of work she likes the most.
The issue of under-representation

We have seen in Chapter Five that women’s under-representation in CS, CE & IT is a major theme in the literature. My study finds that in Romanian universities, women teaching CS, CE & IT are also outnumbered by men. Imbalance in numbers is to be found in all generations, since the beginnings of CS in Romania, although it displays a tendency to decrease.

We may place the beginnings of CS in Romania in 1957, when Victor Toma of the Atomics Physics Institute in Bucharest created the first Romanian computer (the work started in 1953), called CIFA 1. The second Romanian computer was ready in 1962 in Timisoara, and called MECIPT 1 and the third, in Cluj in 1963, was called DACICC 1. The next ‘generation’, MECIPT 2 and DACICC 200, included transistors. In universities, the first generation with the specialty ‘electronic computers’ graduated in 1966 (Baltac, 2008).

Presence of women in Romanian academia in CS, CE & IT

In Romanian academia, as everywhere else, computer science and informatics are the off-springs of mathematics and of electronic engineering departments. In fact, in Romania, academic departments with the specialty CS, CE or IT were created only after 1990 and there is only one faculty in the country dedicated to informatics. As we can see from table 5 (p. 218), CS, CE & IT disciplines are included in the faculties of either mathematics, or automation and electronics. Because disciplines such as mathematics, physics and electronics play an important part in the curriculum, it is very difficult to find out how many women were teaching ‘core’ computer science courses such as programming or computer architecture, and how many were teaching only courses such
as mathematics and physics. We cannot draw a clear border between mathematics and computer science. Four out of seven participants have their PhD in Mathematics. Edith, although an engineer, teaches mathematics too. Therefore, when speaking about the past, we have to keep in mind that there is little or no distinction between mathematics and informatics/computer science.

Presence of women academics in CS, CE & IT in Romanian universities before 1990

My participants remember that among their teachers, there were not many women, and those who were, were teaching mostly mathematics. Questioned about her women teachers, Linda remembers: “now that I think of it, I realise that in fact I did not have [women professors]. I had at mathematics; at mathematics, at physics…otherwise, no”. Some of my research participants remember having women teachers at core CS, CE & IT disciplines such as programming. “During my student years there were indeed more men than women teaching. I had only few women professors, very good, but only few, including at informatics. Now I think the proportion of women is much larger” (Dorothy). Edith makes an interesting point about the visibility of women’s contribution to the field: ”My programming teacher, Mss. P, who is departed now, was a pioneer in introducing computer programming in our technical university, and nobody denies she was the first to teach a programming course, but this fact is hardly accepted.”

Recollecting her student years (‘73-‘78), Pamela states that, among the older generation of academics “the ratio is quite dramatic against women”.

Despite my best efforts, I was unable to locate any statistical data on the number of academic staff teaching CS, CE & IT courses in Romania between 1966 and 1990. Also, it is highly improbable to find data segregated on gender, as the ‘woman’s problem’
was considered resolved by the socialist revolution. But the discussions I had with my study participants reveal one point of agreement: all participants are of the opinion that, during their student years at various levels, roughly covering two decades, from 1970 to 1990, there were more men than women academics in CS, CE & IT. I also found extremely difficult to find women academics teaching CS, CE & IT courses that are now in their late 50s or 60s.

Presence of women academics in CS, CE & IT in Romanian universities after 1990

According to my research participants, the year 1990 represents an inflexion point in CS, CE & IT in Romania, because computer science started to take shape as a distinct discipline in earnest and because the number of places offered in universities in these disciplines increased. My study reveals that the number of women teaching and doing research into these fields in universities has increased during the next 15 years, especially in software engineering (informatics). Despite the increase, overall men academics outnumber women academics teaching and doing research in CS, CE & IT fields of study in a proportion of approximately 7 to 3 (see Table 5, p. 210). As a rule of thumb, in polytechnics (technical universities), which offer CE programmes, the proportion of women academics is smaller than in comprehensive universities, which offer software engineering programmes. The number and the distribution of women academics today support the views expressed by my research participants above. In polytechnics, there are roughly between 3 and 4 times more men academics than women. Comprehensive universities present a more diverse picture: here there are Informatics departments were there are slightly more women than men, and Informatics departments were women represent less than 20% from the total (see Table 5).
Table 5: Number of academics in selected computer science departments in Romanian universities, on gender, 2007

<table>
<thead>
<tr>
<th>University</th>
<th>University of Bucharest</th>
<th>Technical University Cluj</th>
<th>Alexandru Ioan Cuza University Iasi</th>
<th>Timisoara Technical University</th>
<th>Gheorghe Asachi University Iasi</th>
<th>West University Timisoara</th>
<th>Total (including Lab assistants and Doctoral students)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic rank</td>
<td>Faculty of Math and Informatics, Informatics department</td>
<td>Faculty of Automation and CS, CS department</td>
<td>Faculty of Informatics</td>
<td>Faculty of Automation and CS, Automation and Applied Informatics</td>
<td>Faculty of Automation and CS, CS department</td>
<td>Faculty of Math &amp; Informatics Informatics department</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Professor</td>
<td>4</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Associate Professor/Reader</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lecturer</td>
<td>1</td>
<td>2</td>
<td>15</td>
<td>9</td>
<td>8</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>1</td>
<td>4</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Total academics</td>
<td>7</td>
<td>9</td>
<td>41</td>
<td>19</td>
<td>21</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>Lab/Teaching assistant /Doctoral student</td>
<td>1</td>
<td>1</td>
<td>31</td>
<td>9</td>
<td>11</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Percentage (without Lab assist./PhD students)</td>
<td>43.75%</td>
<td>56.25%</td>
<td>68.33%</td>
<td>31.66%</td>
<td>80.76%</td>
<td>19.24%</td>
<td>79.48%</td>
</tr>
</tbody>
</table>

Pamela states: “Now, from what I see, the structure contains more young people, for example in the Informatics department, from whom I can say that half are women and half are men”. Pamela’s estimate is correct: in the Informatics department she refers to, within the Faculty of Mathematics in the comprehensive university she graduated, there are now a total of 15 women and 14 men at all academic ranks. In the CS cathedra where she now works, in a polytechnic university, the ratio is 30 men and 13 women.

Presence of women students in CS, CE & IT in Romanian universities

In terms of women students, the situation is not as clear-cut as in the case of women academics. Here we have to differentiate between software engineering
(informatics) and computer engineering (hardware). According to my findings, visible
gender segregation has been manifest between the two directions of study: women tend to
prefer software engineering, while men tend to embrace computer engineering specialty
in larger numbers. In the absence of numbers for the whole time period, it is difficult to
place in time the beginning of this tendency. Until 1990 computer engineering was
offered in polytechnic universities in a department called Automation & Computing
(AC). Today CE is offered in technical universities under different names (computer
science, computer engineering, applied computer science, AC). Edith and Linda are AC
graduates and they have different recollections about the gender ratio in their AC
departments. Linda recalls that “there were always fewer girls in this area [computer
engineering]. Even when I undertook the admission exams there were two groups of girls
and three groups of boys. And the ratio has rested somehow the same”. Edith, on the
other hand, recalls that in her generation women were preponderant: “Before 1989 I
graduated computers, hence AC, and we were 80 students, and from 80 students, 20 were
boys. Now the percentage is reversed”. Regardless, they agree on the fact that now there
are less women students in CE than men. Ingrid’s experience as a teacher confirms this
view: “yes, girls orient themselves more on the informatics side”. In software engineering
the numbers of women tend to equal the numbers of men. Dorothy states that “here at the
[comprehensive] university, until one-two years ago the numbers of students were half-
half: half women, half men”. Faye has the same perception about the ratio men/women
among her students:

Although it is a masculine medium, we have very many girl students, and, I do
not know for sure, but I believe in the last years we have more girls students than
boys. Thus there are very many girls students. But they aren’t preoccupied after graduation to learn and to pursue an academic career (Faye).

As Faye points out, large numbers of women students in CS, CE & IT is not necessarily a guarantee for women’s numerical participation at par with men in academia.

**Presence of women in CS, CE & IT in the world of work**

All women interviewed agree that their fields of specialty attract more students than other technical specialties, which is seen as a mixed blessing. Dorothy attributes the current high popularity to the fact that a university degree in CS, CE & IT constitutes almost a guarantee of employment, and to the fact that it is a pleasant occupation. She explains:

There is a very large demand for graduates in Informatics, at least here in the West [of the country], and the majority, 90%+ of graduates are hired, regardless of gender. Those that stay outside this percentage do so out of their choice. Thus there are few percentages of students who do not intend to work in the field, or have better prospects.

Faye attributes the attraction for professions in CS, CE & IT to talent, although she acknowledges the material factor.

Data in table 3 (p. 120) shows that in R&D in science and technology, in 2003 and 2004 women constituted approx. 45% of the total number of employees, and in 2005, women represented approx. 47%. In CS, CE & IT overall in the world of work women represent around 40% of the workforce (see Table 6, p. 213). However, in STEM/SET professions requiring a university degree, women tend to equal men numerically.

Traditionally in the last 30 years, women’s presence in STEM/SET was larger than
Trauth’s (2007) critical mass of 30%. According to the Romanian Statistical Yearbook 2008, 51.84% of specialists with intellectual and scientific careers were women. Therefore we may say that in CS, CE & IT women are under-represented.

**Table 6: Percentages of women in selected fields in science and technology (S&T)**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>% women</th>
<th>Occupation</th>
<th>% women</th>
<th>Occupation</th>
<th>% women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicists, mathematicians, and engineers (including scientific research)</td>
<td>32.91%</td>
<td>Specialists in informatics</td>
<td>38.89%</td>
<td>University Professors, readers, lectors, assistant professors</td>
<td>44.61%</td>
</tr>
<tr>
<td>Researchers in physics and chemistry</td>
<td>54.25%</td>
<td>Researchers and assistant researchers in informatics</td>
<td>41.17%</td>
<td>Researchers and assistant researchers in technical sciences</td>
<td>38.43%</td>
</tr>
</tbody>
</table>

Pamela considers that the difference in numbers is mainly attributable to three causes. The first is an economic context unfavourable to engineering, due to the collapse of entire industries, as we have seen in Chapter 3. Edith also speaks about a context unfavourable to engineering after 1990. The second is that after 1990 Romanians were presented with professional options in social sciences and humanities inexistent before, such as the profession of social worker, which now ‘compete’ with engineering. The third cause is that:

Women, especially in today’s context, are not feeling as responsible like in, let’s say, the ‘70s, to bring their material contribution to the family. In the ‘70s, of course, that this thing with the equality of responsibility was much clearer. Everyone, regardless if was boy or girl, regarded this matter in the same way (Pamela).
Pamela sees these changes are attributable to the economic context and will be reversed by economic recovery: “It is an episode and we have to understand it as such. Now progress has been made and it will change again”. Faye shares the same opinion and attributes the fact that in IT there are fewer women than men to the nature of the field: “Everywhere in the world you will encounter more men than women [in IT]. Thus, I do not connect this fact with the traits of Romanian society, but with the profession and with the domain in itself.”

The masculine image of CS, CE & IT

Faye’s remark opens up another theme emergent from the analysis: the ‘aura’ of masculinity surrounding CS, CE & IT. The first of the analytical research questions probes the relationship between images of computer science/engineering and images of masculinity.

Perceptions of women academics

My study reveals no consensus among research participants about the issue of masculinity. The majority of women agree that in society at large the technical sphere in general and CS, CE & IT in particular are professional domains considered more appropriate for men than for women. In fact, Edith agrees but she also remarks that gender segregation in the world of work led also to the ‘feminisation’ of entire industries, such as textile engineering and food processing. Agnes is convinced that CS is perceived in general in society as a masculine domain, but she also believes that “in the last time women have started to make inroads into it.”
Faye does not agree that technology in general has an aura of masculinity in the Romanian society at large but believes that globally, things are different: “IT is still a masculine domain.” She is also of the opinion that her particular domain – Artificial Intelligence – is clearly dominated by men or what she calls “an eminently masculine domain.” Faye contends: “I believe so. I believe yes. I believe it is so precisely because the majority of academics and of researchers are men. And then, automatically, a majority gives the tone in everything.” She considers this perception to be detrimental to women entering the field, and hard and timely to overcome. As long as women constitute a minority, this view will persist. Many of the women suggested that it was up to women to change the masculine image surrounding IT, by participating in larger numbers. For example Edith argued that gendering various occupations was a process that happened at the level of individual consciousness rather that at collective, societal level. Yet they shied away from recommending other women to follow in their footsteps: “Now, I do not encourage anyone to embrace my life style and do what I have done and to renounce what I have renounced, because not everyone obtains satisfaction from the same thing, or equal satisfaction. Hence, I abstain from advice” (Faye). One of the key reasons given for not recommending this field to women was because it was what Faye called “a man’s milieu, even slightly misogynist.”

Dorothy pondered the issue of CS, CE & IT masculinity in terms of women’s participation. Therefore, she is of the opinion that we should make a distinction between software and hardware, the latter being perceived as masculine and the former not any longer. Questioned if the mentality that the field is masculine is manifest, Dorothy answers:
Depends on what we refer to; thus, if you would have been perhaps to the polytechnic and you would have asked the same question, perhaps that the answer would have been yes, it is considered a masculine occupation. But here at the university, there are half women, half men.

Linda is the single participant who did not link women’s numerical under-representation with the perceived masculinity of the field. Although she acknowledged that men traditionally outnumber women in CE, she did not draw a relation of causality between numbers and people’s perceptions about it. Perhaps nothing illustrates better the interplay of masculinity and under-representation in academia as Dorothy’s recollection:

And at one of the conferences – it was in Poland – it happened some time ago, at a conference on parallelism, which is a domain I am interested in and in which there aren’t many women...I was in a room with some 40 persons, and the speaker said: “Dear Lady and Gentlemen” [laugh], and I didn’t realise [laugh]. Then I saw that in fact I was the single woman. And all heads turned to me, I started to feel so embarrassed…. [laugh].

**Social conditioning**

As I further questioned Edith on her views about gendering IT, linking it back to the above comment about individual consciousness versus societal influences, Edith spoke about the maternal role in perpetuating gender stereotypes: “it is my continuous wonder as to why mothers of boys who suffered in their time from, let’s say limitations or barriers, when they educate their boys they do not educate them to avoid creating barriers for women”. She considers that centuries-old traditional mentalities place in the responsibility of a woman everything that belongs to the domestic sphere: “The woman
must take care of everything; if something is not all right in the family, it is her fault”.

Agnes agrees with this view, that traditional values preceding communism place the
woman ‘naturally’ in the private domain; these values are embraced by some - men and
women alike - therefore they do not depend on gender. She calls them mentalities and
preconceptions and she even speaks, like Faye, of a “certain misogyny of Romanian
society”. As a result, “you get a more severe judgment as a woman” and “there are higher
expectations from women than from men”. Edith also points out that often women create
limitations for themselves. She calls them “self imposed walls” and considers that these
are the most difficult barriers to overcome:

There are some limitations in the minds of women as well. Thus, they consider
themselves inferior. Or, consider that it is not for them. How could I become this,
as this is not a career for a woman? I say that women carry a part of the blame
too.

Speaking about the fact that software engineering attracts more women than
computer engineering, Ingrid is of the opinion that the more hands-on, practical side of
computers is more attractive for men. She attributes this inclination to the way boys and
girls are socialised from early childhood. She does not believe these inclinations are
innate, but rather acquired. Ingrid believes that they do not depend on gender but on the
way children grow up.

Everything that belongs to the practical side is more attractive for boys. They are
accustomed from childhood to assemble and disassemble parts, whereas girls are
inclined more towards analysis, I think also from childhood. It depends on what
preoccupations each have had growing up.
Gender stereotyping and biological determinism

Questioned if she considers IT more appropriate for men than for women, Faye expresses the view that the characteristics that would make one a good candidate for the work in IT – to be very cerebral, very exact, anchored in reality, to love exact sciences – depend on one’s individual nature. She goes further to illustrate her view with men from her family who are representatives of humanistic domains (linguistics, law), and who would be neither able with much success nor willing to embrace IT as a profession. However, Faye does not totally eliminate the possibility that women are innately less inclined towards hard sciences: “Maybe through their nature, I don’t know, women are more romantic, melancholic, further apart from exact sciences”, but she insists on the fact that individuality is the most important factor, which overpowers gender. She also believes that girls are less inclined to cultivate “a certain intelligence and power” due mainly to the fact that it is in the feminine nature to develop more facets of personality and cultivate more interests. Therefore, women tend to be less unidirectional, and as a result, less successful in the world of computing. Asked if she considers that in general men display more talent than women in her domain, Faye contends:

It is hard for me to answer, because we have many good women students and then, of course that being numerous, among them there are enough women students very talented that we notice. I rather believe that boys spend more hours in the night [working], they don’t have interests related to fashion, etc….inherent feminine interests. Hence boys have more time, they are readier to spend it in totality for work and this, combined with a certain intelligence and power – which girls poses too, but I believe girls cultivate it less. A woman, after all, has a larger
area of interests. Regardless if it is good or not, ultimately it is normal to have a larger area of interests, not all related to the profession. Boys that do only this, and eventually soccer, and of course that…[are more successful]. Girls also implicate themselves more in family relations. I think this is part of the feminine nature in general. Not only in Romanian society. I believe that this is the case in the majority of societies. And automatically a woman is busier.

Therefore, Faye suggests that to equal men, women have to work against two traits that she considers characterise women in general: increased dedication of time and energy to family life and a larger palette of preoccupations.

Gender influenced Dorothy’s decision to return from a German university. While working there, she had the opportunity to communicate to other peer German women working in Informatics. At first Dorothy was shocke by meeting so few women: “In Germany, in informatics, there are extremely few; once I rushed to one, I said: German woman in informatics, I am glad to meet you! [laugh]”. In time she realised that the general mentality in society regarding women has to do with the fact that there are so few women: “thus, I have great shocks when I go to Austria or to Germany about how the woman is regarded there”. Moreover, Dorothy developed the feeling that there may be some gender discrimination at work as well: “and not only tight competition; there is also the obstruction of women on such a position [in higher education] and maybe indeed the men are preferred”. Yet, Dorothy does not see any systemic mechanism that would prevent women from advancing in an academic career in her field. She also finds justification for this attitude of preferring men:
Boys are very oriented on a certain direction and if they like something on that direction, you should not take them from it, because they know nothing else. The German system wants exactly this, teachers to be ultra-specialised. What I noticed to their professional training is this: they were very good in a domain, but don’t try to deviate them from their subject, because in the rest they are tabula rasa. Thus, they have the 3 years as the Bologna, but after that they have that system of grouping of people around certain themes of certain teachers, and one specialises with a certain teacher in that domain. There is no anymore the general knowledge that we Romanian are accustomed to acquire…the multidimensional human

[laugh].

Therefore, Dorothy agrees with Faye that women tend to have a larger range of interests, and even professional interests are less convergent. She suggests that this trait, which she also sees as more specific to women, is at odds with the trend to ultra-specialise she encountered in the German university, trend that is borrowed by the Romanian higher education through the Bologna process. In other words, Dorothy tends to assign certain masculinity to ultra-specialisation.

Ingrid tends to reject biological determinist views, which attribute innate technical abilities more to men than to women, because she states “I say that [CE] is appropriate in equal measure for both men and women”. Mock seriously Edith attributes women’s readiness to sacrifice career for family to genetics: “I think it is a genetic characteristics to us [laugh], this spirit of sacrifice, to set aside career to take care of children and of family in general”; however, she laughs, therefore does not seriously accept biological determinist tenets.
From her experience as a teacher, Dorothy notices differences among genders in practical abilities, in favour of men, who are scoring higher on practical tests, and so does Agnes and Pamela. Dorothy is of the opinion that “at polytechnic women have to complete the physics part and the architecture, the hardware, and this is a bit more difficult for girls, I say. But there are also girls, who yes, enjoy it”. Dorothy considers software engineering as being a profession suitable for women because it is not strenuous and because “you cannot say that is an extremely complicated work”. Like Fay, Pamela does not totally reject the thesis that technical domains may appeal more to boys than to girls: “Maybe through their nature, boys are attracted more by technical domains.” However, she acknowledges that this view might also constitute just a preconception, and she makes an important point about the fact that such preconceptions shall not be neglected, as they play an important role in decision-making.

Boys must still go on technical. Through a certain preconception, it is somehow more masculine to orient on technical domains,; not to go on necessarily on domains embraced by many girls, but quite the opposite, to go on domains where there aren’t many girls; thus we have to consider this preconception too, which still exists.

It is quite clear that Pamela refers to the engendering process that starts early in life, which ascertains a certain cultural ‘appropriateness’ for human roles and preoccupations, dividing them in masculine and in feminine. She thus suggests that the existing construction of gender is a force that still acts upon one’s career decision. If career choice depends on gender, performance does not. Elsewhere in the interview, referring to mathematics and IT, Pamela remarks: “performance does not depend on gender”. She
also points out that, while male students tend to score better in practical assignments, female students tend to outperform them in tasks that require one to be patient and meticulous, so that overall male students do not perform better or worse than female students.

My interviews reveal a certain biological determinist view unrelated to gender that circulates even in academic IT circles, and which has been mentioned by several women: that certain nations would be better at math and computer science than others. Thus, Faye states that “It seems that we have a particular talent similar to how we are good at math. But mathematics has a long tradition in this country. Informatics does not have this tradition and that is why it is so impressive that our young people reached so far”. It is not clear if my participants subscribe to it or not, as it is not clear if Faye places the success at math on special talent or on hard work.

Therefore, my study finds that in general women professors are more inclined to reject biological determinist views than to embrace them; however, when questioned about it they exclude no possibility.

My study also reveals that sometimes work collaboration practices draw substance from stereotypical views regarding women in general. One such practice is to assign more clerical tasks to women based on the view that innately women are equipped with more patience than men; therefore women will suffer less in doing tedious and boring tasks. Thus men tend to avoid clerical tasks in the hope that their women colleagues will accept them, and they usually get away with it. Dorothy, for example, agrees to perform these tasks, although she is the head of her department, because she is also of the opinion that girls do display more patience than boys.
**Influence of gender on academic careers in CS, CE & IT**

One of the themes that emerge from all the interviews is that in general women academics in CS, CE & IT have to make extra efforts to prove themselves, to a much larger extent than men. All my research participants agree that the academic environment is a competitive world, which places high demands on everyone. However, there is a common feeling that a woman encounters a greater degree of reticence when she starts her academic career. Another commonality is the idea that it is the woman’s academic individual responsibility to dispel the feelings of reticence she encounters. Failure to do so is considered a personal failure and calls for extra efforts from the woman in cause. Feelings of reticence come more often from the teaching staff than from the students. As the woman teacher earns respect from her peers and from students, her gender starts to pass un-noticed, much as a diminished imperfection, or fault. Yet no woman considers this attitude as a form of gender discrimination. Faye explains the initial attitude she encountered in the following terms:

> It is a problem of respect in the end. If you know to earn respect for yourself in the profession, until the end they will forget that you are a woman. No, I cannot say that I ever felt wronged because I am a woman. It is clear that in the beginning they give you less credit because of it. This is clear. And that they make your psychological situation more difficult.

