From the Margins to a Field of Opportunities: Life Story Patterns of Women in ICT

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From the margins to a field of opportunities:
Life story patterns of women in ICT

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Synopsis

This article deals with the experiences of women working in IT professions in seven European countries. It describes what we identified as life story patterns in the material of 107 biographical interviews. One reason to look for patterns is the diversity of our informants’ professional trajectories. The trajectories themselves are not ‘telling’ unless seen in the context of the women’s life stories — opportunities, choices, and life themes. The life story patterns shed light on how the women perceive themselves and their working environment, considering national/cultural differences. Here we focus on one of the patterns we identified — from the margins to a field of opportunities. These are women who have seized the chance to move out from their milieu — a rural background (Austria) or an area with limited job opportunities (the South of Italy) into jobs that offer good pay, a high level of job security, and the opportunity for learning.

Introduction

Women’s careers in information technology professions have been in the focus of research for more than ten years. Although not univocal in how women’s experiences in the field of computing are described, there seems to be an agreement that lack of encouragement at home and in school, adverse working conditions, and the ‘culture of masculinity’ make it difficult for women to enter the ICT professions and to stay in them. Based on a large empirical study in seven European countries – Austria, Belgium, France, Ireland, Italy, Portugal, and the UK – combining company case studies (28) with biographical interviews with 107 women and 33 men working in the ICT sector, we found that for women who are already in the field of ICT, technology is attractive, their work varied and challenging, and that they feel the pressure of long working hours and high workloads but are not deterred by it. We also found an enormous diversity in how women entered the ICT field, their trajectories, the lived experience and content of their work, and the ways they coped with challenging and constraining situations in their (work) lives. This diversity led us to focus on the women’s individual biographies as “a complex interweaving of the influence of social location, lived experience, narrative strategies, significant others, biographical history, cultural repertoires, and individual creativity” (Ezzy, 2000, p. 121). Although many of the interviewees mentioned that at some point in their lives they had experienced the feeling of being different from other women in a male environment, their reactions and even their perception of the situations are diverse and have to be interpreted in terms of individual differences (Trauth,
We got particularly interested in the women’s life themes — specific patterns of meaning they evoked as being constitutive of their life paths and decisions.

This article describes what we identified as life story patterns. One of the reasons to look for patterns is the diversity of our informants’ professional trajectories. There are so many variations and the trajectories themselves are not ‘telling’ unless seen in the context of the women’s life stories — opportunities, choices, and life themes. The eight patterns we identified are based on a comparative analysis of all 107 female biographies, taking into account national/cultural differences. The organizing principles behind these patterns differ (for a full description of the patterns see Valenduc et al., 2004).

Two of the patterns describe specific types of trajectory, the focus of the next four patterns is on different strategies and the last two patterns reflect the experience of constraints and how women respond to them.

**Straight careers in ICT:** Some of the careers are moved by strong interest in math and the sciences and, in some cases, looking for a field with good job prospects. They follow a clear career model, and strive to the top. These women accept the conditions for success in ICT, including long hours, stressful working conditions, a competitive environment and (in some cases) hierarchical structures.

**Combining art with technology:** In these careers, it is not technology that is in the foreground but a passion for art and/or journalism, with ICT entering later as an important tool and skill. As ICT becomes an integral part of their work, women develop a strong passion for both fields and perceive no boundaries between work, family and social life, and personal inclinations.

**From the margins to a field of opportunities:** There are life stories in which ICT is strongly connected with moving out from one’s milieu and/or region into promising and relatively secure jobs. While in several cases informants come from marginal regions – the countryside in case of Austria, the South (Sicily) in the case of Italy – in a few other cases it is ethnicity which creates a potentially marginal position from which the women escape. These women are interested in working with technology but not passionate. ICT opens a field of opportunities to these women. Entries into ICT vary. While some of the women studied informatics or something related, others