Linda also speaks about encountering reticence from some colleagues, but she does not attribute them to sexism either. She also considers that it is a woman’s responsibility to overcome eventual preconceptions: “but, if the [judging] person has a clear mind and the woman does what she has to do, the person either will suppress his
preconceptions, or the preconceptions will simply disappear”. None of my research participants considers that gender influences one’s opinions about how work is appreciated and none questions the way standards of good work are established. There is a general consensus about the fact that women should make extra efforts to fit in, if they want to be successful academics, an endeavour which proved attainable. In Faye’s words:

[…] my feeling is that a woman must fight a bit more than a man to prove herself; that does not mean that she cannot do it in the end, and that all her life, or during her entire career, she will feel marginalised. No, no way, at least in our university. I do not know in other places.

When she encounters reticence, Agnes treats it with the same attitude as Faye and Linda: she considers that she should make extra efforts to gain a good opinion and dispel mistrust. She also points out that “of course, being woman, you have to fight more, and fighting is not quite specific to women”, when she speaks about competing for a leadership position.

**Gender bias in the academy vs. the world of work**

One of the analytical research questions explores the issue of gender discrimination within academia. All of my research participants, without exception, are of the opinion that there is no systemic gender discrimination in Romanian universities. Questioned about gender discrimination, all my research participants strongly rejected the idea that there is any form of a gender-based discriminatory mechanism embedded in their institution or in the system of higher education. Therefore, if cases of gender discrimination occur, they are isolated and attributable to individuals. However, all my participants encountered more or less overt forms of gender discrimination during their
careers, which were considered by them as isolated incidents un-characteristic for the system. Most commonly, they embrace the form of reticence, or ‘holding-back’ about women’s professional performance. Gender discrimination embraces more visible forms at higher hierarchical levels. Although they see nothing in the system that raises supplementary barriers to women, they are also of the opinion that, through their nature, usually women are less able to meet the requirements, which are equal for all. The main reason is that women usually have more extra-professional responsibilities. The fact that requirements are equal for all is considered fair.

Asked if forms of gender discrimination are manifest in the academia Edith replies: “There are, there are, but I think they belong to individuals. Thus, even the ex-department chair used to have some…holding back. But I say it is a matter of individuals, not of the system”. She exemplifies with the fact that the neighbouring department hires more women, although it is a CE department, and therefore it attracts more male students. Later in the interview, when she compares the situation in universities with the situation in the world of work, Edith makes the following remark:

Maybe girls, women, will be more attracted [to a career in academia] because in university, unlike in the private companies, I believe discrimination is less visible and maybe more camouflaged, takes different forms - that is, you are not told in your face. I had the experience in Romania, in 1992-1993, to apply for a job and when I went [to the interview], to be told: oh, you are a woman, we do not hire women. I had this experience. Thus, in university, nobody will tell you something like this.
Dorothy has a different view about gender discrimination practices in the world of work, but formed indirectly, through her graduates: “And the same at hiring, none of my women students complained after graduation that she would have had problems for being a woman. If you go to Alcatel or Siemens Timisoara, I think that half are women”. It should be also noticed that in Dorothy’s location there are more jobs in IT than in Edith’s, which may explain the difference in treatment women receive at hiring.

Edith considers that in universities “there aren’t any politics to reject or to place supplementary barriers to women”. Linda does not perceive her gender as being detrimental for her career. She argues that “the impediments that were there, were there for everyone. I have never considered that I have had a different impediment because I have a different sex than my colleagues. I cannot say that I have had such problems”. Then she goes on to add “Well, there are sometimes attitudes of some of my colleagues…but I cannot name them sexist, I would rather say they are reticent. And, of course, sometimes these attitudes are justified […]”. Like Edith, Agnes considers that the system is not conducive to gender discrimination and the atmosphere of respect depends solely on the individuals comprising the collective. She describes the atmosphere in her faculty in the following terms:

Relationships with male colleagues and with women colleagues are different. You cannot say that a woman is like a man. But I never felt…here at least, I never felt any discrimination, neither from male colleagues nor from female colleagues. No. The atmosphere is very good. I would even say encouraging. But encouraged are all the others, as well.
Dorothy rejects the idea of gender discrimination in these words: “I have never felt in any discussion or relationship with no matter who any discrimination”. Asked if being woman constitutes a handicap in obtaining research funding, Faye replies:

I never felt such handicap. But it is true that I always felt my working environment as a man’s milieu, even slightly misogynist. Many times I felt it like this, but I wasn’t disturbed very much by it and perhaps I knew to persevere and to earn a certain respect from my colleagues.

**Ease of advancement**

Analysing if there are any gender related barriers to advancement in the academic career, Ingrid concludes that gender only indirectly plays a role, if it is coupled with family responsibilities. She does not consider that the lack of women in top administrative positions and the fact that only one woman is professor (among nine men professors) in her department is necessarily a reason to conclude that women face supplementary barriers. Ingrid rather considers that the main cause is the imbalance in the number of women academics in the past. As one advances in time, obviously a lack of women among more senior colleagues will lead to a lack of women among more advanced academic ranks. Also, her department is too new to tell: “I do not know yet [if women accumulate on the base and men on top positions], because I don’t know if the department is old enough to tell”.

Faye rejects the idea that gender influences career advancement in her department. Although unconsciously, she makes the distinction between sex and gender, and concludes that what may constitute a disadvantage is not being a woman, but acting like one. In Faye’s opinion, it is in the nature of things for a woman to encounter more
difficulties in corresponding to the high professional standards in IT, because a woman cultivates more interests.

I never suffered from the fact that I am a woman when the problem of advancement was put forth. Now, I cannot generalise, because I don’t know how it is in general in the academic environment. But to us, maybe also because we are an exact science faculty [laugh], I don’t know, to us the atmosphere is pretty sober. There is a standard for advancement, which is extremely hard, but which applies equally to everyone. Through the nature of things, as a woman is more difficult to correspond to the standard, because you have all these additional interests we spoke about. As a woman is more difficult to correspond, but if you do, if you meet the conditions set by the faculty, and which apply to everyone, and then you won’t have any problem. Thus, not the fact that I am a woman may be a handicap. Rather the different life of a woman, the nature of things, in certain moments may drag her down.

Linda agrees with Fay; asked if it is more difficult for a woman than for a man to advance in the university’s hierarchy, Linda argues “only if she, internally, sets to herself different priorities; let’s say, if the family has priority in front of academic career, and this is an option that you can respect. But the environment, I do not believe that …[ it makes it more difficult for a woman]”. Thus, for a woman family life and social life might constitute a deterrent to advancement.

According to my research participants, because the requirements for advancement to the next academic rank are clearly stated in various policies, makes the process less prone to foster forms of gender bias than the process of securing a leadership position.
My study found that in the later case, indirect exclusionary practices such as hidden workloads or stereotyping may hamper women’s upward mobility and that sometimes that are even cases that may be labelled discrimination. Edith clearly makes this distinction between professoriate and academic leadership when she speaks about advancement:

I think there are two issues here. Once, for a leadership position, here indeed I think discrimination takes place, almost openly I would say. Thus, in what’s concerning leadership positions; when we talk about being chairperson, dean, rector. There is a certain holding back, I would say, vis-à-vis women. Thus, if a woman and a man candidate, regardless how good the woman is, in let’s say 90% of cases, because there are exceptions too, the man wins. About the professoriate, there are some criteria that must be met and this depends again on each person and on how tenacious you are to solve your problems.

Like Linda and like Edith where she speaks about “self-imposed walls”, Dorothy considers that nothing in the system raises supplementary barriers to women in higher education. She considers that such barriers, if exist, are self-inflicted, or psychological: “maybe there are self-imposed barriers. There is nothing in the system to prove that there is a restriction based on gender discrimination. Thus, effectively, I think that is a self-imposed thing the fact that you do not try”. Later on, when I came back at this topic, Dorothy said: “There is the psychological barrier mainly; the main barrier. There are no other barriers in my opinion. I cannot see where would be that chain link, here or abroad, where women would be stopped. There is a psychological barrier.” She also makes the
remark that “I do not think that someone would not see with good eyes the advancement of a woman in higher education”.

Agnes considers that women who are seeking leadership nominations “have to fight harder” to prove their worth: “As a woman, if you are more warrior-like and more assertive, then you will encounter proportionally higher barriers, higher than for a man, to be determined what your limits are”. Not only she suggests that being a woman may lead to supplementary barriers in securing leadership positions, but she is categorical that the existing situation advantages men: “Higher education is strongly dominated by men; at least at leadership levels.” She goes further to exemplify with the experiences of former women leaders, who encountered an inhospitable climate. Agnes does not conclude this is necessarily a form of gender discrimination, but rather the perpetuation of a state of affairs, out of convenience:

There had been some ladies [in top administrative positions]. I don’t know, maybe they had been too inflexible, or maybe they hadn’t conformed to men’s views, and then they had been eliminated from the game. I think it is simpler for men to be only among themselves. I don’t know…[laugh]. I think this is the spirit. It is hard for them to accept a woman among them, eventually smarter than them, ‘cause that would cause great distress…[laugh].

The question of affirmative action

It was not my intention to explicitly inquire about what may be described as affirmative action or positive discrimination. I even avoided these words, because my intention was to allow participants to express their own ideas about what measures might be taken to help women academics working in CS, CE and IT, and I did not want to lead
the questions towards well known solutions. Sometimes participants touched on the
subject tangentially; this is an area were future research is much needed.

I asked Agnes if the she agrees with the idea that university as an institution
should promote and practise certain moral values. As this followed a question regarding
gender equality, Agnes assumed I wished to suggest universities employ affirmative
action policies as is clear from her response:

Ahaaa, here I think that, well, it is possible to do something intentionally. I am not
very convinced though that things should be done very much in the open. There
are certain mentalities that must be changed and I don’t know if this attitude
towards conflict, towards self-aggrandisement can help. I don’t know. Here I am
the adept of a rather peaceful, non-warrior-like attitude, let’s say. To change
mentalities takes a long time; it cannot be done overnight. It is an aim that will
take some time and I think it depends a great deal on women to change the turn of
mind of people surrounding them. No, no, I don’t see it as a fight, as a matter of
legislation, or as a programme. These always produce adversities and I don’t
know how well this is. Maybe in a first stage and after a step forward…I don’t
know for sure. But here I think what works best is: you have to do your job,
woman or man, but if you are woman you have to do it as well as possible, to
demonstrate that it is possible, that you are competent in your field. And the more
numerous we will be, maybe the more we’ll be appreciated and accepted.
Therefore I believe more in a silent version [of seeking gender equality] than in a
vocal one.

But then she goes on to add:
The fact that we are many women in the Faculty and I have many young colleagues is proof that women can [teach CS]. Now okay, we have to see...we are many women but we have to advance as well...because when you start to advance, then you encounter more barriers.

When asked the question: Do you think that before the Revolution the equality of chances between men and women was treated more seriously? Or only at theoretical level? Edith distanced herself from the affirmative action policies in the past:

How to answer...similarly to the European Union it is asked that 40% of research projects to be led by women just as in Romania before 1990. It was said that, I don't know exactly but say 30% of leadership positions were to be occupied by women too. It was said not to be about 'equality' of chances but rather, a 'promotion'. I think it was a façade - that 'we' promote women. But this so-called positive discrimination had its negative aspects because it was a must to have let's say 30% of CEOs women. You could not gather 30%, you could gather only 20% women to be good CEOs. And then the other 10% were promoted only because they were women. This was a disservice to women – it was a disaster. And then the world does not remember those who did something good, but remembers those who were pushed into leadership positions. [...] There are differences among women, as among men. Thus it has to be, my opinion is that this positive discrimination should exist, but, as an acquaintance of mine said, with measure. Thus, with measure, because otherwise it will be void of content; and it will lose its credibility; and this doesn't help.
Dorothy also addressed this issue of ‘positive discrimination’ in her circle of collaborators. She wondered if this is what led her to receive a professional award. Was her receiving the award motivated more by propagandistic interests than by her scientific ability:

On the other hand, I had a – let’s say negative – shock when I was in Heidelberg. One of the girls from X. married with a German guy there, and it was clear that she will stay in the area. And they had an opening there. In my opinion, she was not that good compared with her husband. We had a great deal of interaction with him during the PhD thesis and he was much better prepared. The opening was a match for both. She was preferred and he still commutes, because the university had to promote a certain percentage of women. Thus, I would have not accepted a position on the grounds that I am woman. It is exactly the opposite of gender equity. Thus, it is strange. In Austria there are the same problems. And at the Community [European Community], being in a series of committees (I am Romanian expert for an European competitiveness programme and I am in evaluation committees for European projects) there are various sections dedicated to gender. For example the European Commission asks you to describe specifically what actions do you take within the project to promote women. And being woman they usually put me there to evaluate all these actions and …I accept. Yes, it is a generic, standard question, thus I cannot criticize it, but it is not an effective promoting measure either. Thus, many of these things are disturbing. In addition, I don’t know, for example, since I received the award, which was completely unexpected, thus I didn’t even dream to receive it, I wonder…
Faye touched briefly on the matter when she mentioned the communist policy to promote women: “it was a propaganda for women promotion, there were many women bosses, and I think we sled on the other slope, which is not necessarily good”. The first thing we notice is that nobody rejects or accepts categorically the idea of positive discrimination. There is a certain degree of openness towards it, which varies with each participant; however, we may say that overall, they do not entertain much the idea of differential treatment between men and women academics. What they have in common is the idea that promotion must be backed by proven superior competency. They also suggest that, given the complexity of the matter, great care should be exercised in drafting and adopting such policies, because they may end up being at best neutral if not detrimental to women, by raising suspicions about one’s qualifications and abilities. Dorothy’s case is an excellent example: she received a prestigious award for women in science from a German university, for her activity in parallel calculus and numerical analysis. She accepted the award, because an important amount of money for her department was attached to it. However, she has difficulties taking full pride in it, because she wonders if the main reason for the award was her scientific accomplishment or the interest to project a certain image. She even envisioned the possibility that my invitation to participate in a study about women academics in CS might have had something to do with her receiving the award. There is real concern that positive action measures taken to counteract women’s disadvantage may jeopardise professional credibility and collegial trust. Agnes perceives positive discrimination as being too radical; she is afraid that such actions will attract the type of animosities each activist movement attracts. Her ‘strategy’ involves working harder, proving more, building a critical mass; she is optimistic that this ‘silent’
movement will achieve gender equality. Obviously, Agnes considers that, if gender inequities still exist, they stem from some misunderstandings, which can be eliminated by making recourse to reason.

**Balancing the professional and the personal**

When it comes to balancing the two spheres of interest that compete for time slots each woman has her own story. However, all stories share a common denominator: it is one of the most significant challenges facing them.

My study reveals that balancing professional and personal life as an academic teaching and conducting research in CS, CE & IT can be summed up to one word – sacrifice – either from one side or the other. A successful academic career requires extensive dedication to the profession, thus sacrifices from all aspects of extra-professional life. They also speak about the high levels of energy required by the academic profession.

Likewise, motherhood is perceived as sacrificing career. This is particularly true for younger generations of women academics and for lower academic ranks. The difficulties of combining raising children with a successful academic career increased in time, with the development of these fields. Adding to these difficulties, besides the increased complexity and dynamic of the professions, is the lack of childcare facilities and arrangements. All my participants agree that being childless constitutes an important competitive advantage. Many women academics in these fields choose to sacrifice motherhood in order to be able to keep pace with the new developments in CS, CE & IT. Those few that choose to combine the two - career and motherhood – work to their limits. Raising children is a collective effort, which includes the older generation. My research
participants all agree that it is mostly women who will set aside time for children, regardless of the impact this will have on their professions. Men are also parents and they also set aside time for their children, only that they do so after work, whereas women usually juggle with the schedule in order to pick up children from kindergarten, etc.

**Family comes first**

At the moment of the research, only one participant – Ingrid – has young children. She contends that for her motherhood comes first. Other two have one grown-up child each and four do not have children. However, all argue that for them family takes priority over career.

Dorothy is of the opinion that it depends on one’s capacities and abilities to successfully combine both family and work. She believes that it is normal for a woman to “put family first” and therefore to have less time for her work at the university. She also considers that her male colleagues are less likely than her female colleagues to “put family first”. Questioned if she places professional life on the first level of priorities Agnes explains her priorities in these terms: “No, I won’t say that; because if an emergency arises at home…Of course, cooking, cleaning, these are not priorities. But if it is about the health of my folks, this comes first”. For Ingrid, putting family first means sacrificing work at the university: “Right now the sacrifice is towards the professional side. As usual I let everything that concerns strictly me aside, to be able to do the rest”.

**The issue of sacrifice**

Asked what are the chances of a young woman who is now at Master’s or PhD level, who wants to embrace an academic career in her field today and if she would need to make sacrifices, Faye is categorical:
Enormous. In her personal life, as a woman. But if she is ready to make them, if she knows to make them and not to be marked by this and to find satisfactions in her career and in what is related to her career, if she is a person that can find satisfaction in it, then she has sufficient chances, I would say almost equal to the chances of young men.

For Faye there is no doubt that her career demands sacrificing motherhood. She took the decision not to have children because motherhood would have constituted a competitive disadvantage vis-à-vis her male colleagues. She also married late because of the nature of her profession. She explains her decision in definite terms:

I do not have children precisely because this is a very difficult career, very demanding, at very high standards, and this is the cause I married later, after I took my doctorate, and I decided not to have children. Thus, not because I haven’t wanted to, or because I would not like children, or I couldn’t have them. I felt that I cannot do them both well. Thus, not for a moment I thought that I could beneficiate from some form of institutional help for a woman, or that I could use...It is a competition in which I engaged elbow at elbow with my colleagues, who are male in their majority, and if you want to resist, you must be competitive, regardless who you are.

Speaking about the influence her two young children have on her career, Ingrid also makes the point that being a mother constitutes a competitive disadvantage:

I have women colleagues who do not have family, children. They have all the time...Thus, there are younger colleagues, and also colleagues the same age with me and that up to now do not have a family. I don’t know if this is the reason why, but I
see that they stay all the time at school, work all the time. I cannot stay like this. Thus, I work at home, to be with the children. It is not a restriction, that you must stay at school but they are at school all the time, in the office. Me too, if I wouldn’t have this responsibility, I would prefer to stay in the office, where you have only this to do, to sit and read and to work.

Later in the interview, speaking about the influence of gender on advancing in the academic hierarchy, Ingrid takes up again the issue of competing with childless colleagues:

There are ladies my age who up to now did not make a family and who work hard and of course that they will have conditions to advance. For sure faster than me, this is clear. Thus, not necessarily gender is a barrier; if you do not have the personal side developed…

Yet, Ingrid is of the opinion that it is highly unlikely for a woman to sacrifice the personal side to a very large extent. She also speaks about the influence of having children on keeping pace with the field:

Problem is that I made a break because of the oldest daughter. […] Now of course that I feel that period when I did not keep contact with the domain…I took it a bit slower. […] Problem is that it is difficult to keep pace, especially when you have such a period when you were not totally up to date. Now there are so many things different than when I graduated…many methodologies and new instruments, all sorts of modeling techniques that, when I was a student, were studied little, the focus wasn’t on them.

During a discussion about institutional help for women academics who wish to raise children Faye explains in clear terms that she considers a career in IT incompatible with
raising children with or without institutional support, because the break required by 
motherhood would be very detrimental to one’s ability to keep pace with the field.

Of course there is a help for women because I understood that now women that 
deliver can take two years of leave, being paid a percentage of the salary. […] But 
in the university environment, two years break may be deadly. And in a domain 
like informatics it may be fatal, because here in every month there are new things, 
and if you do not master them, you must at least be up to date. After a two years 
break, you can retire. Thus, even if the state offers me this facility, I choose not to 
take advantage of it. I do not want to take advantage of it, because it can be fatal 
for me in my profession, in my career.

Ingrid speaks also about feeling exhausted at the end of the day, and about the high levels 
of energy required by the academic profession.

The problem is that before, when we were living with the in-laws I was able to 
work in the evenings, I wasn’t so tired. Sometimes I was able to work until 2-3 
o’clock in the night. Now, I don’t know, it is accumulating from the day and I 
cannot do it anymore. If I work until midnight I am finished. I must sit and relax 
and it is like the time has shrunk suddenly. I have the feeling that the time flies 
pretty quickly and it is quite difficult.

Questioned about how she manages the personal side, Linda replies: “I…we…do not 
have children…this is a release…well, it is sad on one hand; from the professional point 
of view, of course, we do not have the load…” . Asked the same question, Edith replies in 
a similar manner, stating that she is not married and does not have children; as a result,
she is free to dedicate as much time as she wants to work at the university. Implicitly both consider motherhood as a major impediment in dedicating oneself to one’s profession.

In conclusion, the interviews reveal that, while in the past it was difficult to balance academic life and motherhood, today, due to the increase in complexity and to the explosion in the fields of CS, CE and IT, it is almost impossible to be both a good mother and to excel professionally. As a result, more and more women who embrace an academic career in these fields chose not to have children.

**Potential for flexibility**

My study reveals that the flexibility in schedule is cherished by women academics at all hierarchy levels. The flexibility in schedule was one of the main attractors for Dorothy towards an academic career. Comparing the situation in her time as a young mother with the situation of a young mother today, she makes an interesting comment about the fact that the flexibility in schedule is somehow counteracted by the totally unattractive remuneration.

This would be an advantage for young girls to get a job in a university [the flexibility in schedule]. This is my opinion. Now, that many left…I had a colleague who recently left: “you know, I recently married and I want to buy a car. And with this salary, I cannot buy a car.” This is something else. We speak of salaries of 4 – 5 millions...One cannot [make a life out of it].

For Agnes too the flexibility in schedule is the key to balancing the personal and the professional aspects of life. Agnes is single, has no children and lives with her mother. She ‘takes advantage’ of the fact that sometimes she can free some hours in the morning,

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9 130-170 €
to go to the market. In Romania, people buy the vegetables necessary for the day’s cooking in the morning, from the vegetable market, usually directly from the producers. Agnes tries to help her mother as much as possible, but sometimes she appeals to her mother’s understanding, if she has a more difficult semester.

A very low level of remuneration is not the single factor that counteracts the benefits of the flexibility in schedule for young academics. The other factor is the fact that some have to travel to other places, where their institutions run extensions.

**The issue of mobility**

For the reader who is not familiar with Romanian realities it may seem an intriguing coincidence that all my research participants are employed by the same university they attended or by the other large university in the same city. This fact is not the result of a strange coincidence but is the result of the lack of mobility characteristic of Romanian society in general. Overall, there are two main reasons for the fact that people are reluctant to move in another place. The first is a strong sense of place, which may be linked to the fact that Romanian society has been fundamentally agrarian for many centuries, and until relatively recently. In Edith’s words, “for the time being, Romanians are very much linked to their birth place”. This becomes evident in the choice of a university to attend; the majority of universities attract students from surrounding geographical areas. At graduate levels there is some mobility, because Master’s and PhD graduates have to seek employment in large companies, which are to be found only in a few large cities, especially in Bucharest and in Timisoara. This is especially true for people in the eastern province. Also, graduate students may not find supervision in their
geographical region. According to Dorothy, in comprehensive universities, between 1992 and 1996 there were only 5 doctoral supervisors in Informatics in the whole country. The other main reason that mobility is limited is that it is very difficult to move to another locality, even if you find employment. The difficulty arises from the fact that lodging is scarce and extremely expensive. Rent itself is larger than the monthly salary of a junior lecturer and real estate prices are prohibitive for the vast majority of academics. Even when the price may not constitute an insurmountable problem, the scarcity of the offer may prevent one from moving. Therefore, moving in another place is an event so difficult to plan and so disruptive that many people do not even take it into account. My research participants have been born, raised, educated and work in the same city.

**Family support and institutional support**

Whether that is about help with raising children, or help with domestic responsibilities, or about showing understanding for the demands of the profession, all my research participants mention the support of their family members as essential for their careers.

Ingrid and her husband have been helped by their parents with raising their children, and this is the single way that they could manage both their academic careers – Ingrid got her PhD and a job in academia, and her husband also works with the same technical university. Thus, their success in raising two children while pursuing two academic careers is a collective success, a family success, and the effort is intergenerational. This is also the case of Dorothy, whose mother helped her raise her daughter.
Invited to speak about what help she thinks she might get or what help she might want from the university or from society, Ingrid’s answer shows that simple solutions, such as providing kindergarten space, are not enough. Then she goes further to suggest that help with raising children is more than a financial matter in the Romanian context. Like Fay, Ingrid also considers that institutional support, while nevertheless welcome, cannot constitute an easy solution to the career-motherhood conflict.

Now I don’t know what it would be possible to be done…[to help academics with young children], what to say…Maybe in other countries there is the same problem. Thus, in the West there are women academics that have children also and in general I think the solution is to take someone in to take care of the children. It is fairly difficult to trust someone unknown with your children. Until you get to know someone well…. At us [in Romania], with these liberties, so many things happened, and you see on TV so many stories linked with children and about them disappearing…that you don’t feel like taking someone in. Before [1989], it seems it was – no, it wasn’t a good time – but from this point of view we were calmer. Now the life is so agitated, thus, I don’t know how university might help.

Questioned if her university thinks to emulate the model provided by the other large university in town, which has its own kindergarten, Ingrid expresses strong doubts:

I don’t know. I think there isn’t any concern in this area, pure and simple. I don’t know if someone has thought of this problem. Thus, pure and simple it is supposed that you should do research, you should do what you have to do…the
rest is your business, after all. Thus this is how it is, in my opinion. I don’t see any concern [with creating a kindergarten].

Lack of concern on the part of their institutions about helping academics with kindergarten space for their children was also expressed by Dorothy and by Faye. Dorothy was of the opinion that a kindergarten within the university would be welcomed. She told me she, along with other colleagues, had a plan for this when their children were young, during the old regime, but then the plan was abandoned. Faye believes that now, the idea of a kindergarten within her university is utopian due primarily to the severe under-financing of Romanian higher education. She explains that a kindergarten would occupy a low position on a list of priorities, because funds would be first directed towards more pressing needs who affect a larger number of people, such as providing essential software and hardware equipment. “You must consider that this is a very poor state, which cannot afford, not even when it wants to, to do what a Western state, Canada or United States, does” (Faye). We have seen in Chapter 4 that the meagre Romanian education budget supports Faye’s view. And yet one must also argue that in western countries/universities, kindergarten space is not readily available either. Is this always just a matter of money? Feminist would suggest that while money matters, this is not just a matter of money.

Edith makes the same point as Ingrid, that the parenting task is not easy to outsource: “Even if, let’s say that the incomes would be higher, so that you could afford help with the housekeeping, in my opinion, that child, when s(he) is young, s(he) needs you. What can the university give you?”
Linda speaks about another type of family support – understanding for the fact that working in this profession involves passion, and at times it involves long time commitments that are impossible to schedule. She raises the point that one needs an understanding life partner:

My husband is a colleague of mine and then we both understand better what it means to work on a computer and to be busy and to say that you will come in one hour and in fact to arrive in four – which would not happen if we won’t be in the same place. Maybe in other parts things are different and would not understand that you are caught in the work and forget about time.

My participants have no expectations of institutional help, on the grounds that institutions cannot afford supplementary expenses. Support and understanding come from families and friends.
Chapter 9 - Being a second world academic

After decades of isolation, Romania enthusiastically joined the European Union and its European Higher Education Area (EHEA) and European Research Area (ERA) projects. In *Higher education in Romania – Progressing towards the Bologna Objectives*, the Ministry of Education and Research (MER, 2006a) recognises that “Bologna objectives mean not only to promote legislative changes but also to enhance the institutional autonomy and accountability and ensure adequate funding and a reliable quality culture in each higher education institution” (p. 10). The education budget increased steadily from the traditional ~3% during the 1990s and early 2000s (see Appendix 3, p. 359) to 5.07% of GDP in 2006, 5.5% in 2007 to finally reach 6% in 2008 (Ministry of Education, the Press Bureau, 2007). Despite the steady increase, the funding of education is far from being adequate. Teachers at all levels are severely underpaid. The Ministry recognises this reality: “unfortunately, the teaching profession is not attractive, and this has a serious impact on the educational process” (MER, 2007, p. 8). In research, 60% of which continues to take place mainly within the public sector, the budget has doubled in 2006 to reach 0.38% of the GDP, which is far less than the goal of 3% established by the Lisbon strategy. In addition to being under-funded, research infrastructure is greatly in need of revision and revitalization (MER, 2007). Discrepancies between ideological assumptions and the socio-economic realities on the ground may hamper the reform efforts, despite all good intentions. This chapter, based on the interviews of this study, deals with some of the challenges to academic careers, due to current Romanian realities.
**Under-financing**

A recurrent theme is that higher education in Romania is taking place in a context of financial austerity; this affects the activity of women academics in more or less overt ways. Financial constraints within academia lead to a series of practices employed to cope with scarcity, and specific to the context of a second world economy, such as multiple employment and the tendency of people to leave the country.

Invited to name the major challenges she faces as a woman academic, Edith immediately names one challenge as the root cause of many others:

First the financing - this is a problem so stringent then all other problems take second place. I don’t know, but I think that the moment the financing would become more satisfactory, a series of bothering problems would disappear.

Therefore, according to the women I interviewed, lack of proper funding is the major problem that affects their work. All are of the opinion that this major impediment affects both men and women equally and is not related to gender.

**Working conditions**

All participants tell me about various difficulties they encounter in their daily activity because of funding and, consequently, of resources. Research is being especially negatively affected, but teaching suffers as well. Due to the nature of CS, CE & IT, education and research necessarily require certain resources, without which activity cannot take place. Faye explains to me that she cannot buy the programming language that is absolutely necessary to her course. She understands clearly the scarcity that the whole country experiences. This is the reason why she explains to me that a university kindergarten would barely make it on the list of priorities if the university had some
supplementary funds. But that never happens. The interviews expose the fact that women academics have a good understanding of how their working conditions differ from those in Western countries. Most have had an opportunity to travel and even work in Western universities. They contend that it is impossible for their Western colleagues to imagine the working conditions they have at home. Faye has been asked by her department to be patient and wait for another semester with her request for software. Because she understands the situation, she was patient for two semesters, but she cannot ignore the fact that “another year has passed”. In software engineering, to be one year behind may be extremely detrimental to one’s career. Research participants speak about many needs: up-to-date hardware, software licences, subscriptions to publications, books. Edith explains that in Romania access to information is difficult:

Problems are the same for all. The problems do not relate to the fact that you are a man or a woman; they relate to the fact that financing is as it is, that students are as they are, and that access to information in Romania is a bit more difficult, although there is the Internet. It is a bit more difficult because, due to financing, we do not have access to the databases with articles, we do not have access to buying books. These problems are not gender-related. These are system-related.

Difficult access to information is a major problem facing academics. Faye points out that in IT this constraint is particularly detrimental to one’s career, undermining all efforts and one’s hard work. She also remarks that the same problem hindered the activity in Romanian universities in the past, which explains why in Romania IT developed at a slower pace.
Ingrid tells me that being published abroad is highly appreciated; however, due to lack of funding, a few can afford to publish abroad.

Research is seen as luxury, and takes place intermittently. The Romanian Ministry for Education and Research (MER) tries hard to finance as many projects as possible. As the total budget for research is meagre, each project receives little funding. Therefore, projects funded by MER rarely allow for paid employment for graduate students.

Dorothy runs a research institute in collaboration with an Austrian university. She usually obtains support from the Ministry, but the grants are small. Austrian funding comes less often but these amounts allow the institute to exist. More serious financing comes from European sources; here the competition is extremely fierce, as a large number of projects from many countries compete for funding. Faye compares the situation in research funding in her university with what she saw in United States, where she had the opportunity to travel as a guest of Princeton University.

We do not have research projects financed in the same measure as professors in the West. Here there are few academics that have research projects. Not all doctoral supervisors have financed projects, from which to be able to pay salaries. These are still rare events. Although there is the Ministry of Research, and I know there is financing for research from the Ministry, the amounts are way less than abroad. All those I spoke with in the USA have now or recently had a bursary from the National Science Foundation. And the USA is a huge country and universities are like mushrooms. I was at Princeton, which is very good, but they aren’t all Princeton. But all those I spoke with were having financing, from, say, National Science Foundation. Here it is not so easy. Money are way way less. It is
a poor state and then money's allocation is more complicated. Therefore to us financed projects are a new thing, and financing is much more difficult to obtain. I had in the last years, but with very little money. Now I do not have any [project]. The single serious financing I had in the last years was from the European Union. I had a project financed by the European Commission. And there were indeed more substantial amounts and I was able to hire and pay 4-5 collaborators.

An interesting observation is that, although all participants listed ways in which their activity is affected by lack of funding, none complained about their physical working conditions. Being there I was able to see that their office space does not compare to the standards in Canada either. Yet this aspect was not even mentioned.

**Multiple employment**

Multiple employment refers to supplementary work outside the normal work schedule. Except for professors, all other academic ranks are severely underpaid. One mechanism employed to cope with the low wages is to take more ‘teaching loads’ than normally expected, either in the same university or in another institution of higher education. Private universities that have been created recently require qualified teaching staff, especially associate professors and professors, in order to meet accreditation standards and teaching needs. Dorothy relates as a funny, yet ironic, situation the fact that a new private university in a small town has been ranked better in the national classification than a major state university with 200 years of tradition, because they managed to employ a large number of distinguished professors from this later university, and their research projects counted toward the research activity of this smaller and less endowed institution.
Multiple employment in teaching, especially when one has to travel between cities, drastically reduces the time one can dedicate to research. Neglecting research leads to less publishing productivity, which leads to delays in meeting the requirements to advance on the academic ladder. Therefore, the situation for an aspiring candidate is the following: if s/he works in research, s/he is either not paid, or paid very little, insufficient to make a life out of this income. As research funds cannot be guaranteed, one has to have other employment. If s/he takes up enough extra teaching to earn a decent wage, her career will advance at a slower pace. A woman in this situation either sacrifices her financial independence or gives up the academic career, like the young woman who married and wanted a car. Edith aptly explains the issue of multiple employment in this way:

Because now the salaries are as they are, to be able to survive you have to have supplementary hours, the so-called payment by hour. And on this theme there are a lot of discussions, but this does not relate to gender. And it eats up a lot of time in which you would [be able to do other things or relax]. If you would have a decent salary, if you would be able to work only what it is required by your employment contract, you would be more relaxed. Thus, your state of well-being and your moods would improve, being less stressed you would be more open, more communicative, you would have more understanding for someone else’s problems, I don’t know…[laugh].

Therefore, multiple employment is seen as a necessary evil.
Work in university as hobby and as material sacrifice

Given the fact that there is no shortage of women in IT in Romania but that, in universities, women are under-represented as academics, I asked myself if the industry constitutes a reputable competitor for academia, in their quest for the most talented graduates. Therefore I posed the analytical question: what would attract a woman to embrace an academic career in CS, CE and IT today? After several interviews I understood that my initial question stemmed from a distorted image about the realities I was inquiring about. As Faye explained it to me, such competition does not exist, or more accurately, it is lost through definition. Asked if, in her opinion, the attracting force of industry is manifest, Edith answers:

Of course it is manifest. Many of our lab assistants or teaching assistants have a second job because otherwise they would not be able to survive. In other words, who embraces this career makes a financial sacrifice. The satisfaction is intellectual, not material. Because, at least in our domain: computers, software industry, IT [all of which have very high salaries, way higher, than in university] no matter what you would work in industry the salary is much higher than the salary of an assistant in the first stage [of his or her career]. And to reach a somehow decent salary in Romania you have to become professor. Thus, until then, [the academic life] is a material sacrifice.

All participants agree that because of financial difficulties a career in higher education becomes unattractive. The interviews confirm that, due to the low wages, universities have difficulty in maintaining the younger generation of scientists. Some participants also speak about difficulties in hiring. Dorothy calls the salary for a young person who wants
to work with the university “offensive”, which reduces her university’s capacity to attract new people and leads to a high turnover of teaching assistants, research assistants and faculty. There is general agreement that, in the first stages of an academic career, one needs either multiple teaching loads or a second job in order to exist financially.

There are also young women who keep their positions in academia because they are not the main provider in their families. Faye clearly states that material well-being is one of the many sacrifices one should make in order to embrace an academic career:

University careers in general asks for sacrifices, and this domain [of IT], through its dynamism, asks for supplementary sacrifices. And the salary is so low that a university career does not entice young people any more. The few people who are still coming to us have a second job with a company as well. In fact they live out of that job and the university career is a kind of hobby. [They work in university.] During their free time, which is scarce. And then, of course, they are not rising to the standards that were achieved in the past. Now, everywhere in the world the university career is less well paid; this is a general feature, but in Romania the discrepancies [in wages] are way too large.

Edith raises the interesting point that the social status of the profession tends to decrease with income:

Thus before 1989, you had some status if you were able to graduate from a university and if you managed to teach in a university, it was something…. Now, there is also some status attached, but how to say, a superficial status. On the
other hand, judging from student feedback, it doesn’t really matter [that you are
an academic], if you are unable to earn much.

This situation leads Ingrid and her husband, who also works in the same university, to
think of emigrating:

We think how long can we resist with this system? And we were thinking, me and
my husband, from a while, but only like this…how to say…at ideal
level…because I don’t think we can…but we were thinking at a certain moment
that it would be better for us in another place than in Romania.

It is thus clear that severe under-payment at lower ranks calls for material sacrifices and
that transforms academic work to the status of a hobby.

**Brain drain**

While the issue of brain drain was not part of my research design and questioning,
during the analysis of data it emerged as a topic that deserves attention. The study finds
that often at the PhD level, many students leave the country, many of them for good.
There are mixed and even contradictory feelings about brain drain: it is perceived in
general in the academic circles as a negative phenomenon, and yet it is source of
professional satisfaction for many teachers. One reason is that the ambition to work with
the most prestigious companies or to study in scholarly centres that are renowned
internationally is appreciated and encouraged by many academics, as it leads to feelings
of fulfilment and to increased performance for graduates. To be able to secure such
positions is considered proof of good mentorship, because, as Faye mentions, “this is not
a domain in which to be auto-didactic…”, it is proof that Romania has started to build a
school in CS.
Speaking about the sources of her job satisfaction, Dorothy tells me about working with a woman graduate student:

Let me give you an example: I had a woman student in mathematics and informatics. Since her Bachelor project, we worked together on some projects, she finished her Master’s and effectively it was a dispute for her between two large universities, Manchester and Amsterdam. Thus, exactly those teams that were doing something similar with what we were doing here, tried to call her to a PhD. Now I was upset when she chose another university because she was married and she had to be together with her husband in another university and the one who made the compromise was she and not he, which it seems completely unfair to me, but you never know where life takes you.

Later on, speaking about the competition between universities, Dorothy suggests that “I think that there is a certain competition for…for…brains, to say so”. And she further explains what she means:

We had last week a US company from Atlanta: “We want only sharp students”. This is their motto, isn’t it? Thus they come all the time with this slogan, that they want students all the time, to fetch them students. Thus we have all sorts of understandings with companies for diplomas, but not for hiring. Here they effectively enter in competition with us.

And during a discussion about her work as manager of a research institute, Dorothy says:

I was considered a strange person…. I was told even that I offended the German university, because I came back after I completed the thesis. … It seemed
perfectly normal to me; I even signed a *Tempus* contract, that I will return when I finish the bursary. And I was among the very few who returned in the country.

And I feel that here I realised more that I could have realised abroad.

Speaking about young students that would be attracted by an academic career, Edith adds, laughing: “those who do not leave”. Agnes tells me about women that stood out among their fellow students: “I had an excellent series, with some 10 girls that were very good and almost all are gone to the US, UK, or Germany. They go there to do their doctorates. … We have few people [teaching], many prefer to go abroad”.

Faye too derives satisfaction from seeing her students continue studying or working in those places that are or are becoming to be considered centres of excellence in IT:

I have enormous satisfaction when I see many ex-students that are very well to do abroad and very satisfied, and I noticed, and I like this at the young generation, at least at our students I noticed, everywhere they say they are Romanians, that they graduated in Romania. My ex-students are in their vast majority in US, they had PhDs in Artificial Intelligence, and they went there with doctoral bursaries. And all of them say that they graduated in Romania, and not only they do not feel embarrassed, but I think they are even proud of it, precisely because of the Romanian reputation in IT. And for me this is a great satisfaction.

On the other hand at institutional level, there are universities or, rather, there are departments which try to create attractive conditions for their students who left with PhD bursaries, to draw them back after graduation. Dorothy tells me about such an effort in her department:
The greatest satisfaction is to see students embracing research. Unfortunately, they cannot do it in Romania. The majority leave abroad with bursaries. Some come back, which is something that makes me very glad. Thus we have now several colleagues who came back from USA and from Austria after they completed their dissertations and we hope to create here a nurturing environment for their return. And this is something we do right now here, some projects for postdoctoral studies, through which we invite, we welcome people back. Recently we hired a boy who came back from France after [his] PhD and we hope to have another four openings for PhD graduates.

It is clear to me from the interviews that, even in conditions of severe under-funding of higher education and of research in and outside universities in Romania, at least in domains which require an up-to-date material base and timely access to information, normal workers in academia struggle to keep the common passion alive. Too often, however, a tension arises between the desire to help people have successful careers and to work in research and the desire to retain them.

The influence of the market

Either through the number of places offered for admission in the 3 cycles programmes, or through the choice of curriculum, or through the relationships with the world of work, the market influences the activity of the women academics I interviewed for this study. This section presents two aspects of market influence that became evident from the discussions.
Number of students and admission standards

During the late 1990s, the normative allocation system or base financing – per capita financing based on the number of students – has been adopted in Romania. One result of per-capita financing is that universities increased the number of places offered. In order to admit more students, the standards for admission were lowered, especially in those domains where the demand is not so high, such as technical education. On the scale of popularity, CS, CE & IT score high, thus here the admission standards are still filtering many people out. Yet, on average, the newly admitted students are not being trained in mathematics and informatics as they used to be when admission was more competitive. Some have not had any programming courses during their high-school years, while others have had previous programming training. Ingrid tells me that she has to work more with those students that do not have a programming background:

There are students, not necessarily less capable, but…they didn’t have programming courses and this system of ours to learn programming in one language in one semester is fairly difficult for them…thus…there are large differences among them and they cannot recover, no matter how hard you work with them. I took the time and I explained [the material to] them. I covered less material than I intended, to be able to explain to each of them the problem; then, I said, ‘Now it is your turn to do it’; and they weren’t able. Thus, it is very difficult to teach them in one semester.

Edith explains the effect of under-financing on the number of admitted students:

You cannot [to work normally] without financing. Right, there is [university] autonomy. But, on the other hand, [the university autonomy led to] the financing
at student level. Although it started correctly – those [departments] who have more students, have more money – [the financing at student level] was transformed in: let’s have as many students as possible, let’s bring them from the street… [laugh]. Thus, the more students we have, the better we make sure we will get our salaries. And then, there is one thing to work with 15, 10 students, and another thing to work with 30.

Agnes speaks about the effect on her job satisfaction of having large numbers of students:

I strongly feel the difference between the 60 student classes and these classes of 200 people, which are almost depersonalised for me. If I conduct only the course with them and if the lab with a half of the series is conducted by someone else, at that half I feel like a grading machine. I mean – I look at that piece of paper, I see a name and I do not know, I have no image about that name. Ok, it happened before, but now there are more and more people I haven’t seen. Of course, when I had only 60 people, even though I had only 20 of them at the lab, I could keep them in mind.

The increase in the number of students and the differences in their previous training greatly increase the amount of work, especially for those academics that teach undergraduate courses. Work satisfaction is adversely affected, as women feel less connected with their students, or “the children”, as several instructors name them.

Collaboration with the IT industry

Another unanticipated issue that became salient from the data was the interplay between industry and the university in the fields of CS, CE & IT. The socio-economic situation leads to cooperation but also to tensions between university and industry. The
student may be seen as a ‘product’ by a potential employer. The crux of the problem is that academics tailor the curriculum having the student’s interest at heart, whereas employers want them trained according to their company’s individual needs. Another source of dissatisfaction with the world of work is that students are offered jobs in their first years of study, which allow them less time for their academic assignments. Then, the industry complains about the quality of university instruction.

Linda explains that in her department, teachers try to prepare their Bachelor’s students in a wide range of topics, which leads to complaints from local businesses.

And with the industry we have had discussions – I have had, because I am not very quiet in this type of discussion – in which the industry said: they are not well prepared. And we said: they are well prepared, but in a larger set of directions. If they come there, they will manage in a month or two to do all the tasks required by the job, they learn what is required. But it is not fair for them to be prepared only in one domain. Of course that, through a Master’s, specialised in a certain domain, the problem is put in different terms; and we have a Master’s with Siemens, in short time it will be a Master’s for Renault. Alcatel, again…there are graduation projects done together…we wanted to do even doctorates together.

Faye mentions the influence of working on student attendance: “The quality of students and the quality of education diminished because experiencing material difficulties, our students take a job. And they don’t have the same attendance they used to have.”

Dorothy confirms this tension, telling me that her programmes require students to complete practicum assignments at firms, but only starting with the 3rd year. However, the majority of students start working part-time in their first or second year of studies.
This technique to take students is not at all beneficial […]. But if you put them in a six hours work program, they are not capable of attending courses and labs, and lose [the instruction delivered in the courses and the labs they were not capable of attending]. And then the firms complain to us, they complain that our students are not well prepared. And the answer I gave them is: but send them to school [laugh]. If you keep them there, how can we prepare them?

Despite these tensions, overall collaboration with the industry is valued by all my research participants. Linda rejects the common criticism brought to HE that it is estranged from the real world. She exemplifies with her research in medical informatics. Pamela also gives examples from her recent work for a factory. Finally, Dorothy names several projects for the industry and mentions having good working relationships with other women in leading positions at local IT firms, some of which are branches of multinational corporations.

**The influence of the Bologna process**

One immediate consequence of the Bologna process, made clear to me by the interviewees, is the increase in the volume of work outside teaching and research. My participants are of the opinion that the process has been implemented in a top-down approach. They have mixed feelings about it, ranging from being strongly positive to oppositional. However, there is total agreement about one point: the Bologna process brought new administrative tasks, and the process of implementing the changes is deemed “bureaucratic”. This is another effect of under-financing in Romanian higher education; administrative personnel have been reduced to a minimum and the academic staff is asked to complete tasks that otherwise would have been accomplished by a less
qualified person. It is not unusual to find a chairperson wasting her time with tasks that might well have been done by a secretary. Dorothy tells me about the activities “of bureaucratic nature” that more hamper than help the educational process. She points to the 500 pages auto-evaluation file on her desk, which she currently compiles. Linda also recounts the increase in workload due to the administrative tasks involved in the modifications due to the Bologna Process, which she also calls “bureaucracy”. Certainly, the supplementary administrative tasks are perceived as a burden, but there is hope that in time they will diminish, or routine will make them easier to handle. As Edith points out,

There is the quantity of work unrelated with teaching, unrelated with research, with working with students, but there are a lot of papers to be filled out, and I don’t know, but I haven’t arrived to see their utility. I feel it [the process] is a bit foreign. Imposed and foreign. At [our institution] this process started two years ago, thus the time is very short. But the first impression, the first obstacle - there are these papers…. Maybe in time, entering in a routine, we will overcome this problem.

An undesired effect of these new tasks is that they eat up time slots. We have seen that there is a tendency towards women taking on these paper-based, “bureaucratic” activities; we may say then that the Bologna process has led to an increase in the hidden workload of women academics, and this with no financial incentives for the additional work. It follows logically that women have less time for other, more rewarding activities, such as research. Therefore, indirectly and unwillingly, the process has become another transparent barrier for women’s career advancement.
What becomes evident from these discussions about the Bologna process is that women academics are aware of the overall process, although only two of the 10 (initially 6) objectives of the process are really well known – the restructuring of HE into three cycles: Licence (the equivalent of Bachelor’s), Master’s and doctorate (PhD) and the cooperation in quality assurance.

Those involved in administration like Dorothy, who is the chair of her department, have a better knowledge of the process. Dorothy knows that another objective is to implement the European Credit Transfer System (ECTS). She explains the difficulty of ‘grafting’ the ECTS system on a HE system that was designed on different grounds. According to Dorothy, who is responsible for calculating the credits, limitations due to the nature of Romanian HE prevent a good implementation of ECTS, and credits do not truly reflect “the work of the student and of the teacher to teach her”. She argues that ECTS may lead to a situation in which it may be easier to obtain credits in a comprehensive university than in a polytechnic, which counters the very purpose of implementing a credit system, in which credits shall be equivalent. Dorothy does not criticise the ECTS system, but the way in which it was adapted to Romanian realities. She raises the point that more changes in the HE system are required if it is to have an ECTS system working in a fair manner. Her observations are not going to cause much surprise: the *Trends V* report (2007) of the European Universities Association (EUA) found that “incorrect or superficial use of ECTS is currently still widespread” (Crosier, Purser & Smidt, 2007, p. 8).
According to the women I interviewed, the main purpose of the restructuring of HE cycles is to differentiate between practically-oriented and research-oriented students and to tailor education for two career tracks: work and research. Feelings about this aim range from strong opposition, to neutrality, and to strong support.

In computer engineering, which in Romania is offered in polytechnic universities, as well as in all other technical disciplines offered by polytechnics, the 3-years first cycle was considered unacceptably short and a 4-years cycle was adopted, but reluctantly. In general, the participants are of the opinion that the reduction, it may lower the time, energy and money required of the student, but at the expense of the quality of their instruction. Based on my discussions with others, I suggest that, if the cycle of reform in CS, CE & IT had been based on a national consultation process with academics in these departments, the shortage would not occur. The Trends V report, which tries to draw conclusions from various implementation processes, remarks that “in a number of disciplines the view was often expressed that it was impossible to provide any meaningful higher education in a shorter first cycle” (Crosier, Purser & Smidt, 2007, p. 16). Faye agrees, noting that there are disciplines, such as those in IT, which cannot offer short quality programmes. She opposes the restructuring on the grounds that the reduction in the number of courses leads inevitably to the reduction in the quality of the instruction received by students and, in consequence, of the university’s prestige.

Yes, it is a process with which we do not agree. Our faculty in general is not a faculty that can be easily reduced from 4 to 3 years. […] Three years of study at Bachelor’s level are totally insufficient for our specialty. I do not see it with good eyes and I know that the majority of my colleagues do not see it with good eyes
either. Of course we created new programmes; we did what we could …, but these kids will have gaps in knowledge. There are specialties that simply require more time. Not all specialties are equal. The PhD, which was reduced from 5 to 3 years, this seems to me derisive. I just took part in a discussion among older mathematics, informatics and physics professors, who are PhD supervisors and who were telling me that they cannot see how a PhD in these domains can be completed in 3 years. It is a pity. And I was looking at the US, in the serious domains, at serious universities, it takes a lot of time. For example, I have ex-students at Carnegie Mellon, who told me that under 5 years they cannot even think of completing a PhD …. Thus it is not an absurd Romanian matter. When we speak about an academic environment, there are universal expectations, generally valid. Thus this is with the Bologna process … we do not see it, at least not me, with good eyes, at least from the perspective of my faculty and of my specialty.

I asked Faye if she sees any possibility of adapting the process to local conditions. Faye does not believe this will happen, nor does she see much value in this:

The reality of one lost university year remains the same and equally tough, no matter what you do in the other 3. Thus I do not believe it is something that can be much adapted. And I do not believe that the university had a large role or a heavy word to say in this matter. In the perspective of joining the EU it was evident that Romania will embrace the various changes proposed by the EU, regardless if it considers them good or not. I don’t know, because there are many
foreign universities which protested against the Bologna programme, states that "were against it, thus this is not a singularly Romanian opinion."

Ingrid is being ambivalent about the restructuring due to the adoption of the 3 cycle model, but she considers that it is too early to tell if it was a good move or not. Linda has mixed feelings too, and she seems to have a change of heart as she started to see that the change has potential merit, based on the needs of the market.

I want to tell that from the beginning I was suspicious about this process…and I am not alone in the academic world. Being accustomed with 5 years, I thought that it is not ok to reduce it to 3 years. What can you do in 3 years? But then, seeing what the necessities of the industry are, they do not need people very qualified, as we were, engineers; and we were graduating in series of 100. Now they graduate in series of 500 per year. They cannot be equally good all of them.

After all, it is a solution, to do 3-4 years, to acquire some knowledge from the technical domain, and those who want to be more specialised, better qualified and future leaders, those more ambitious, to study more on a more restricted area.

Dorothy, the administrator, is the single research participant who embraces the changes although not without criticism about the way they were implemented. Unlike Faye, who considers that HE in Romania complied too much with the blueprint, Dorothy is of the opinion that HE in Romania did not comply enough, but tried to adapt it to local condition, which reduces its benefits.

I think that this change is a good change in what’s concerned the conception of the higher education system, in the sense that in those 3 years, in the first 3 years you have to put somehow the basis of the profession. And normally in the upper
years you can give [the student] a specialty, a direction. Our style in which you were admitted once in the university and you were passing through all these stages was not appropriate for the majority of the students. There are certain students who may stop after 3 years and have a very good profession, according to their intellectual capacity. Now we have the possibility of selecting the best after 3 years, those who would continue indeed towards a specialisation and to prepare them in a way to be the managers in the IT firms, thus to have a more punctual [narrowly specialised] education, somehow. Now, from the point of view of what is going on in the Romanian HE and how we approach this process, the problem is not entirely straight. Thus, we try to squeeze all these courses that have been done in 4 years on 3 years.

When she speaks about the Romanian ‘approach’ to restructuring the 3 cycles Dorothy refers mainly to the fact that, unlike comprehensive universities, polytechnics refused to make the Bachelor programme 3 years and made it 4, which she criticizes. She also refers to the reluctance to reduce the number of courses in a Bachelor’s programme. Restructuring meant to rethink the balance between foundational courses such as mathematics and the courses with higher immediate practical applicability such as programming or databases. This, in turn, forced academics to think about the role of the 3 cycles. There are also two attitudes towards the way the process has been adopted: some feel it as an imposition, whereas others feel ready to embrace it as it comes.
Chapter 10 - Discussing the findings

What can we distinguish from the sea of lights and shadows surrounding us?  
Constantin P. Niculescu, Report about Romanian mathematic education

This chapter analyses the research findings through the prism constituted by the theoretical framework. The chapter presents an eagle eye view of the data collected, which identifies, in particular, a common lack of feminist perspective. In outlining an explanation for the women’s minimalist gender consciousness, I refer to the introductory chapters. I want to stress here the fact that my analysis cannot be understood in isolation from the context described in the introductory chapters.

Gender identity takes a back-stage

As we have seen, critical ethnography can account for how women participants think or avoid thinking about gender relations. Reinharz (1992) suggests that the researcher should pay attention not only to what has been said, but also to what is missing. One common denominator in my interviews is that the discussion starts with gender relations as I prompted by my questions, but quickly diverges towards issues that are not linked in an obvious way with gender, or that are not at all linked with them. During the interviews I was required to re-channel the discussion towards gender issues repeatedly. My strong impression during the interviews was that women participants were eager to speak about what it means to be an academic in the field of CS, CE or IT, and about the issues confronting them daily in their professions, but not so eager to speak about gender relations. They were even more reluctant to bring into the discussion their femininity. In fact, in the entire data there are only a few references to the category of
‘woman’ in general (e.g. women have more preoccupations, women attend more to family problems), and no reference to one’s own femininity. This was the case even though I made it clear from the beginning, through my invitation letter and restated in the consent form, that this study is about their professional life and that the main research question tries to shed light on what it means to be a woman teaching and doing research into CS, CE or IT. Contrary to the vast majority of similar studies I reviewed, my research participants drew a strict demarcation line between their identity as women and their identity as academics. Family life and other personal relations were considered outside the realm of the study, since the study was interested in their professional life; therefore, they referred to women’s issues either only tangentially, or prompted by my questions. This was consistent with one exception: Ingrid. She was the single woman who had young children while being a Senior Lecturer. In her interview, the complications of juggling career and family life came up quite often and accounted for a good part of the discussion. Although they are interested in gender equality, and this is why they accepted to participate in a study focused solely on women, the participants lacked a feminist view of gender and of gender relations.

I came to realise that, with a few exceptions, feminism is not popular in Romania among intellectuals. The general belief in society holds that feminism is either the struggle for equal rights in cultures which ontologically place women in an inferior position relative to men, or a struggle for more-than-equal rights within the Western culture. As we have seen in the introductory chapters, Western culture is considered the epitome of human progress. Generally speaking, Romanians would be surprised to find out, and reluctant to believe that the most culturally advanced societies on Earth have not
long solved the gender equity problem. This was noted by Dorothy when she discussed being “shocked” by women’s position in Austria and Germany as the realities she encountered were different from what she expected. If differences of opportunity or discrimination still exist they must be isolated cases, the exceptions, and not the rule. Therefore feminism is either a stale remnant of past struggles or an attempt to take undeserved advantage over men, invoking past inequities. As a result, feminism is either surrounded by a dubious reputation, or it is considered irrelevant for the contemporary Romanian realities. Such limited understanding stems from long lack of contact with other cultures, and to a lack of contact with Western feminist thought.

In addition to widespread ignorance Mihaela Frunza (2006) argues that the misunderstandings and the disrepute surrounding feminism as a field of thought in Romania has been fed by “several distinguished, highly educated and very sophisticated intellectuals” (p. 83). She also contends that there is a tendency within highly educated circles to associate feminism with multiculturalism and to criticize them together. Monica Spiridon (1999) is a Romanian author who considers the inseparable couple feminism-multiculturalism as “cultural atomisation pushed to its limits, hopeless enclavization into a racial, classist and gender ghetto” (p. 29). Frunza believes that Romanian feminism (she refers to the period after 1990, as before there was no such thing) has found a niche in academic and NGO spheres; a declared feminist herself and an academic (i.e., Lecturer in a Faculty of History and Philosophy), she sees feminism as being far from a grassroots movement. Mihaela Miroiu (2008) agrees: “feminist philosophy in Romania is not a successful public story but rather a floating island” (p. 238). If philosophers have a
limited understanding of feminist thought and limited interest in it, it seems to me only
understandable that the lay person knows even less.

The reader might ask: what about Romanian feminist thought? During the
communist era, the woman’s question had been entirely subsumed to the communist
project. Questions of gender equality and gender equity, as all other questions, were the
theoretical domain of Romanian Communist Party’s (RCP) ideologists, men in their vast
majority. As the communist rule brought about rapid and impressive improvements in
women’s condition compared with the previous capitalist era, it was generally perceived
as a woman-friendly regime. Affirmative action policies came to reinforce this view.
Despite important improvements there was still more work to be done in changing gender
relations to be more equitable, and in changing mentalities. There have been many
sources of discontent among women, especially in the area of reproductive policies. It is
possible that in private circles feminist ideas have been circulated. However, in the open,
there were no opinions other than the official opinions endorsed by RCP. The idea that
feminist critique of RCP rule would have been publicised is unrealistic. Women’s
organisations did exist; they had been organised by the RCP, thus women never had the
chance or means to form caucuses out of their own initiative. Being created by and totally
subservient to RCP, women did not feel truly represented by these organisations; nor did
they value them as a means to enact change. Membership in them was imposed (i.e.,
women feared the negative consequences of refusing to register as members) and
perceived as a burden. Therefore women’s organisations were considered a masquerade.
Heidi Hartmann (1993) has depicted the relationship between feminism and Marxism as
an unhappy marriage. She argued that the sex-blind categories of Marxism made it
impossible to pose feminist questions, whether theoretical or political. As we have seen in previous chapters, sociology was withdrawn from universities, philosophy was highly politicised, journalism and political sciences were restricted to RCP activists-to-be. Access to foreign cultures was reduced to a minimum, and everything that permeated had done so through the censorship filter. As a result, there were no conditions for the development of Romanian feminist thought. As for a feminist social movement, or any other type of social movement for that matter, that was impossible. We have seen in Chapter 2 that all attempts to change through social unrest or organising without the previous ‘blessing’ of the RCP were quickly terminated. After 1990, given the extent and the immediacy of economic hardship, gender relations understandably took a back stage in people’s concerns. It is thus not surprising that my participants have a limited understanding of feminism and little interest in it.

There is yet another reason for not understanding Western concerns with gender identity formation. We have to go back in time again, and look at how society in general and the school system in particular shaped these women’s conceptions about gender. Communism stressed that one’s most important identity is constituted by being a productive member of society, or citizen. This identity has been valued more than any other. Therefore, social status and privilege followed from ‘the social importance of one’s work’. There have been long discussions in the media of how a certain profession contributed to the collective well-being; all work contributed to it, however, some professions more than other. Miners gave us light, the typesetters (before IT) brought us the written word, agricultural workers put the bread on our tables, medical doctors saved lives, and so on. The arts were employed to glorify various occupations. Gender was a
biographical accident. It made no difference if the medical doctor who saved your life was a man or a woman. Women were different than men in so far as they had the patriotic duty of motherhood, which did not exempt them from being productive members of society, unless they chose to become heroic mothers (i.e., have more than four children). Of course, they were exempt from production for as long as they had to attend to young children, even up to seven years for each child, if they so chose. No legal provision could prevent a woman from embarking in whatever profession she had chosen. However, as we have seen, powerful mentalities led to the feminisation of some fields of work (chemistry, textile industry, medicine, education, software) and the masculinisation of others (steelwork, heavy machinery, railroads, hardware). For example, it was considered ‘normal’ to build a new textile factory next to a new steelwork plant, in order to offer jobs to the wives of steelworkers.

Now the reader might ask why work segregation did not lead to differentials in income. It did; however, if we remember Agnes’s remark, that during communism “you were given some money to live”, we will understand that income differences were neither that substantial, nor that important. Besides, there was a cap on how much improvement in lifestyle money could bring. There was only so much money could buy, as laws were put in place to prevent capital accumulation. As a result, gender did not lead to the large differences in lifestyle due to income. As for housework, RCP forgot completely about Engels and considered that it was a private matter of the ‘basic cell’ to distribute the work within its boundaries, with no state involvement in the matter. In school there was only one curriculum for the whole country; all subject matters were compulsory. Boys and girls were educated in the same way. Gender was acknowledged as a source of difference
in the dress code (uniform) and in the standards for athletic tests. I must stress that this is my account about the epoch and my views come from growing up in it; I might not have a good understanding of the impact of income differentials on life style; as a child, I might have been shielded from these aspects of life. I find similar recollections in the literature from other communist countries. Tomasz Szkudlarek (1993), speaking about social identity, maintains as well that signs of social status were difficult to attain, and not indicated by money.

I wonder if middle-class American readers can imagine a socialist world where people were deprived of all possibilities of acquiring visual signs of acclaimed social status, where there was no market for desired, ‘good’, ‘quality’ identity clues, where almost all one could buy was stigmatised as worse, obsolete, secondhand, and poor. I wonder if these readers can imagine what it meant to be deprived of all signs of the dominant culture, to be visibly marginalised – by clothes, by cars, by housing designs – on a national scale. People could see images of ‘America’ in movie theatres, they read their hidden normative message (‘If you want to be free, you have to wear…, walk…, drink…, eat…,’ and so on) and they had no possibilities to construct their identities (that is, their appearances) in a way that would have made them ‘belong’, feel ‘the same’, feel ‘not worse’. […] The colonial message concerning which culture is ‘better’ and which one is ‘worse’ was read immediately, and it significantly influenced people’s everyday appearances. The subjugation of East European countries was, therefore, twofold. In terms of macropolitics they were subordinated to the USSR; in terms of everyday culture, of popular images creating patterns of desire and thus shaping people’s identities, they were subordinated to the West (p. 12).

I reproduce this passage from Szkudlarek not only because it reinforces my views about the role of income in identity formation, but also because it aptly explains the fascination with the mega-machine of consumption. However, consumption had been conceptualised as being one form of Western culture, hence the fascination with consumption should be also seen in relation with the strong desire to culturally belong to
the Western civilisation. This fascination was instrumental, among other, non-cultural reasons, for the way computer science developed in Romania, if we recall Pamela’s account of her early experience with it in the ICT (see pp. 208-209). I suggest that science and technology in the East acquired a powerful cultural aspect also in the sense that it was a site of politically allowed cultural convergence with the West. Thus, ICT was “like IBM” and Romanian mathematicians felt “not worse”, they felt “the same”, they felt they “belonged” and contributed to a common Western civilisation. In doing so, they restored a sense of normalcy, lessening the effects of the relatively short and artificial separation imposed by the Iron Curtain. Feminist discourse might argue that they were undermining the process of ‘othering’. Fascination with the West may also contribute to explaining the enthusiasm in adoption of the neo-liberal framework we discussed in previous chapters. After the fall of communism it became clear that the Iron Curtain turned out to have been a culturally permeable membrane.

**Vocation as social contribution**

The account I have given up to now for the lack of feminist conscience shared collectively, and for the difficulty in understanding the way Western feminists account for gender identity formation may superficially depict a society trapped in dictatorship, where people lived submissive lives and where individual agency was either missing or reduced to embracing Western identifiers. While I maintain my suggestion in the introductory chapters that communism lacked legitimacy, the situation had been far more complex than what the word ‘dictatorship’ is able to convey. Precisely because those spheres of social life that had been politicised (e.g., politics, media, social organisations, art) were avoided by many, the more politically-neutral ones, such as science,
engineering and technology were preferred. Many people found in the world of work that sphere where they could truly live a social life, without the need to appeal to political hypocrisy. Therefore, the common project of building a modern national economy turned out to be that common social project which captured the enthusiasm and the energies of many, the social space where individual identities could blend into the collective identity. In this context, the official urge to ‘make your contribution’, or ‘to put your shoulder to the wheel’ had not been completely rejected; internalized, maybe, or perhaps even openly embraced.

The school was an important conduit for transmitting this message. Schools in Eastern Europe never claimed to be politically innocent and to serve merely the ‘individual development’ of the child. The education system openly acknowledged that it had been informed by Marxism, with its stress on the inevitably ideological character of all forms of consciousness. Thus, the school stressed the social character of labour, and tried to inculcate the idea that it is one’s duty to ‘contribute’ firstly to the national communist effort and ultimately to human civilisation. Although people deconstructed the political character of the message, they rejected only the propagandistic wrap, not its substance. Pamela, for example, explains: “thus I felt indebted to maximise my contribution, for multiple reasons. You may take the one with the evolution of civilisation, the evolution of technology, at which you had to put your shoulder to the wheel.” She expressed in clear terms the voluntary character of her choices: “No, no, no. Nobody forced me. I was even encouraged to embrace a literary career […] but I chose the high-tech domain, because this is my calling and this is where I want to maximise my contribution.”
Professional life constituted for many the domain where they could feel fulfilled as social agents. This was the sphere where one could differentiate through performance, yet belong by contributing to a common effort. In consequence, for many, professional identity occupied the first stage in their larger social interactions, pushing gender identities back stage.

**The math ‘capital’**

Natural sciences and engineering disciplines were favoured during the communist era. By allotting more hours of study to certain subjects, the school system took care to offer a ‘competitive advantage’ to math, physics, biology and chemistry over all other subject matter competing for children’s interest. The whole schooling system converged to offer prominence to these sciences, because they constituted the material required for passing exams. Anyone who wanted to be a student in good standing had to ensure s/he performs well in these subjects, regardless of personal inclination or gender. A Romanian saying goes “appetite comes from eating;” therefore, many children became attracted by what they studied in more detail, which also ‘happened’ to be considered the most important subjects.

We have seen that the main attractors into CS, CE or IT have been passion for mathematics, and later on computers, talent, family tradition - either mathematical, or academic, or both - and teacher encouragement. My respondents’ professional biographies follow the same line: they enjoyed math in K-12, they displayed higher abilities towards exact sciences, distinguished themselves in these subject matters, registered in a computer science faculty, successfully graduated from the programme, and went to work in the field. Here there are some differences: Dorothy started in the
industry, Edith and Linda in a research institute, while all the others started to work for a university. A recent report of the Ministry of Education (2008) shows that in Romania there are minor differences between boys and girls in math and sciences in PISA scores (slightly higher for boys in math and slightly higher for girls in sciences). In the TIMSS (Trends in International Mathematics and Science Study) scores, a cyclic study repeated every four years to provide reliable and timely data and to identify trends in the math and science education of grade 8 students, there are also minor differences, this time favouring girls in math and boys in sciences (pp. 62-67). This reminds me of one of Pamela’s remarks: “performance does not depend on sex.” It thus seems that math and science education was and still is one of the sex-blind categories described by Hartmann (1993), because there was not any special treatment based on gender. Difference in educational treatment did exist, based not on gender but on performance. I refer here to the structural opportunities put in place to offer study additional to the school curriculum: discipline circles and Olympics. Therefore, we might say that individual traits such as intelligence, optimism, courage, hard work, discipline, enthusiasm, drive, talent, competitiveness, ambition, dedication, and algorithmic thinking were coupled with an institutional milieu that was nurturing and supportive. Linda places the dedication of her math and physics teachers in high-school at the center of her decision to embrace a technical career. Her short story below is illustrative of the importance of a supportive institutional environment to one’s career decision, especially at decision points in the ‘pipeline’. After grade 8 Linda chose an electro-technical class at a high-school. In grade 10, due to restructuring, her class was cut, because the high-school became a Philology-History one. She was supposed to move to another high-school for the next 2 years. Due
to friendship relationships, kids were more inclined to give up math & science rather than
to move. Their teacher took a trip to the capital city to convince the Ministry to allow the
former class. When the majority of them became university students in technical
departments, they stirred amazement, coming from a Philology high-school… In sum, it
seems to me based on these testimonies, that success in reaching an academic career in
CS, CE or IT is rooted in a combination of passion, natural abilities and inclinations
(talent), a stimulating intellectual environment, a competitive spirit and, of course,
unrestricted access to higher education.

Cultural capital

Not only teachers, but parents played a role as well. As many sociological studies
suggest, parents, by virtue of their own occupational background, socialise children to
take on particular educational aspirations and occupational interests. The environment,
family in particular, has a strong, stable, and enduring influence on the development of a
person’s scientific career (Tang, 2006). As a result, sociologists have documented a great
deal of continuity between parent’s occupational choices and children’s choices, a
phenomenon known as occupational inheritance (Mannon & Schreuders, 2007). Susan
Mannon and Paul Schreuders (2007) suggest that women in engineering are more likely
than men to have at least one parent in the engineering profession; in other words, the
occupational inheritance functions in the technical domain. In the case of my participants,
occupational inheritance functions in a less decisive way, although it cannot be
dismissed. All my research participants have at least one parent that either taught
mathematics, a technical discipline, or was a university professor. While Faye followed
her father in becoming a university teacher, she embraced a domain different from her
father, who taught literature. Dorothy is in the same situation, she embraced the academic
career like her father, but with a different technical specialty. Pamela, Ingrid, Agnes may
have been attracted to mathematics due to the profession of their mothers (math teachers,
and software developers). Linda and Edith are the single ones who did not speak about
the influence of their parents; rather they noticed the developmental influence of their
teachers.

In modern times, educational systems perform the additional role of legitimising
power. Bourdieu (1996) describes how higher education in France legitimises and
reproduces bureaucratic elite through the system of universities. The Marxist doctrine
argues for a totally different path – to develop a massive education system which
prevents the accumulation of any type of capital that can be converted into power,
including cultural capital. “Capital has a strange tendency to accumulate, meaning that
children of higher education graduates tend to have better chances to enter and succeed in
higher education in France, Eastern Europe as well as other places” (Tomusk, 2000, p.
277). As a result, it seems that the communist education system obtained mixed results in
preventing cultural capital accumulation.

**High-tech as sport and other technocratic modes of thought**

In communist ideology, science and technology were always given considerable
emphasis: the ‘scientific and technological revolution’ was in fact the main force for
building communism. Associated with this ideological belief were scientistic\(^\text{10}\) and
technocratic modes of thought. It had become quite clear that the scientific/technological

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\(^{10}\) Referring to scientism, the theory which holds that investigational methods used in natural sciences should be applied in all fields of inquiry or the application of quasi-scientific techniques or justifications to unsuitable topics.
worldview had become a distinctive ideology and had penetrated culture to its foundations. Perhaps Elena Ceausescu’s fascination with science had been another factor for the long shadow that science and technology had shed on all discourse, outside industrial practice. Therefore, science and technology and their rules had not been considered a mode of thought among others, but they each contributed to technological rationality. At the core of technological rationality sits the idea of domination over nature as the main purpose of human activity; the world becomes the object of mathematical calculation and industrial rationalisation. All decisions are subordinated to the criterion of efficiency conceived in terms of productivity and performance, including those related to the social sphere (Aronowitz, 1988). Scientistic and technocratic modes of thought survive communism. There is a strong tendency, especially among the elites, or – in Bourdieu’s (1996) formula ‘state nobility’ – to see economic growth as being, above all, a matter of developing and introducing new technologies, or in the formula preferred by post-1989 discourse ‘re-technologisation’. Technological avant-gardism is being tempered only by lack of resources. Modern scientific rationality is still the privileged discourse, and all others are relegated to the margins. As a result, institutions of the state, HE included, emulate scientific procedures within the constraints imposed by their own traditions and modes of work.

My findings suggest that successful academics in the fields of mathematics, science and technology passed through a process of selection based on performance and on natural abilities, and either received extra attention in school, or benefited from family’s cultural inheritance, or both. Therefore, they are not the product of the mainstream, typical schooling process. One may say that they constitute a product of
communist technocratic meritocracy, although the majority of them are too young to have been part of it. Pamela and Dorothy mentioned their high achievements in the math Olympics (international level). The name of the contest is a clear reference to the world of sports, and for good reason. As in sport, those who want to become high achievers need special training, coaching, and have to work harder. Pamela recalls her high-school years: “thus the criterion [for being in a special class] was performance, because this was the purpose”. In his critique of technology Heidegger (1977) speaks about the burden of seeking efficiency for its own sake in the same way that students were performing at a high level simply for the sake of performance.

Pamela describes the ethos in her class: “It was a hard life, there were essential tasks, and since then I was working hard [on] many [math] problems, the Mathematical Gazette. Professors and researchers from the Institute were keeping special hours with us, therefore an extremely favourable and energetic context directed towards performance.”

Agnes tells us that in computer science is “like in sport, bottom line”, because of the demands to perform high volumes of work very quickly. She considers herself “too slow” for working for a profit-making company, and she argues that one should be young to be able to keep up with the pace. Then she explains that this is not an isolated opinion; one of their ex-students expressed the view that he would work hard for five years, and then he would have either to take a management position, or to work somewhere else.

Although the settings vary – either a special class for the most gifted, or the workplace, or the university – the ethos permeating the work, or the situated vantage point, as Harding would say, is the same: altius, citius, fortius. That means that work in computer science, computer engineering and information technology is seen as the work
in performance sport – continuous training in the best nurturing and facilitating environment possible, with the best aiding equipment, with the best coaching possible, pushing one’s limits, competitiveness, and focus on reaching the highest performance possible – such as the work and social conditions we mentioned in relation to Pamela.

In *Technology and science as ‘ideology’*, Habermas (1971) warns about the tendency of technology and of its way of revealing the world to ‘spill out’ into non-technical spheres of life. Speaking of the importance of mathematics for a student’s formation, Agnes tells us that “these things, leaving aside the concrete theorem, the concrete content, they organise you. Any knowledge moulds your way of thinking”. She goes on to say “I am aware of the fact that this profession moulds me not only professionally but in the way I live in the world.” She then supports her statement with a funny example: shortly after she completed her doctoral dissertation in mathematical optimisation, she took a vacation to a sea side resort. While taking a stroll with a friend, she was told by her friend that she tends to cut the corners and to always choose the shortest path to a destination. Finally her friend felt the need to tell her: “Give me a break with your optimisation! I am vacationing and I want to take the long path.” Therefore, the tendency towards performance for the sake of performance, towards efficiency for the sake of efficiency, is being carried on into the university. Socialisation into a disciplinary culture imbues them with its perspectives and values, which they may experience as their own reasons for disciplinary reproduction, such as in the case of Agnes who sees mathematics as necessary for a computer scientist’s formation. Disciplines act also as filters; only those with the qualities, perspectives and values deemed necessary by the disciplinary culture are selected in its ranks. According to Ellen Messer-Davidow (1991),
“disciplinarity” culturally standardises practitioners in three ways: it constitutes social
groups, cultivates individuals and produces perspectives and values. Therefore, she
argues that “discipline is a way of life” (p. 285). The fact that women academics carry
their personalities, and their disciplinary socialisations, into the institutions and thus
shape them is beautifully expressed by Messer-Davidow (1991):

Universities and colleges are in a strange way us, and we are them. They constitute our behaviours and desires, and we academics, through our daily practices, constitute their structures and processes. Thus feminists do not have the opportunity we thought we had in the 1960s to liberate these institutions or the set up counter-institutions. We have the opportunity to use them even as they use us, to change them even as they change us. Universities and colleges, because they educate, perform structuring mediations between those who constitute them and the system of multiple oppressions that orders our culture. They can, for the same reason, perform restructuring mediations between ourselves as feminist agents and the system we want to change (p. 282).

Drucilla Cornell (2008) might call the goal to create feminist social change ‘using’ university’s ‘redemptive imagination’, while Seyla Benhabib (1992) argues that ideals as creating feminist social change are necessary for feminist ethics and for social and political activism. Today there is no academic/scientific community of women in Romania. The creation and consolidation of such community is a very slow process that requires economic resources, personal investment and time. The women academics I interviewed suffer from time poverty, while the Romanian HE suffers from chronic material poverty. The current cultural and social characteristic of the higher education milieu leads, somewhat ironically, to individualism than to collective action.
The circle of masculinity and under-representation in CS, CE & IT

Our culture is filled with messages that tell us not only how we should behave, but also who we should be and what we should become. We receive these messages in time, and they build up and cement into beliefs. Because this process of sedimentation is natural, we may treat beliefs as natural too, and may tend to accept them unconditionally. One of the most pervasive messages is that of the way men and women should behave and evolve, including the types of professional and scientific interests that are allegedly appropriate for one’s gender. We should only think of how many male nurses or early childhood educators we know or about whom we have heard. Cultural stereotypes are engrained in both men and women, in all cultures, and these stereotypes are contributing to the perpetuation of traditional gendered divisions of labour.

Women have traditionally been considered, and often have considered themselves, as being caring and nurturing, and are ‘designated’ by cultural stereotypes to occupations that require such skills. While these skills are culturally valued in any society, they have also been associated with domesticity, as well as with the idea of sacrifice, and economic devaluation. Social studies of technology emphasize that science and technology are better conceived as a sphere comprised of artefacts, social practices, and systems of knowledge. On these accounts, social meanings and practices, including stereotypes, are inseparable from the socially institutionalised processes of knowledge production. The relationship between images of science and images of masculinity do not need to correspond to real scientists, because, as Mary Barbercheck (2001) posits, “stereotypes are as real as living persons” (p. 119). Although they may not always be necessarily true, stereotypes are not to be ignored because they may influence one’s
decision to embrace a certain activity and because it has been shown to influence performance (Steele, 1997; Shih, Pittinsky & Ambady, 1999; Koch, Müller & Sieverding, 2008). Not only they do impact decisions of great importance taken by individuals themselves, but they also influence those who make decisions that affect someone else’s life, such as hiring or promotion decisions in the academic world.

Faye seems to reiterate Trauth’s (2007) findings about the ‘chicken & egg’ problem: the less women there will be, the more masculine the professions will look; the more masculine the professions will look, the less women will embrace them. My study finds that in Romania in particular, the situation is more nuanced, in the sense that, although stereotypes placing masculinist attributes to the fields of mathematics, CS, CE, and IT are present in the society at large, they are not the single forces at play. A force that counterbalances these views is the massive, larger than Trauth’s critical mass, presence of women in engineering in general (see Table 6, p. 213). However, as the country passes through a new, uncertain socio-economic period, this situation is changing to the detriment of women.

In the literature dedicated to women in STEM, one factor considered important in limiting the supply of qualified women to the fields of science, math, and engineering, mathematics manifested, as we have seen, in the form of the pipeline metaphor (Hanson, Schaub & Baker, 1996; Bjorkman et al., 1997; Mahlab, 1998). The pipeline model conceives the science career as a trajectory that starts in high-school with enrolment in university-track math and science courses, moves into university with the decision to major in science, math or engineering and ends in the labour market with employment in one of these fields (Mannon & Schreuders, 2007, p. 335). My findings challenge this
model; although women continue to be trained in math and physics – subject matters that are prerequisite for careers in STEM, today fewer women embrace a career in these fields, as Pamela pointed out. In her words, this change in options “is a matter of wisdom, of adaptation, of reconsidering.” As the economic context offers diminished stimuli for engineering, fewer women orient themselves towards engineering professions. Math is in the same category with engineering, as teaching in the secondary education system became extremely unattractive. For the time being, as the software industry is booming, we find as many women as men in software engineering programmes. In *Striking the Mother Lode in Science: the importance of age, place and time*, Paula Stephan and Sharon Levin (1992) examined the influence of the emotional and intellectual climates in which successful scientists are brought up and trained. Their results emphasize the importance for young or budding scientists of being in the right place at the right time. A person would be more likely to have a successful career in science under three conditions: a superior vantage point, a stimulating intellectual atmosphere and a vibrant economy. Joyce Tang (2006) suggests in *Scientific pioneers: women succeeding in science* that for a woman to be successful in science, structural opportunities are needed in addition to perseverance and talent. Without role models whose careers are intellectually fulfilling and materially decent, fewer women will chose to embrace an extremely demanding high-tech career, as long as the local industry is in crisis. Therefore, the “cultural imaginaries of the engineer” (Bastalich et al, 2007, p. 385) may change to reinforce old stereotypes rather than dispel them.
**Perpetuating masculinity**

By making the point that there are women who actively reinforce the androcentric view of the world, Edith reminds us that androcentrism is not to be simplistically understood as men’s struggle for supremacy and power; rather, its success is due in part to the fact that there are women who act as its allies. Plato recognised that the most effective way to maintain systems of power was not through direct violence but through persuading those in subordinate positions that social hierarchy is natural, therefore inevitable, and even that it works in subtle ways in everyone’s best interest, including their own (Spike Peterson & Sisson Runyan, 1993). When people believe that differences in status and wealth are part of the ‘natural’ order of things, they are less likely to challenge systems of organising that benefit some categories more than others. Edith reminds us with her remark that the dichotomies of gender – masculine and feminine – are taken as ‘natural’ constructs by some members of society, therefore uncritically reproduced. Families, schools, religion and media are important agents in the production and reproduction of gendered identities through socialisation. Foucault expanded Plato’s idea into his concepts of disciplinary power and disciplinary regimes of truth. The presence of women contributing to other women’s discrimination also reminds us that solidarity based on gender is more often than not superseded by personal interests; as critiques of standpoint feminism has shown, gender alone is not the most powerful social glue. Edith’s observation is also supporting the feminist view that one explanation for women’s under-representation in STEM/SET in general is to be found in gender role socialisation and in how it channels men into, and women away from male-dominated fields, reproducing traditional divisions of labour.
When speaking about “self imposed walls”, Edith supports those theories that conceptualise women’s participation in CS, CE & IT as a cultural product (Barker & Aspray, 2006; Barker, Snow, Garvin-Doxas & Weston, 2006) and Trauth’s (2007) contention that cultural definitions of femininity place IT outside the boundary of ‘feminine’.

**Proving yourself more**

Speaking about gender stereotypes and expectations, Trauth (2007) states that “in the 200-plus interviews that I have conducted with women in IT in several countries, one theme that appears over and over again is that women have to prove themselves to a much larger extent than men.” This ‘proving yourself more’ theme became salient during the analysis of my interviews too.

Faye’s comment “until the end they will forget that you are a woman” reminds me of Angela Pattatucci’s (1998) remark, “women aspiring for scientific careers can therefore be characterised as trespassers on the private property of males” (p. 3). According to Pattatucci, gender socialisation produces the strong message that scientists are men and science is masculine – hence science is their ‘private property’. It goes without saying that relationships with colleagues contribute substantially to well-being and career progress. Thus, a chilly climate may constitute a breaking force in one’s learning and career advancement. It seems that Faye had to overcome this breaking force in addition to all the other challenges that are common for all academics. For a woman respect is not granted, it is rather conquered. Thus, she has to ‘fight a bit more’. Being woman is then ‘forgotten’, or rather ‘forgiven’.
An inhospitable workplace atmosphere is among the explanations most frequently offered for the under-representation of women in IT (Gunter & Stambach, 2005; Hoonakker, Carayon & Schoepke, 2006; Sagebiel & Dahmen, 2006; Major, Davis, Sanchez-Hucles, Downey & Germano, 2007). Faye did not quit, though, because she toughened up and persevered. Faye endorses and subscribes to the culturally normative ideal of male behaviour, characterised by competitiveness, strength, drive, ambition, self-reliance – or what in gender studies is called hegemonic masculinity. Felizitas Sagebiel and Jennifer Dahmen (2006) argue that:

The bond between hegemonic masculinity and engineering lies in the social construction of engineering as a masculine issue in the female-male polarisation. Elements of this dominant masculinity are a male culture of stories, jokes, leisure sports and similar informal strategies, all constructed explicitly or implicitly to exclude women, consciously or/and unconsciously (p. 12).

In Faye’s case the most important element of dominant masculinity seems to be professional performance. If you perform well, you will earn respect, or in other words, the entrance ticket into men’s club. This seems fair enough – after all, as Faye says – the academy is a competitive world where one is expected to perform his/her professional best – only if we do not count the extra-challenges she had to face. If we take those into account, we cannot conclude, like Faye, that she was never wronged. We may say that she was not wronged willingly and purposefully but rather indirectly through the hegemonic masculinity mechanism.

Linda also has encountered situations when at prima facie she was ‘granted’…reticence, and she had to earn her trust. She does not see this attitude as a supplementary impediment. Linda finds logical explanations for this attitude, and does not attribute it to discriminatory intentions. Besides, the attitude is short-lived if one
proves her worth. It is in the power of women to dispel preconceptions, by doing the right thing. Linda had not thought that her male colleagues did not waste their energy dispelling preconceptions and she does not think that “the right thing” or that what constitutes “good” work might be appreciated differently by men and women. Again the woman is the one who must conform to the standards set by men; if there is any mistrust, it is because the woman did not make it clear enough that she is equally capable of performing the job. All my research participants meet what Sue Rosser (2004) calls the “woman as deficient” (p. xiii) model. According to Rosser, research on gender differences in the amount of time taken to achieve tenure, publication productivity, and receipt of prestigious awards, coupled with assertiveness training and re-entry programs for women, led to this model. In her study involving 450 academic women scientists and engineers in US, Rosser found that women internalised this model and questioned whether something was wrong with them as individuals because of the obstacles to success in their academic scientific careers. Although my research participants are faced with a somehow different set of challenges, their reaction seems similar and fits the ‘woman as deficient’ model, because they question not the requirements, but their own capacity to meet them.

It is clear that people tend to require more evidence of competence for a woman than for a man before concluding that the woman is competent. This is especially the case when the woman runs for or occupies a leadership position. Yet, my research participants reject the existence of systemic discrimination based on gender in their university. In other words, they see nothing in the system that would allow or encourage gender discrimination.
Is there a glass ceiling effect?

We have seen in Fig. 6 (p. 130) that HE in Romania has an overall GCI of 1.4, which indicates that women academics at level A (professoriate) are being only very slightly under-represented. In other words, the proportion of women professors in academia is almost equal with the proportion of women academics. This indicates a negligible glass ceiling effect. In CS, CE & IT, if we revisit table 5 (p. 215), we can see that, in the universities/departments comprised in this study, at professorial level there are six times more men than women and that the ratio improves as we step down the hierarchical ladder. From the table in Appendix 4 (p. 360) we see that women are barely represented in the Senate Bureau, which is the de facto leading body in a university. Women are also a minority or not present in these Faculty Councils, which does not necessarily mean that they are under-represented proportionally in all cases. In two faculties, although the number of women in these bodies is much smaller than the number of men, proportionally women are represented. In all the other cases, though, women are indeed under-represented both numerically and proportionally. One good reason for this fact is that leading bodies such as the Faculty Council and the Senate Bureau are comprised of professors (although an associate professor may also be a candidate); the fewer women professors, the higher the under-representation of women in leading bodies. Thus, the lower number of women is showing its effects at higher hierarchical levels.

As the largest number of women is now in the lower ranks of the academic ladder, it is premature to discuss the glass ceiling effect. Also, the CS, CE & IT departments are relatively new. Time will tell if they will advance as rapidly as their male colleagues or
not. What we know today is that women professors are usually present in the Faculty Council, and sometimes are the heads of their department.

The Ministry of Education, based on the European documents signed during the Bologna process, recommends that a mandate for a top academic administrative position (department chairperson, scientific secretary of the Faculty Council or of the Senate, Faculty dean, deputy dean, rector or deputy rector) to last four years. A system of rotation, if it will be adopted by universities, means that more men will hold these positions, because they are more numerous to start with, unless the proportion of men and women in the professoriate becomes more balanced.

Although opportunities for promotion exist, women’s understanding of informal discriminatory practices may lead them to assess their real chances of advancement and may lead them to decide to not try to take advantage of opportunities ostensibly open to all. Hence, the psychological barriers Dorothy and Linda speak about. Promotion decisions are also taken into consideration if the candidate meets a certain profile of what is considered a successful leader. Of course, the model is tailored after male leaders, as women leaders were almost inexistent. Having a family, or “the other part resolved”, is interpreted as proof that one is reliable, neatly integrated in society’s structures, capable of commitments – shortly said, he or she is a serious person. Obviously this leader profile is not tailored after successful women academics, because they are usually childless and single or divorced. In addition, a single person introduces some elements of uncertainty in the organisational life. A married woman candidate means less chances she will leave the institution to follow a future partner, as it is more likely a woman will follow her husband than the other way around. Such reasoning puts male candidates at an advantage.
because for them having a spouse and children constitute less of a burden and more of a help in their professional career, whereas for women it is rather the other way around. Therefore, leadership practices may not create, but they may reinforce gender inequities. Cynthia Cockburn (1991) argues that “men are found to be culturally active in creating an environment in which ‘women don’t flourish’. Often, the exclusionary practices are oblique” (p. 65). In other words, male dominated culture is, for the most part, perpetuated subconsciously.

Further highlighting the self-disciplinary power of institutional culture is Agnes’ self-reflecting remark that: “it is possible that I am way too accustomed to the fact that in general leaderships are masculine.” Her remark points to the insight into power brought about by feminism: that we all share a part of it, and that we are all implicated in – and thus responsible for – its reproduction. Patricia Sue Parker (2005) contends that the focus on leadership as good management stems from the industrial paradigm to ultimately reify the feminine-masculine dichotomy. According to Parker, management processes have been defined traditionally in masculine terms such as authority, structure and instrumentality. Common symbolic representations of leadership, and even so-called alternative approaches such as servant leadership are either primarily male centred or they implicitly reinforce traditional understandings of men’s socialised communication patterns (i.e. more instrumental, directive and aimed at controlling others) (pp. 7-8). While I do not agree with Parker that authority, structure and instrumentality are necessarily masculine terms, it seems to me that, at least in Agnes’s case, she is right about common symbolic leadership representations as having a rather masculine character.
In sum, incidents of unfair treatment are seen as inconsistent and not interpreted as gender bias. Differential treatment between men and women, when it occurs, it is attributed to differences in performance. When it is to their detriment, women usually blame themselves for not performing at the levels expected. Their efforts are not channelled into changing the environment, but into adapting to it. Women are welcome as long as they conform to the image and the expectations of the field; they embraced the image and the expectations wholeheartedly.

**What is to be done?**

Laws purporting to end gender inequality tend to diverge on one important issue. Some legislate for *equality of opportunity*, while others, by contrast, require *equality of outcomes*, a goal which inevitably entails mandatory special treatment, or positive discrimination. Equality of opportunity refers to ensuring that no doors that stand open for men are closed to women. The *positive or affirmative action for women* concept has been introduced in the legislative world by the *United Nations Convention of 1979 on the elimination of all forms of discrimination against women*. Article 4 of the Convention stated that temporary special measures in any sphere – civil, economic, social, cultural, political, intended to affect actual equality between women and men must not be considered unlawful sex discrimination (Cockburn, 1991, p. 31). It may well be that RSR adopted the affirmative actions policies we now recall because it was a signatory state. Today Romanian legislation has not adopted the principle of positive discrimination (*mésures de rattrapage*), but as we have seen in Chapters 3 and 4 there is no shortage of legal provisions asking for gender equality – of opportunity, that is, not equality of outcome. There are several laws in place: the *Law for preventing and combating all*
forms of discrimination (2002), the Law on equality of opportunity between women and men (2002), and the Law for preventing and combating violence in the family (2003). A research project coordinated by Mihaela Miroiu, the most well-known Romanian feminist, the initiator of gender studies in Romania and the Dean of Faculty of Political Science of National School of Political and Administrative Studies Bucharest is entitled Ethics in Universities: how it is and how it should be speaks about equality of opportunity (Miroiu, Bulai, Cutas, Andreescu & Ion, 2005). All Romanian universities adopted a Code of Ethics, in addition to the University Charter; both types of documents specify gender equality as an ethical principle and ban gender discrimination of any form and sexual harassment. Therefore, there is no shortage of guidelines either.

Miroiu (2008) speaks about the imposition of gender-sensitive legislation in Central and Eastern Europe through the authority of international political actors, and she defines it as “room-service feminism” (p. 237). These political actors she refers to are the European Union, the IMF, the WB. She sees EU as particularly instrumental in the imposition of gender-sensitive legislation before the internal public recognition of such a need. Miroiu seems to have the same grudge as Dorothy, when she said that the measures are rather lip-service than real promotion measure. Thus, Miroiu contends: “It is a strategy of emancipation from above that in fact covers the weakness of a postcommunist society: the rejection of ideologies and the acceptance of integration as a messianic solution for all social evils and forms of injustice” (p. 237). Positive action measures do not challenge the mainstream culture and practice, but assist women to fit in and prepare them for operating in a male-dominated culture. According to Teresa Rees (2001) “some
positive action measures reinforce a particular version of masculinity in the work culture that is alien to many women” (p. 245).

In the past, positive discrimination did not work well for women as a social category. The way it was adopted and implemented was, of course, entirely top-down, without any social input, as all directives of the RCP, which were never discussed, neither prior nor after, but always executed (to be entirely correct, we shall say – either executed or given the appearances of being executed, depending on the situation). In this case we do not know for sure if the one-third women stake has been achieved and in how many places of work. What we do know with certainty is that the measure lacked large public support; therefore I am not surprised by the low opinion my participants held of it. Also at no surprise came their reluctance to accept yet another top-down approach, yet another imposition. It was no wonder that they would rather not have any policies in this area, than to repeat past mistakes. Another argument in favour of their position is the fact that long-existing sex discrimination legislation does not seem to compel employers to take effective steps to combat inequality and few have had a change of heart because of policies, guidelines and legislation. I suggest that political action works best in conjunction with education; educational campaigns about gender equity, which unpack the concept of equity, explain the differences between equality of opportunity and equality of outcome, and which generate real dialogue at grassroots level, may prepare the terrain for policy. Education acts like the nutritive minerals in a soil; without it, the policy would have to be seeded over and over again, as it will not take root.

As García de León (1993) concluded in her article about women academics in Spain: “the complexity of including women in a short period of time in the university
institution and scholastic culture in general gives rise to very complex situations that need to be studied in depth” (p. 92).

This observation is particularly true in CS, CE and IT; these fields themselves are relatively new and masculine, and women’s strides in academic circles in these domains even newer and more complex. Lacking feminist perspectives, my research participants do not see any mechanism embedded in the system of higher education that would be conducive to gender discrimination, and therefore did not feel the need to organise based on gender. I am of the opinion that, in the current cultural and socio-economic environment, where laws are enforced with difficulty, it is precisely organising based on gender that may lead to reducing and finally eliminating still lingering gender inequities, rather than another piece of legislation.

A ‘third way’ between positive discrimination and gender equality is considered to be the so-called *mainstreaming* strategy. The EU has adopted mainstreaming as its main policy approach for promoting gender equality (Rees, 2001). However, what exactly mainstreaming entails is subject to debate. For some it means conducting a gender-impact assessment on all proposed legislation whereas for others it means a wholesale redesign of social systems and structures. To redesign systems and structure presumes to understand first how current forms advantage men. Given the scarcity of means I talked about, I do not see how mainstreaming may work in the near future for women in Romanian higher education. I stress the idea that, if they manage to form a collective voice, they may remind people of what they all agreed upon when laws, policies and guidelines regarding gender equity were adopted.
Work and family

One conclusion that stems from the study is that after 1990 it became more difficult to balance work and family life, especially for women with children. A number of factors are responsible: lack of daycare, lack of trust in hiring babysitters, financial difficulties, increase in the number of students taught and the fact that the profession became more demanding.

Another lesson learned from these experiences is that women academics in CS, CE & IT mothering young children work to their limits. The amount of effort required daily left them exhausted. This finding is consistent with similar conclusions drawn by Gail Kinman and Fiona Jones (2004) about women academics in the UK. They argue that work loads and work stress have increased, that academics face competing demands on their time and energy, and that work pressures increasingly spill over into personal life. Like the academics in UK in Kinman and Jones study, Ingrid has to work for her new course at home. Adding to the stress, is the fact that Ingrid is Senior Lecturer and teaches mainly undergraduate programming courses, which requires many laboratory hours. In addition, Ingrid teaches courses in a northern town where her university has a section, which requires her to travel. Continuous changes in work arrangements – number and distribution of courses, curricular changes, changes in the way students are admitted into the programme, changes in the study programmes themselves – due to the Bologna process add of course to the stress; so do the large number of forms that Ingrid has now to fill and the large number of administrative tasks due also to the Bologna process.

Needless to say, the nature of computer programming as an academic discipline is not static either; Ingrid has had to keep pace with one of the most dynamic (if not the
most dynamic) field of study. Therefore, lack of stability on the home front is coupled with lack of stability at work; no wonder Ingrid longs for some routine. In Sue Rosser’s (2004) study mentioned above, she also found that overwhelming numbers of respondents – women academics in science and technology fields throughout US awardees of the POWRE NSF’s programme – found balancing work with family was the most significant challenge facing them (p. 35).

As she anticipated conflicts in responsibilities between work and home, Fay decided to sacrifice motherhood as a coping mechanism. Kathryn Bartol and William Aspray (2006) cite in a review of the research dedicated to the transition of women in IT into the workplace a number of studies that found similar attitudes. Thus, a survey conducted in the US whose results were published in 2003 found that 30 to 40 percent of college women felt that careers in IT would be incompatible with raising children. A 2002 report from Netherlands revealed similar results for Dutch women. The report cited the expectations of long hours, the overtime required and the difficulty of reconciling work and private life as factors making an IT career less viable. Similar studies in 2004 in the US also revealed that women were likely to think that their work environment do not allow them to put family matters ahead of their work and to feel, like Fay does, that they have to choose between a career at home or at work.

Another study cited by Bartol and Aspray (2006) reveals that women working in IT are more likely to be single than the men, and, if married, the women are less likely to have children (p. 402). This is the finding of my study too; more and more women preparing for an academic career in CS, CE & IT choose not to have children and many are not married. Children are seen as a threat to one’s career mainly because a few years
break from the discipline is considered unacceptable because one cannot keep pace with
the new developments and because is a competitive disadvantage. In some respect, the
situation resembles Nancy Fraser’s (1997) Universal Breadwinner model of gender
equity, with women becoming more like men.

**Financial austerity and uncertainty**

Peter Maasen and Nico Cloete (2006) argue that one global trend in higher
education today is that research is being prioritised over teaching. Contemporary
scientific work occurs in social and organisational contexts that may stimulate or depress
productivity. According to Frank Fox and Mohapatra (2007) the social and organisational
features of work have been acknowledged to be among the most critical potential factors
influencing research performance among academic scientists. For academic scientists
publication productivity is the most central indicator of performance; publication is
correlated with research. Therefore, when one is hampered in her ability to conduct
research, one is hampered in academic productivity. Moreover, modern scientific
research takes place in communities of practice that are international in nature. Faye
beautifully illustrates the transnational character of research in CS, CE & IT, by speaking
about research in her domain of expertise – Artificial Intelligence: “it is an eminently
American discipline, its parents are there and today the Americans are still the most
advanced.” When a researcher is prevented by lack of funding to pursue her research
ideas, her collaboration within the international research network she is part of, or at least
tries to be part of, has to suffer. This is especially true in CS, CE and IT, whose
international character goes without saying. The number of research projects undertaken
simultaneously is also considered as an important dimension of work practices in science
insofar as simultaneous projects are believed to provide flexibility and alternative tasks at “points of blockage” (Frank Fox & Mohapatra, 2007, p. 545). Frank Fox and Mohapatra argue that funded research projects lead to more coauthored work. Coauthoring with renowned researchers in one’s field is an important stimulus in one’s career. Thus, lack of financed research is detrimental for one’s image in the international scientific community in her field and may prevent her from getting opportunities to work with the experts in her field and from evolving professionally; thus she is caught in a vicious circle. Academic productivity is the most important factor for advancing on the academic ladder; therefore another consequence of lack of research funding is that it hampers one’s upward mobility. In the words of Frank Fox and Mohapatra (2007):

Together, these variables of team composition, range of collaboration, number of projects undertaken, and work climate constitute key elements in assessing and understanding the relationship between social and organisational characteristics of work and publication productivity among academic scientists in doctoral-granting departments. These social and organisational issues of work apply particularly to scientists in higher education (p. 545).

Lack of funding negatively affects all of these variables: team composition, as one cannot attract collaboration, range of collaboration, as one cannot travel, attend conferences and meet face-to-face with fellow researchers, number of projects undertaken, and indirectly the work climate. Yet, the worse effect of all is that it limits the timely access to information, which in academic research is of crucial importance, especially in fields as dynamic as CS, CE and IT.
More students

As we have seen in Chapter 4, during the communist regime, only 8% of high-school graduates were pursuing university degrees. As a result, after 1990 Romania ranked way lower than the European average in terms of number of university students at 1000 inhabitants. In the context of integration into the European Union, and in the context of preparing for a knowledge-based economy, Romania has made efforts to increase the number of university students. Reducing the number of years for the first cycle is inscribed into this larger effort to add mass to the higher education system, along with the creation of new HEI, and with lowering admission requirements. Naturally, 3 years of study cost less than 4, and 4 less than 5. Therefore, the Bologna process, through its cycle objective, is yet another mechanism to increase the number of students, while keeping government higher education costs constant. The effort to increase the number of students has been successful; now Romania reached 33 HE students/1000 inhabitants, comparable with the European average of 38 HE students/1000 inhabitants (Grundey, Zaharia, Ilie, Colibasanu, 2007). This is one factor that led to the increase in the number of students in CS, CE & IT; the second is the fact that these specialties are in high demand and the third is that departments are in need of the extra-funding brought in by students paying tuition. Needless to say, a larger number of students translated into an increased workload for academics.

Loosing home-grown talent

The tendency to even physically concentrate into centers of excellence is not only as old as the European universities, but it is one of the major factors that led to their creation in the first place. Therefore, it is neither new nor hard to comprehend. Danielle
Logue (2009) even places the beginnings of the brain drain phenomena in the ancient world: “Even in the Ptolemaic dynasty, the first king set out to attract and influence the movements of scholars to shift the centre of learning from Athens to Alexandria” (p. 41).

Several characteristics of CS, CE and IT world act as catalysts for this process of intellectual and even physical concentration. One is that theoretical and practical aspects of knowledge are hard to separate; thus one shall rather speak about praxis in the computing field. Another, which derives from it, is that important centres of advancement are not to be found only in universities or research institutes, as is the case in physics, for example; they can be found in industry as well. Thus, nobody can deny the fact that companies such as IBM, Microsoft, Apple, CISCO, SAP, Oracle, etc. act as engines for the advancement of the computing world, which naturally led to them attracting those passionate and poised to learn. In fact, today’s educational theories too relate work, learning and innovation in one context (Brown & Duguid, 1991).

Another characteristic of the computing world is that, through its very nature, creates a new learning paradigms, based on virtual communities and networks of collaboration. This is not to say that collaborative work and the need to timely share information within scientific circles start with computer networks of communication. Quite the opposite: computer networks are a result of this need within the scientific community; the Internet itself was born out of the need for scientists to speed up information sharing, which came on top of its initial military applications. Nowadays, collaboration communities, communities of practice (Brown & Duguid, 1991; Lave & Wenger, 1993; Wenger, 2004), knowledge networks, or networks of competence, based on computer networks communication evolved substantially and even added a social
component, in the so-called Web 2.0 or social networking applications of the Internet. I prefer the term communities of practice developed by Jean Lave and Etienne Wenger in 1991, based on the constructivist learning theory. Wenger (2004) defines the communities of practice as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (p. 1). The identity of this community is given thus by the shared interest, and membership implies a commitment to the domain, shared competence and shared practice. Today there is a great deal of effort from national governments and even from supranational organisations (Science Commons, LIGO Scientific Collaboration) to encourage such communities of practice; and one of the main objectives of the Bologna process is to create the European Research Area.

Being both in the nature of current scientific collaboration and in the nature of the computing culture to form virtual communities of practice, we may say that people who chose to learn and work in another country are ‘lost’ only to a certain degree. At the individual level, we may consider that, because they have the opportunity to work unrestricted by the severe under-financing at home, and the practical limitations which result from it, they have better chances to progress, to acquire or to create new knowledge and to share their knowledge. We have seen that research in Romania is fettered by severe financial difficulties; I suggest that my participants’ attitude is justified by their desire to see their brightest students interested in research in an organisational framework which will allow them to do research and to attend conferences; hopefully this will benefit not only them, but also their alma mater, as they indirectly represent the Romanian school of CS, CE or IT and as they may keep in touch with it.
The above reasoning makes sense if we think what is in the best interest of the individual student who goes abroad to fulfill his or her career, either in a firm or in another university. However, if we think at country level, we should ask ourselves what it means for a country with such a small GDP/capita to lose people with a high level of education in large numbers. I suggest that we should also make distinction between mobility – time spent working abroad to progress in one’s career – such as in the case of Dorothy, and migration – going abroad to learn and work for good or at least for a long period.

Issues of reciprocity, fairness, balance and differential opportunity further complicate the matter. Logue (2009) proposes that the issue of brain drain be treated by policy makers as a ‘wicked problem’, characterised by circularity and contradictory certitudes, where often the definition of the solution defines the problem (p. 42). Through brain drain, poorer countries end up subsidizing the high-tech labour needs in rich ones (Portes, 2009). Another consequence is that it diminishes the quality and quantity of the human capital available on the internal labour market, which leads to the reduction of the internal creative and productive potential (Patrasca, 2005). My study finds that about half of the PhD candidates leave the country and do not return. Nevertheless, this phenomenon is a complex matter, as it has both negative and positive effects, which explains the mixed feelings it generates among my research participants. In fact, one woman interviewed confessed that she herself had thoughts about leaving the country.

My findings show that material reward does not stand high on the list of motivators for Romanian researchers, as long as it enables a decent standard of living. Agnes, for example, says: “I consider that to be poor means to be homeless, to be
hungry.” And then she goes on to say: “in the 1990s it was hard; I said to myself, well, I will continue to wear these 15 years old shoes I have had since high-school”. Now, Agnes “cannot complain” about her income, as salaries have been raised and she advanced in rank. Dorothy told us about her younger colleague who gave up teaching due to material hardship. Unfortunately a decent life style may not be attained until one becomes a full professor. Therefore, multiple teaching loads and secondary employment are used as coping mechanisms for those who chose not to leave the country. A clear lowering of social status conferred by the position is also being perceived by many academics. The single force that counteracts all these hardships is a strong sense of place.

Virtual professional identities

The notion of community of practice I have been referring to is not merely a community of interest; members of a community of practice are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice. This takes time and sustained interaction.

Regardless of whether they are employing solely face-to-face communication all the time, or virtual communication all the time, or a combination of the two, these communities develop their practice through a variety of activities: problem solving, requests for information, seeking experience, sharing assets, coordination, discussing developments, documenting projects, mapping knowledge and identifying gaps, visits (Wenger, 2004, pp. 2-3). All these require resources, not only in terms of time and effort, but also in financial terms. Here I want to re-invoke Edith’s words that “you cannot do [work normally] without financing”. When the practice involves research at academic level, financing influences one’s performance within a community of practice at various
levels. Adequate financing provides a framework that enables the researcher, whereas the opposite constitutes a serious impediment.

Carrie Paechter (2006) makes the case, building on her previous work, that it is possible to treat masculinities and femininities as communities of practice. Taking her idea into account, it follows that a woman academic working in domains perceived as masculine as CS, CE & IT, and clearly dominated by men, most likely encounters gender stereotyping within her communities of practice, which are also practicing various forms of masculinities/femininities. In scientific communities, power relations and differentiations are being shaped by member’s contributions, or performances. As results from my data show, in Romania researchers in universities (as well as researchers in what is left of the research institutes) are working in an atmosphere of uncertainty due to continuous changes in research structures and discontinuous funding. As a result, it is expected that their performance is negatively affected. Within the country’s boundaries, and within the region, this situation is known and one’s performance is judged in context. However, on the larger disciplinary community of practice, these aspects may become opaque and what stands in the light is what one published and in which conferences s(he) has participated.

Given the general condescending attitude women encounter in this field everywhere in the world, if a woman academic cannot perform on par with other academics, located anywhere, I suggest that the first cause suspected would be her gender. I suggest that women academics, not only in Romania, but everywhere, come in contact not only with local, but also with distant patriarchies. In countries such as Romania and India there are many women in IT; they might not shine on the computing
world’s firmament, not because they are women, but because they lack resources. While none of the women in my study are on the verge of some path-breaking research at the time of the study, their work is as useful for their communities as is sustained.

Vocation as sub-politics

In the general spirit of feminist critical theory at the center of my research, I interpret the contemporary apparently apolitical retreat to private life manifested so drastically in today’s Romanian society, not as a new inwardness or as an individualisation process that reached completion, but rather as the struggle for a new dimension of social action. Ulrich Beck (1994) contends that in the second modernity we now live, “the still prevailing impression that social awareness and consensus ‘evaporates’ in the ‘heat’ of individualisation processes, is not entirely false, certainly, but also not completely correct” (p. 20). While I cannot claim that social consensus is evident in contemporary Romanian social life, I suggest that social awareness exists and works in ways that might lack visibility but not effectiveness. The way in which non-political social actors enact social change in more or less subtle ways, through means that may hardly be called political, is being labelled by Beck *sub-politics*:

Sub-politics is distinguished from ‘politics’ first, in that, agents outside the political or corporatist system are allowed to appear on the stage of social design (this group includes professional and occupational groups, the technical intelligentsia in plants, research institutions and management, skilled workers, citizen’s initiatives, the public sphere and so on), and second, in that not only social and collective agents but individuals as well compete with the latter and each other for the emerging shaping power of the political (p. 22).
Sub-politics, then, means shaping society from below; it also means the blurring of boundaries between what constitutes political decision and what not, characteristic of the second modernity.

One common thread that becomes salient from the discussions I had with these women was that, against all odds, they still remained aware and interested to a high degree in the problems of society at large. They were not only aware, but also totally engaged, and continue to see themselves as conscious agents whose duty is to ‘put their shoulder to the wheel’, and to ‘contribute’ to the collective well-being, as we have discussed before. Despite the fact that professional life occupies a first-stage, despite the fact that these fields require extensive sacrifices from the extra-professional sphere of preoccupations, despite the pressure to publish, to do clerical work, to do committee work, to teach multiple loads and to handle family and personal relationships, they still find time, energy and interest to remain aware of what is going on in the economy and in the society in general.

Thus, I did not encounter the ‘nerd’, ‘isolated’ and ‘aloof’ type of personality described in the literature surrounding scientists in computer science. Quite the opposite; they all discussed their activity in relation with two practical social aims. The first and most prominent one, of course, is to contribute to producing the much-needed technical experts in computer science. After 1990 the country was lagging way behind the West in the spread use of computers. The reasons are by now clear: the crisis described in the introductory chapters. The vast majority of firms lacked computing equipment (as they used to be the clients of these ‘calculus offices’, firms set up to meet other firm’s
computational needs), or had equipment so outdated that it was more appropriate as museum artefacts.

My own company, a large design institute, well endowed in all other ways, was still using in 1990 a large mainframe computer of local production called FELIX, while in the West people used PCs with Windows 3.1 and Macs. Internet connection also started after 1990. As a result, there was a tremendous amount of work for computer scientists: to set up networks, to set up websites, to expand the Internet, to design databases, to train users, etc. The amount of progress and the amount of work that has been done in these years in IT in Romania is staggering. Moreover, it is of tremendous importance for the whole society and has consequences in all spheres of life.

The Romanian communication and IT industry, usually referred to in Romania as the IT&C industry, continue to absorb all graduates. This industry is the newest one – it started in earnest only after 1990. While in hardware there have been several factories for computer components (IPRS Baneasa, the Memories Factory in Timisoara, etc.), the software industry was virtually non-existent, except for these ‘calculus offices’ mentioned above. Software used to be produced internally within large companies, by their own IT departments, and in these offices for smaller ones. A report of the National Institute of R&D for electrical engineering released in 2007 shows that the IT&C industry is one of the most important in the national economy in value terms, and also as continuously increasing growth rate. The report states that in 2006 the total business figure increased by 24% from the previous year’s figure. The telecommunication sector is the best represented, counting for 62% of the total. The rest is represented by the software sector, which, according to the report, had reached growth rates higher than 40% in the
last years. The total business figure in software industry has increased by 66% since 2005; in software the country is an exporter (exports are 3 times higher than imports). In hardware it is an importer, with internal products covering only 20% of the need, so that overall Romania still imports more than it exports. Even so, it contributes 4.2% to the GDP and employs 2.3% of the total number of employees in the economy. According to the same source, in 2006 the software sector grew at the limit imposed by the number of graduates ‘produced’ by higher education (Vuici, 2007).

The second aim is to contribute through research to solving practical problems in the companies which solicit their expertise. The first thing I discussed with Pamela, right after introductions, was a research project she leads in a company in my hometown, a textile factory called Matex. The ‘faith’ of this company is exemplary for the struggle for salvaging whatever can be salvaged from a decaying industry, in a globalised economy. Before 1990 it used to employ 1,100 people, women in their vast majority (an example of work segregation). The leadership was made entirely of women, since its inception in early 1970s. It now employs 153 people and the CEO is a man. Despite buying the best raw materials available on the market, despite lay offs, despite loans and despite re-technologisation, it still struggles to resist fierce competition from Asia, especially from China. Only time will tell if the scientific investment in novel technological solutions will pay off or the investors (now foreign) will move once more their production towards the East (Turp-Balazs, 2005). One thing is sure: professionals such as Pamela are not displaying signs of ‘relative paralysis’. Beck (1994) contends that:

In the wake of subpolitisisation, there are growing opportunities to have a voice and a share in the arrangement of society for groups hitherto uninvolved in the substantive technification and industrialisation process: citizens, the public sphere, social
movements, expert groups, working people on site; there are even opportunities for courageous individuals to ‘move mountains’ in the nerve centres of development (p. 23).

Teaching and research in CS, CE and IT are not activities that can be successfully conducted in isolation in an ‘ivory tower.’ It is one if their innate treats to be organically connected to the world (and not only to the world of work) in a myriad of ways, including education. This is why I employ Beck’s (1994) notion of *vocation as political action* to characterise my participants’ professional activity: “Vocational groups possess the productive intelligence and the power to arrange things in society” (p. 47).
Chapter 11 - Conclusions

This study aims to shed light on what it means to be a woman academic in the fields of computer science, computer engineering and information technology in a second world country carrying the legacy of a failed half-century socialist project. The first chapters depict a unique situation, even for Eastern and Central Europe. I employed the ‘biography’ of the single political force at the time, the Romanian Communist Party (RCP), in order to convey a broad historical view of the country, as well as the beliefs, interests and values that propelled it. I have done so in order to present a sketch of women’s condition during communism and to show what role has been attributed to them by the RCP. What followed after the fall of the Berlin Wall has been depicted in large strokes; I conveyed the idea that neo-liberalism has been the most influential ideological framework at play in Romania, as it was in other ex-socialist countries in the region (and in other second world countries in S. America and the Caribbean) through such conduits as the World Bank and IMF, and their adjustment programmes. I suggested that their understanding of local realities had been limited and that their measures proved deceptive to a high degree. Romania has not recovered the tremendous economic gap that separates it from the rich industrialised countries in Western Europe and N. America. While progress has been made, and the state of flux and uncertainty developed the air of normalcy because people adapted to it to a certain degree, the result we see today is far from what people expected during the revolutionary days.

Then I briefly analysed the situation of women in a post-communist market economy, which may be well summarised in two words: stepping backwards. Here I must
make the distinction between the economic situation, which deteriorated for women, and
civil liberties, which improved substantially (when they are being respected). Higher
education was presented historically from its inception. However, only two periods,
1948-1989 and 1990-present are treated in detail. The second period in particular is given
more space, because of the numerous changes grouped into two large ‘reforms’, which
can be traced through legislation. While there is debate about the number of reforms, I
decided there are as many reforms as Laws, and therefore did not count minor
government decisions. The majority of analysts agree with this way of counting.

The important changes brought about by two new education laws were then
presented, as well as the resulting structural model for an institution of higher education.
Finally, I spoke about the Bologna process of creating a common European framework
for higher education and how it influences Romanian higher education.

From the literature I found that my assumption that being a woman in science and
technology is a problematic position is shared by all feminists, regardless of their
orientation. Feminist critiques of science and technology draw from both Marxism and
Critical Theory. Some feminist theory is strongly rooted in Critical Theory and it may be
seen as a powerful branch thereof. Although I spent much time researching a large
number of publications, I did not find a study about women academics in Romania. I was
not surprised, as I know that feminist research in Romania is a rara avis. Feminism as a
philosophical current is of recent import. Women’s studies are in their first years of
existence (here I refer to the single such programme that exists) and they do not seem to
be gaining much popularity.
There is, however, a large body of research about women in science, technology, engineering, and mathematics (I am aware of the fact that these categories overlap; I mention them as such because they act as keywords in the literature). From this body of literature I found that women constitute a minority in these fields almost everywhere in the world. Reviewing the available data about women in STEM/SET domains, I discovered that overall this is the case, but that there are exceptions as well, at least in Europe. One ‘outlier’ is the group of Baltic states, and others are Portugal, Belgium and Ireland. In Europe, only 5.8% of doctoral students in science and technology are women.

There is also segregation in terms of fields of work, with some fields considered more feminine and others more masculine; and in terms of promotion – women occupying the lower levels. Women scientists are being employed more in higher education or by governments – in positions that are less well paid. The best paid positions are to be found in the business sector, and here women are seriously under-represented. In Romania the situation is not so drastic, but we have to keep in mind that here the business sector that would hire scientific researchers is almost non-existent. In fact, research in Romania is passing through a dark age right now, due to severe financial austerity (economic crisis).

In terms of numbers, there are fewer women than men researchers in science and technology, but the gap does not exceed 8%. The fact that research institutes are a shadow of what they used to be propels women researchers, as well as men researchers, to move into higher education, or move to other countries. The main view held by authors writing about women in STEM is that science is considered a masculine domain of activity. The literature reports that women encounter gender stereotyping, a chilly
climate, feelings of isolation due to low numbers of female colleagues, and a lack of mentorship for the same reason. It seems that women academics and scientists prefer to be mentored into the inner workings of academic life by other women. My study does not reveal this, but it does not contradict it either. The reason is that mentorship does not have the same significance as in a Western university. In Romania, mentorship is not about being assigned to a person; rather the incumbent ‘grows’ into the department, because the doctorate used to be the crowning of years of research activity, and not the beginning of it. People complete their PhDs after working in a collective for years, teaching and helping with research; therefore, there is not the same need for mentoring as in a situation where one graduates with a doctorate from one university and becomes a ‘new face’ in another.

The fact that one used to ‘grow’ in a university, from Bachelor to doctorate and senior academic positions (professor) is reinforced by the finding that all research participants are working either in the same university from which they graduated or in the other main university in town. We have seen that in Romania there are four large university centres, each with at least 3 large state universities – one comprehensive, one technical (polytechnic) and one medical.

While in the rich countries of N. America and Western Europe there is a large effort to increase the numbers of women in science and technology, and this effort translates into numerous affirmative action programmes, in Eastern Europe this is not the case. One reason is that here women are not severely under-represented in technical professions overall. I added the word ‘overall’ because if we look at certain narrow specialisations, there are fields that are considered masculine, as there are fields that are
considered feminine. In Romania, in IT, for instance, there is a clear tendency for women to embrace software engineering and less so computer engineering. This tendency has roots in the way the higher education system used to function, but, now that this root is severed, the tendency continues, which leads me to conclude that it is truly an expression of preference. However, in terms of numbers, software engineering is fairly balanced at primary and secondary cycle levels, roughly half of the students being women and half men; this is a stable situation.

At the third cycle a small imbalance presents itself in favour of men, but there are no large differences in numbers. In fact in some universities there are more women at a doctoral level in software engineering than men. In computer engineering the situation is reversed. Here there are more men than women; the ratio tends to stabilise at 3:1 in favour of men. In terms of hiring, both men and women have equal opportunities, because universities have difficulty in attracting new people. The reason is simple: severe under-payment. Although the budget allotted to education and its share for higher education increased steadily to reach 6% of GDP, and despite the fact that universities do whatever they possibly can to raise money (tuition, research contracts, consultancies and so on) the needs are so great that little money is left to reward teachers.

Academic personnel are being paid according to a chart negotiated by labour unions with the Ministry of Education and with the Ministry of Finance. These recognise publicly that higher education personnel are underpaid; in 2006 salaries for professors had been doubled. Unfortunately, the state did not find resources for the other academic ranks. My research participants understood very well the economic situation of the country and, although they regret it, do not see themselves as being particularly
discriminated against, because there are people from other social categories in the same situation.

Economic hardship affects their daily work in various ways, for example, universities cannot afford subscriptions to as many publications as they would like, libraries cannot buy the books required by teachers, and software packages necessary for courses are missing. Although it does not come up in the interviews, I want to say that my direct observations revealed that in some universities there is still much work to be done in creating a better physical environment. Even senior academics do not have their own offices; some share their offices with 3-4 other people. There are also universities which managed to build new spaces, and, as another anecdotal detail, all universities I visited during the summer of 2007 were undergoing construction.

Austerity affects research as well; funding for research from the Ministry of Education and Research is scant. When it is obtained, the sums are very low and cannot pay for research assistance. Many professors are not able for this reason to secure continuous funded research. This, of course, reflects in one’s publication productivity. More serious funding is to be found in European sources; European projects are open to competition for a large number of countries, therefore competition is extremely tough. In conclusion, poverty inhibits scientific research. Therefore, my study finds that the most important problem affecting women academics is under-financing, which, in this case, is not specifically gender related. I say it is not gender related because my interviews do not reveal any difference in the way under-financing affects academics based on gender. I suggest that deeper investigation into the matter by future research might show otherwise.
While in the world of work women are to be found in large numbers, in academia the situation is not quite the same: in universities, men academics outnumber women in CS, CE and IT in a proportion of roughly 7 to 3 (see Table 5, p. 210). Based on my data I suggest that the main reason is that these fields were strongly dominated by men, which created an aura of masculinity around these fields. It may be interesting to find out if more overt forms of gender discrimination against women were at play as well. This question is left for future research. However, I encountered difficulties in finding women that taught computer science courses before 1990. My research reveals that their number was very small. Being only few, with the majority retired, finding research participants from this category would be a challenge for any researcher, not to mention for one based abroad. My research also revealed that, before 1990, in the departments where computer science was taught, women professors were teaching mostly math and physics; very few were teaching *bona fide* computer science courses.

Another important reason for women’s under-representation is that computer science had been highly competitive; it was difficult both to enter and to persevere through the programme. Here I have to say that before 1990 computer science had been studied in conjunction with electronics and math. There were no separate departments of computer science. Even today, there is only one Faculty dedicated solely to informatics; computer science and computer engineering are studied in departments within Faculties that include other specialties such as math or automation. It may well be that, as some feminist thought posits, women in general tend not to develop a taste for fierce competition. Research participants in this study do not blame men for dominating the field; they believe that women should strive more if they want to enter it, and to be
treated at par with their male colleagues. They have a good picture of how the fields are perceived generally in the world.

I suggest, based on both feminist analysis and the data, that women encounter forms of patriarchy and gender stereotyping through their professional contacts abroad. As a result they do not see their situation as worse compared with other women academics in CS, CE & IT from other countries from the point of view of gender relations. In fact, one of the respondents stated clearly that gender relations she encountered in a European country while studying there constituted a determinant in her decision to come back in Romania.

Despite the fact that they perceive their fields as dominated by men, they do not consider themselves discriminated against in any way – and this view is unanimous. No one reported any case or incident of blatant discrimination. Yet, they all stated that women must make extra efforts to convince the academic community of their worth. The theme of ‘proving yourself more’ came out in all the interviews. This is the case especially at the beginning of one’s career, which makes the first stages even more difficult. If a woman feels that she has not convinced her peers about her value as much as she would like to, the fault is entirely hers. The same is true for any failure, including failing to attain a leadership position.

Previous studies of women academics in STEM have found a similar tendency of self-blame and called it the ‘woman-as-deficient’ syndrome. My study reinforces this finding. In my participants’ opinion, it is everyone’s responsibility to earn the professional respect and trust of peers, regardless of gender and regardless if for women this requires extra efforts. Treatment is linked directly to performance; the best shall be
rewarded the most. In conclusion, none of my research participants believe that any form of gender discrimination is embedded in the way higher education is being institutionalised. They do report cases of feeling disadvantaged due to their gender, but they do not believe that the system as a whole is to be blamed in any way. They consider these cases as isolated and related to certain individuals.

I agree with my participants that overt systemic mechanisms of gender discrimination are not to be found in Romanian higher education, especially now that it makes substantial efforts to align with European standards.

Higher Education (HE) in Romania adopted gender equality philosophy over the difference philosophy (affirmative action). The equality of opportunity philosophy represents a shift from the communist ideology, which advocated for the equality of outcome. The theoretical underpinning for the affirmative action policies during socialism described in Chapter 2 may be summed up to the view that equality of opportunity constitutes a necessary, but not sufficient prerequisite for equity. As gender and race studies successfully demonstrate, offering equal opportunities to social categories that are not equal to begin with, does not lead to equal outcome. Bourdieu (1996) demonstrates that differentials in economic, cultural, social and symbolic capital, derived from prior inequalities/exclusions, coupled with the socially powerful ‘normality’ of practices of inequity lead to un-equal chances of taking advantage of equal social opportunities. Therefore, if it is to build fair and just relations between genders (i.e. gender equity), further action is required after ensuring equality of opportunity. Communist policies met with mixed success in preventing capital accumulation in all its forms and in promoting gender equity. However, they nevertheless achieved important
goals, which pave the way for today’s opportunities: tremendous increase in women’s participation in work and social life, which in turn led to financial independence and access to a web of social security, a secular and universal system of education, free access to higher education.

Romanian HE aligned its mechanisms with the larger European framework by adopting policies and guidelines that make explicit the ban of any form of gender discrimination and sexual harassment. After reviewing a large body of documents, I found that there is no shortage of policies, guidelines, organisations, and laws that all ‘prevent’ gender inequities. There is quite a substantial body of work in this area, which includes the work of the few Romanian feminist academics. I will mention here only Mihaela Miroiu. As the literature and practice reveal, policy-like measures, while important, nevertheless, have limited practical effect in the daily lives of men and women, unless some outrageous things happen. As my research shows, outrageous behaviour rarely occurs, especially in academia; however, more subtle, harder to name, even more difficult to identify forms of gender discrimination still occur. Therefore, I repeat that my research participants do not apply the label ‘discrimination’ to anything that happens to them. The fact that they have to prove themselves, and that they have heavier loads of extra-professional work are not considered discrimination. To the participants, these are seen as the inherent disadvantages of being a woman.

Perhaps it is obvious that my participants display a great deal of faith in their male colleagues’ ethical principles; they do not attribute to them any unethical intentions. Also, one of the participants points to the role women carry in the social reproduction of gender stereotypes is detrimental to women, and thus to the hegemonic effect of culture. Based
on the data, I conclude that both men and women academics in computer science, while aware of the existence of affirmative action policies in the world, are not aware of the ideas that underscore these policies: the double shift work of women, the extra efforts necessary to acculturate themselves in a masculinist culture, the need to fit in an institutional environment designed by men, the double-filter that the PhD represents for women, the fact that low numbers represents a competitive disadvantage, and the presence of gender stereotyping which has been shown to negatively impact achievement. Therefore, balancing career with professional responsibilities has not been considered in any way the concern of the university. It is anyone’s personal business to deal with extra-professional activities, family included.

In spite of this view, the institutions show a preference of promoting people whose marital situation increases the chances of stability and loyalty (i.e. people married and with children). I suggest that this preference stems not only from instrumental rationality alone, but also from a deeply rooted cultural belief that the ‘proper’ biography involves heterosexual marriage and children. Such views advantage men over women. As a result of the non-involvement attitude above, a career in CS, CE & IT requires important sacrifices in private life. Being childless constitutes an important competitive advantage. Women with young children either give up and take on less demanding activities or benefit from the help of family. Even with the help of family, which is essential, they work to their limits. Therefore, my study finds that there is no balancing between life and work – the balance slants heavily on the side of work.

Institutional help, although not conceptualised as a requirement from the institution’s part, is seen in the form of providing a university kindergarten. None of these
women have recent information about kindergartens; they never used any university kindergarten services in the past and do not plan to use any, but find it a good idea. My study shows that women academics consider that institutional support, while welcome, cannot solve the dilemma: professional career or child(ren)? The reason is that, in their unanimous opinion, young children require dedication that does not leave room for serious work in challenging domains. In other words, they are of the opinion that one cannot perform well in both roles. If you neglect your work, you are not a good professional and if you neglect your child you are not a good mother. Many women academics in CS, CE & IT see this dilemma as an or-or situation, because a break of few years to raise children equals professional suicide. Therefore my study suggests that we will see even more childless women academics in these fields in the future.

During the 1980s it was easier to handle both responsibilities because computer science was narrower and less dynamic, because teaching had prominence over research and because there were roughly five times fewer students. As well, money was not the issue that it is today.

An important theme in the literature surrounding women in academia is the way women advance or not in their careers and the way they accede or not to leadership positions. The theory known as the glass ceiling posits that the reason women have not achieved the same success as men in advancing to high-level managerial and professional jobs is that a ‘glass ceiling’ of un-stated norms and expectations prevents them from doing so. The glass ceiling metaphor is so powerful that it even led to the creation of a glass ceiling index (GCI) for academia. One of my analytical research questions asks if gender constitutes a barrier to upward mobility. In the context in which the departments
of computer science, computer engineering, software engineering (informatics) are relatively new (they have been created after 1990), it is hard to conclude whether the glass ceiling effect is present or not, because the vast majority of women academics are too young. All requirements for advancing to a superior academic rank being equal and spelled out in legislation (Minister’s Orders 5098/2005, 5099/2005, 5100/2005, 5101/2005) my study finds that it is more difficult for women than for men to meet these standards. The main deterrent is the fact that women suffer more from time poverty. If we also take into account the previous finding that women need a larger dose of assurance and convincing of the value of their work, it becomes clear that equal requirements disadvantage women.

While women academics are aware to various degrees that it is somehow harder not only for them, but for women in general, this is considered the immanent nature of things. The solution they seek is to conform to the standards by working harder and by suppressing other interests. My study finds that there is a great deal of scepticism vis-à-vis positive discrimination policies. All participants confessed that they know little about the ethical reasoning behind affirmative action and thus they cannot categorically reject it on the grounds that they do not have enough knowledge of it; however, they also expressed mistrust in the idea of creating advantages based on gender. My study shows that women feel the need to advance their cause but they also reject the confrontational mode. They consider, moreover, that positive discrimination undermines collegiality and respect among peers. Women prefer to adopt a masculine standard rather than be seen as trouble-makers. As standpoint feminists posit, some activities enable some insights and block others. One of my research participants, from her position as department chair,
comes in contact with European affirmative action measures and deems them as ineffective.

When it comes to leadership positions where real power is attached, the situation is different. Here exclusionary practices are clearly at work, although they take on subtle forms. My study shows some variation on this matter between regions; I suggest that there is a higher probability of encountering such practices in the East and in the South than in the West. I based my suggestion on the views of women interviewed and not on figures. Appendix 4 (p. 360) shows that there are more women in the Faculty Council at “Gheorghe Asachi” Technical University, but my interviews are consistent in substantiating my opinion. I also suggest that contributing to this ‘holding-back’ of women’s promotion is a model of good leadership that is masculinist in nature. As a result women have fewer chances to meet this model of a good leader. While meeting clearly spelled-out productivity standards may be difficult, at least one may devise a strategy to overcome it; however, when it comes to obtaining a leadership position things are murkier. In consequence, many women do not choose to become candidates. These psychological barriers are the most visible reason why there are so few women in top administrative positions.

My study suggests that it is more difficult for women to obtain a top leadership position than it is to advance to the next academic rank. For example, one has more control over becoming a professor than in securing a four-year mandate in administration. Indirect exclusionary practices grounded in power relations still hamper women’s upward mobility. At the top, Romanian higher education is strongly dominated by men.
The social and organisational context offered by Romanian universities today depresses scientific productivity; this is because of financial austerity. The study reveals that women academics in CS, CE & IT in Romania lack basic needs required for normal activity, such as books, access to publications, funds for publishing in foreign press, and software packages. The hardware I have seen seemed fairly new, but not very performant; I have also seen totally outdated equipment still in use. The general atmosphere corroborates the under-financing thesis. My study suggests that such difficulties hamper one’s professional identity within the larger, international, disciplinary community of practice.

People come into the disciplines of CS, CE or IT motivated by their passion for mathematics and/or computers, and because they feel they possess an innate inclination towards this kind of work. However, superior performance is attained only by people whose education ‘goes the extra mile’ and resembles training for a sports competition. The comparison of work in computer science with work as a professional sports-person became salient during the analysis of data and was also expressed in un-equivocal terms by one woman. A family’s intellectual tradition equips people with the cultural capital that gives them both the impetus to succeed, and a nurturing environment for becoming high academic achievers. I suggest that it is more likely to find academics whose parents were either professionals in a similar career or academics themselves (or both) than otherwise. I also suggest that this tendency might change, as the old screening mechanism of scholarly discipline contests and the Olympics fell somehow into disuse and are not given the same prominence by the school system. In the capitalist market economy, while universities and for-profit companies collaborate, this is not the case
anymore at lower educational levels. In the past, production companies and research institutes were connected not only with universities, but with secondary schools as well. This connection offered children a better view of what a profession entails and in some cases channelled high levels of energy and generated strong desires. Unlike the tenets of much literature dedicated to women in STEM, my study does not bring to light any tendency to leave the field for other occupations, except due to harsh financial constraints. In essence my study shows a great degree of loyalty to the discipline. I have not found either that marriage leads to ‘leaking from the pipeline’; that is, that after marriage women might chose to work somewhere else or at something else. This finding reinforces the view that people who chose to stay in academia in CS, CE, & IT do so motivated by their passion for the work, although this decision represents a material sacrifice at all academic ranks except the professorship. This is why I conclude that at teaching/research assistantship levels the academic career transformed from a life occupation into a hobby.

An extra layer of complexity in daily work is added by the changes brought about by the Bologna process, which aims at creating one European space for higher education and for research. For the women I interviewed this translated into extra paper work, curriculum modifications, reorganising the programmes to conform to the three cycle model. While women are fairly knowledgeable about what this process entails (with variations due to their position in academia), opinions about it are split, ranging from adoption, through neutrality, to opposition. What is not known about the process is its educational theoretical underpinning – the student-centered learning paradigm. My study reveals that the Bologna process is seen as a mechanism put in place to differentiate
between work-oriented students, those who will leave the system in 3-4 years, and research-oriented students, those who will stay for advanced degrees: Master’s and PhDs. In consequence, because of this aspect of it, many see the process as serving corporatist interests rather than the interests of the student.

Another widespread view is that in CS, CE & IT, the Bologna process leads to the depreciation of the educational act, because it imposes time frames too short for thorough instruction. One other factor that fetters the quality is the fact that majority of students take on jobs in conjunction with their studies.

At the PhD level many students leave, through various bursary programmes, to work in foreign universities. Roughly half of the students do not return after graduation. While this phenomenon is not encouraged, neither it is discouraged. The reasons are multiple and complex, although two are particularly salient: 1) it is considered understandable that one wants to secure a decent life style through his/her work and 2) it contributes to the international profile of Romanian higher education. However, due to the fact that universities are confronted now with a crisis in attracting young academics, efforts are made to attract people back. Efforts go as far as the budgets allow, and the lifestyle a country can offer enters into the equation as well.

What Romanian academia may offer a young academic in the fields of CS, CE & IT is a dynamic environment in which the university maintains close contacts with a flourishing industry. Collaboration with companies brings several advantages: students are attracted by the prospect of being recruited through the university’s collaboration projects, the university ensures students have a practicum, scientific research projects are being funded, and new Master’s programmes are customised for certain large employers
such as Siemens, Alcatel and Renault. Such marriages, however, are not without problems, because the two partners operate from different philosophies. While higher education has the interest of the student at heart, private companies put profit über alles.

Therefore, higher education in Romania has to walk a fine line between community engagement and marketisation. The ‘student as customer’ and the ‘student as product’ paradigm are evident in all the programmatic documents, in all reports and in all proposals put forward by the Ministry of Education. LaCapra (1998) contends that “the contemporary academy is based on a systemic, schizoid division between a market model and a model of corporate solidarity and collegial responsibility” (p. 32). I suggest that this remark points to the horizon of Romanian higher education. Time will tell if Romanian higher education will become a knowledge industry, a cultural corporation or, as Humboldt envisioned it – the highest and the last free place for the manifestation of science.

**Concluding remarks**

This whole enterprise started from the desire to come to a deeper understanding of how women teaching and conducting research in computer science in contemporary Romania experience their professional milieu, and what hurdles they have to overcome. Framed in a feminist critical ethnography, the study focuses on three principal factors – gender composition, glass ceiling effect and being a second-world academic – that describe and elucidate the careers and professional lives of women faculty.

One of the main conclusions of this study is that cultural values, norms and beliefs that deem women less naturally endowed for scientific research in fields such as
mathematics and computer science and less suited for top academic leadership positions still exist, both in men and in women’s minds; fortunately, such beliefs are not setting the tone in Romanian higher education in STEM. Quite the opposite, the overall atmosphere is one of collegiality and respect, although there is still some work to be done regarding a certain initial reticence women encounter. A supportive professional environment at home is particularly important for women who struggle not only with the extraordinary dynamism of computer science, with serious under-funding, and with increased extra-professional responsibilities, but also with building their professional identity in the larger, international community of practice in their respective disciplines. Through their profession they become the de facto agents in a global society of specialists, and this trans-nationality predestines them to be agents of – whether we want this or not – global solutions.

Their simple presence in academia constitutes a critique of the masculine professional monopoly on rationality and praxis. Are they being discriminated against? My suggestion is that the most prominent of all, and the hardest felt discrimination comes not from male peers, but from the masculinity of the neo-liberal discourse, from the masculinity of instrumental rationality, that renders people as standing reserve.

This is a story of struggle – a struggle fuelled by the desire to feel accomplished, to feel useful to your fellow human beings, to feel that through your life you contribute to the progress of science and technology, which is the project of the entire human civilisation. Heidegger sees technology as immanent for our humanity. Every time we enjoy our high-tech toys we should think with gratitude to the countless men and women such as Edith, Agnes, Pamela, Ingrid, Dorothy, who work hard and silently for our
benefit. Every time a high-tech device saves our life, we should think with gratitude to people such as Linda. And if in the future we will talk with our high-tech toys we should think with gratitude of people such as Faye.

Beck (1994) argues that in the second modernity, there are two types of sciences: the ‘old’ laboratory science that opens the world mathematically and technologically and a ‘new’ science that he calls “a public discursivity of experience” (p. 31) which relates to everyday life and plays with cultural symbols. I hope my research contributes to the public discussion, which, as Beck contends, is based more on a kind of science of questions than one of answers.

Taking from Beck, I end this project with the hope that it opens a path for future research. My final suggestion is that we should seriously dig into the dilemma presented by the binary gender equality/difference, in order to understand what can be done at the institutional levels to create a supportive, nurturing, fair, and collegial environment for men and women alike, while avoiding the pitfalls of methods that proved inefficient, and within the constraints of financial austerity. Being a ‘friendly stranger’ set me on a course that opened up new avenues for inquiry: how women academics see the role of computer science in education and in society? What do they think about the nature of technological progress? Finally, the questions that are most interesting to me: What is the role of higher education for human and social development? How can universities truly engage with their communities while avoiding the threat of marketisation?
Bibliography


Appendix 1: Women as percentage of the workforce in Romania in 1977

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Appendix 2: Participation in the work force, by gender and by area, 2002-2006

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Percentages

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²) Computed for population between 15-64 years

### Appendix 3: Total expenditure on education as percentage of GDP, selected countries, 1997-2002

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Appendix 4: Women in leadership position in selected computer science departments in Romania, 2007

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<th>Technical University Cluj</th>
<th>Alexandru Ioan Cuza University Iasi</th>
<th>Timisoara Technical University</th>
<th>Gheorghe Asachi University Iasi</th>
<th>West University Timisoara</th>
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<tbody>
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<td>Faculty of Automation and CS, CS department</td>
<td>Faculty of Informatics</td>
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<tr>
<td>Faculty Council</td>
<td>M 3 F 0 M 21 F 2</td>
<td>M 10 F 1 M 18 F 0</td>
<td>M 17 F 5 M 9 F 5</td>
<td>M 17 F 5 M 9 F 5</td>
<td>M 17 F 5 M 9 F 5</td>
<td>M 17 F 5 M 9 F 5</td>
</tr>
<tr>
<td>Rector/University President</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Faculty Dean</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Chairperson</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>F</td>
</tr>
</tbody>
</table>


The Human Development Index (HDI)
The first Human Development Report (1990) introduced a new way of measuring development by combining indicators of life expectancy, educational attainment and income into a composite human development index, the HDI. The breakthrough for the HDI was the creation of a single statistic which was to serve as a frame of reference for both social and economic development. The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1 (UNDP, 2008).

Figure 1: Romania’s HDI increased from 0.81 in 2005 to 0.825 in 2008
Table 1: Current HDI for Romania is 0.825, which gives the country a rank of 62nd out of 179 countries with data

<table>
<thead>
<tr>
<th>HDI value 2006</th>
<th>Life expectancy at birth (years) 2006</th>
<th>Adult literacy rate (% ages 15 and above) 2006</th>
<th>Combined primary, secondary and tertiary gross enrolment ratio (%) 2006</th>
<th>GDP per capita (PPP US$) 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Iceland (0.960)</td>
<td>1. Japan (62.4)</td>
<td>1. Georgia (100.0)</td>
<td>1. Australia (114.2)</td>
<td>1. Luxembourg (77,089)</td>
</tr>
<tr>
<td>60. Saint Kitts and Nevis (0.636)</td>
<td>77. Latvia (72.3)</td>
<td>27. Uruguay (97.8)</td>
<td>57. Philippines (79.6)</td>
<td>62. Venezuela (Bolivarian Republic of) (11,115)</td>
</tr>
<tr>
<td>61. Venezuela (Bolivarian Republic of) (0.826)</td>
<td>78. Jordan (72.2)</td>
<td>28. Argentina (97.6)</td>
<td>58. Saint Lucia (79.3)</td>
<td>63. Mauritius (10,571)</td>
</tr>
<tr>
<td>62. Romania (0.825)</td>
<td>79. Romania (72.2)</td>
<td>79. Romania (97.6)</td>
<td>59. Romania (79.2)</td>
<td>64. Romania (16,433)</td>
</tr>
<tr>
<td>63. Malaysia (0.823)</td>
<td>80. Brazil (72.0)</td>
<td>30. Cyprus (97.6)</td>
<td>60. Mongolia (79.0)</td>
<td>65. Bulgaria (10,295)</td>
</tr>
<tr>
<td>64. Montenegro (0.822)</td>
<td>81. Seychelles (72.0)</td>
<td>31. Mongolia (97.4)</td>
<td>61. Jordan (78.7)</td>
<td>66. Uruguay (10,203)</td>
</tr>
<tr>
<td>179. Sierra Leone (0.329)</td>
<td>173. Swaziland (40.2)</td>
<td>147. Mali (22.9)</td>
<td>179. Djibouti (25.5)</td>
<td>173. Congo (Democratic Republic of the) (281)</td>
</tr>
</tbody>
</table>


Gender-Related Development Index (GDI) – the HDI adjusted for gender inequality

This index measures achievement in the same basic capabilities as the HDI does, but takes note of inequality in achievement between women and men. The methodology used imposes a penalty for inequality, such that the GDI falls when the achievement levels of both women and men in a country go down or when the disparity between their achievements increases. The greater the gender disparity in basic capabilities, the lower a country’s GDI compared with its HDI. The GDI is simply the HDI discounted, or adjusted downwards, for gender inequality. The greater the gender disparity in basic human development, the lower is a country’s GDI relative to its HDI.

To measure the impact of gender inequalities on human development achievement, Romania’s GDI value of 0.825 can be compared to its HDI value of 0.825. Its GDI value is 100% of its HDI value. Out of the 157 countries with both HDI and GDI values, one country has a better ratio than Romania’s (UNDP, 2008).
Table 2: shows how Romania’s GDI compares to other countries, and also shows its values and ranks for selected underlying indicators in the calculation of the GDI

The Gender Empowerment Measure (GEM) – gender equality in economic and political participation and decision making

The Gender Empowerment Measure (GEM) is a measure of agency. It evaluates progress in advancing women’s standing in political and economic forums. It examines the extent to which women and men are able to actively participate in economic and political life and take part in decision-making. While the GDI focuses on expansion of capabilities, the GEM is concerned with the use of those capabilities to take advantage of the opportunities of life. It tracks the share of seats in parliament held by women; of female legislators, senior officials and managers; and of female professional and technical workers- and the gender disparity in earned income, reflecting economic independence. Differing from the GDI, the GEM exposes inequality in opportunities in selected areas (UNDP, 2008).

Romania ranked 68th out of 177 countries in the GEM, with a value of 0.497 and now ranks 80th out of 108 countries in the GEM, with a value of 0.500 (UNDP, 2008).

In a comparison of eight selected countries from the High Human Development group (Table 3), Romania has the lowest GDI and GDM ranks; however, at two selected indicators that enters in the computing of these aggregated indicators, namely professional and technical workers and ratio of female to male income, Romania ranks better than the average.

Countries in table 3 were selected to represent both the ex-communist East European block and Western democracies with a long tradition. The figures support the findings that women’s increase professional participation on the labour market correlates with an ex-communist regime.

<table>
<thead>
<tr>
<th>GDI as % of HDI</th>
<th>Life expectancy at birth (years) 2006</th>
<th>Adult literacy rate (% ages 15 and older) 2006</th>
<th>Combined primary, secondary and tertiary gross enrolment ratio 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female as % male</td>
<td>Female as % male</td>
<td>Female as % male</td>
</tr>
<tr>
<td>1. Sweden (99.9%)</td>
<td>1. Russian Federation (123.1%)</td>
<td>1. Lesotho (122.5%)</td>
<td>1. United Arab Emirates (120.2%)</td>
</tr>
<tr>
<td>2. Romania (99.9%)</td>
<td>20. Guatemala (110.5%)</td>
<td>45. Paraguay (96.5%)</td>
<td>35. Slovakia (106.7%)</td>
</tr>
<tr>
<td>3. Lithuania (99.9%)</td>
<td>21. Argentina (110.5%)</td>
<td>46. Croatia (90.5%)</td>
<td>36. Sri Lanka (106.5%)</td>
</tr>
<tr>
<td>4. Vanuatu (99.9%)</td>
<td>22. Romania (110.4%)</td>
<td>47. Romania (99.5%)</td>
<td>37. Romania (106.5%)</td>
</tr>
<tr>
<td>5. Bahamas (99.9%)</td>
<td>23. Bulgaria (110.3%)</td>
<td>48. Namibia (98.3%)</td>
<td>38. Occupied Palestinian Territories (106.3%)</td>
</tr>
<tr>
<td>6. Kenya (99.9%)</td>
<td>24. Slovenia (110.1%)</td>
<td>49. United Arab Emirates (96.3%)</td>
<td>39. Italy (106.3%)</td>
</tr>
<tr>
<td>157. Occupied Palestinian Territories (92.8%)</td>
<td>157. Niger (93.9%)</td>
<td>135. Chad (31.3%)</td>
<td>157. Chad (60.4%)</td>
</tr>
</tbody>
</table>
Table 3: Selected HDI indicators based on data between 1994 and 2005

<table>
<thead>
<tr>
<th>Human development index</th>
<th>Gender-related development index (GDI) rank</th>
<th>Gender-related development index (GDI) value</th>
<th>Adult literacy rate, female (% aged 15 and older)</th>
<th>Adult literacy rate, male (% aged 15 and older)</th>
<th>Combined gross enrolment ratio for primary, secondary and tertiary education, female (%)</th>
<th>Combined gross enrolment ratio for primary, secondary and tertiary education, male (%)</th>
<th>Estimated earned income, female (PPP US$)</th>
<th>Estimated earned income, male (PPP US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Human Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Norway</td>
<td>3</td>
<td>0.957</td>
<td>..</td>
<td>f</td>
<td>103</td>
<td>g</td>
<td>95</td>
<td>30,749</td>
</tr>
<tr>
<td>4 Canada</td>
<td>4</td>
<td>0.956</td>
<td>..</td>
<td>f</td>
<td>101</td>
<td>h,g</td>
<td>98</td>
<td>25,448</td>
</tr>
<tr>
<td>13 Spain</td>
<td>12</td>
<td>0.944</td>
<td>..</td>
<td>f</td>
<td>101</td>
<td>h,g</td>
<td>95</td>
<td>18,335</td>
</tr>
<tr>
<td>20 Italy</td>
<td>17</td>
<td>0.936</td>
<td>98</td>
<td>98.8</td>
<td>93</td>
<td>88</td>
<td>88</td>
<td>18,501</td>
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<tr>
<td>32 Czech Republic</td>
<td>29</td>
<td>0.887</td>
<td>..</td>
<td>f</td>
<td>84</td>
<td>82</td>
<td>13,992</td>
<td>27,440</td>
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<tr>
<td>37 Poland</td>
<td>35</td>
<td>0.867</td>
<td>..</td>
<td>f</td>
<td>91</td>
<td>84</td>
<td>10,414</td>
<td>17,493</td>
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<tr>
<td>53 Bulgaria</td>
<td>50</td>
<td>0.823</td>
<td>97.7</td>
<td>98.7</td>
<td>81</td>
<td>82</td>
<td>7,176</td>
<td>11,010</td>
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<tr>
<td>60 Romania</td>
<td>53</td>
<td>0.812</td>
<td>96.3</td>
<td>98.4</td>
<td>79</td>
<td>75</td>
<td>7,443</td>
<td>10,761</td>
</tr>
<tr>
<td>Human Development Index</td>
<td>HDI rank minus GDI rank</td>
<td>Gender empowerment measure (GEM) rank</td>
<td>Gender empowerment measure (GEM) value</td>
<td>Legislators, senior officials and managers (% female) 1999-2005</td>
<td>Professional and technical workers (% female) 1994-2005</td>
<td>Ratio of estimated female to male earned income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------</td>
<td>-------------------------------------</td>
<td>---------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>---------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HDI Rank</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Human Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Norway</td>
<td>-1</td>
<td>1</td>
<td>0.91</td>
<td>30</td>
<td>50</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Canada</td>
<td>0</td>
<td>10</td>
<td>0.82</td>
<td>36</td>
<td>56</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Spain</td>
<td>1</td>
<td>12</td>
<td>0.794</td>
<td>32</td>
<td>48</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Italy</td>
<td>3</td>
<td>21</td>
<td>0.693</td>
<td>32</td>
<td>46</td>
<td>0.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 Czech Republic</td>
<td>2</td>
<td>34</td>
<td>0.627</td>
<td>30</td>
<td>52</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37 Poland</td>
<td>1</td>
<td>39</td>
<td>0.614</td>
<td>33</td>
<td>61</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53 Bulgaria</td>
<td>1</td>
<td>42</td>
<td>0.606</td>
<td>34</td>
<td>60</td>
<td>0.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 Romania</td>
<td>2</td>
<td>68</td>
<td>0.497</td>
<td>29</td>
<td>57</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Notes:*

a. Data refer to national literacy estimates from censuses or surveys conducted between 1995 and 2005, unless otherwise specified. Due to differences in methodology and timeliness of underlying data, comparisons across countries and over time should be made with caution. For more details, see [http://www.uis.unesco.org/](http://www.uis.unesco.org/).

c. Because of the lack of gender-disaggregated income data, female and male earned income are crudely estimated on the basis of data on the ratio of the female nonagricultural wage to the male nonagricultural wage, the female and male shares of the economically active population, the total female and male population and GDP per capita in PPP US$ (see Technical note 1). The wage ratios used in this calculation are based on data for the most recent year available between 1996 and 2005.

d. The HDI ranks used in this calculation are recalculate for the 157 countries with a GDI value. A positive figure indicates that the GDI rank is higher than the HDI rank, a negative the opposite.

e. Data refer to the most recent year available between 1994 and 2005. Estimates for countries that have implemented the International Standard Classification of Occupations (ISCO-88) are not strictly comparable with those for countries using the previous classification (ISCO-68).

f. For the purposes of calculating the GDI, a value of 99.0% was applied.

g. For the purpose of calculating the GDI, the female and male values appearing in this table were scaled downward to reflect the maximum values for adult literacy (99%), gross enrolment ratios (100%), and GDP per capita (40,000 (PPP US$)). For more details, see Technical note 1.

h. Data refer to an earlier year than that specified.

i. No wage data are available. For the purposes of calculating the estimated female and male earned income, a value of 0.75 was used for the ratio of the female nonagricultural wage to the male nonagricultural wage.

Source:

column 1: determined on the basis of the GDI values in column 2.

column 2: calculated on the basis of data in columns 3–10; see Technical note 1 for details.


column 9: calculated on the basis of recalculated HDI ranks and GDI ranks in column 1.

column 10: determined on the basis of GEM values in column 2.

column 11: calculated on the basis of data in columns 3-6; see Technical note 1 for details.


Women in higher education and their road through Romania’s second modernity

You are invited to participate in a study entitled *Women in higher education and their road through Romania’s second modernity*. My name is Cornelia Dragne, and I am doctoral student in the department of Educational Psychology and Leadership Studies at the University of Victoria, Canada. Should you have any questions concerning this research study, you may contact me at any time by phone at 1(250)592-8314 or by e-mail at cd@uvic.ca.

As part of the requirements for a Ph.D. degree in Leadership Studies, I will conduct a research under the supervision of Dr. Darlene E. Clover. You may contact Dr. Clover by phone at 1(250)721-7816 or by fax at 1(250)721-6190.

The purpose of this research is to explore, interpret and illuminate how the new realities of higher education in Romania affect gender equity, both at the theoretical level and at the level of everyday life experiences. This study tries to contribute towards answering the questions: what does it mean to be a woman academic in Romania, what are the problems that women confront and what should be done to alleviate those problems. The study is based on the assumption that the profound changes that have occurred within society and within the sphere of higher education have led to new intertwined systems of power, which are creating new and yet unexplored forms of gender inequities. The study will look at aspects of academic life including access, participation, achievement, ranking, upward mobility and leadership, and measures to balance professional and personal lives of Romanian women academics.

While the position of faculty women in places like North America and UK is fairly well documented, similar studies in the Romanian context are scarce, if not inexistent. Research of this type is important because in the higher education system in Romania, while the base experiences feminization, the top experiences the opposite trend. The research will attempt to document and explain the concentration of women in the lower ranks of academic employment, as well as the evolution in time of women’s position within the Romanian academia.

You are being invited to participate in this study because you are a woman academic working in the Romanian higher education system. In order to broaden the range of views and opinions, all participants have been carefully selected to create a sample that reflects a wide assortment of experiences in regards to their backgrounds, teaching, research and administrative experiences.
If you agree to voluntary participate in this research, your participation will entail us having a recorded conversation (interview). The recording will only be used for the purposes of this research and not shared or broadcast in any form. Signing of this form gives permission for the recording of our conversation. The interview will take place at a location of your choice and at a time of your convenience. The estimated time for the interview is one hour. After the interview, I may ask you for follow-up clarifications either by email or in person.

This is a minimal risk study. There are no known or anticipated risks to you by participating in this research, other than the inherent risk of self-disclosure within our conversation. However, this risk is minimal as I will not disclose your name during or after the study at any time.

The potential benefits of your participation in this research include a chance for you to share your views, opinions, perceptions and experiences with other women academics working in a similar professional milieu, women that may find resonance with their own situations. Another benefit is to have your experiences documented; experience leads to organization, therefore documenting and interpreting personal accounts becomes important.

Your participation in this research must be completely voluntary. If you decide to participate, you may withdraw at any time without any consequences or any explanation. If you choose to withdraw, you may choose whether the data collected can be used in the study or if you would like to have all data deleted from all data bases and all print copies destroyed.

To make sure that you continue to consent to participate in this research, I will e-mail you the transcribed interview and I will ask you for your feed-back and for possible corrections. Should you reply providing feed-back, I will consider this reply as ongoing consent for the scope of this study.

In terms of respecting your anonymity, your name will not be disclosed at any time during the research process. I will use pseudonyms instead of real names, as well as instead of the name of your institution and the name of its physical location. I will keep the data collected for my eyes only.

Your confidentiality and the confidentiality of the data will be protected by the use of code names and pseudonyms during analysis and reporting.

It is anticipated that the results of this study will be shared with others in the following ways: directly to participants, presentations at scholarly meetings, published articles, class presentations, online content, book sections, as well as in the form of a dissertation as part of the requirements for completion of my Ph.D. degree in Leadership Studies. At this point I am requesting your permission for further data use as part of this consent.
Data from this study will be disposed of after a five years period in the following ways: paper copies will be shredded and electronic data, including the recording, will be erased in such a way that data recovery software will not be able to recover it.

Should you have any concerns about the above procedures, please do not hesitate to contact me.

In addition to being able to contact me and my supervisor at the above phone numbers, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Associate Vice-President, Research at the University of Victoria (1-250-472-4545).

Your signature below indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by me, the researcher.

_________________________  __________________________
Name of Participant             Signature of Participant

_________________________
E-mail                        Telephone

_________________________
Name of Researcher            Signature of Researcher

_________________________
Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.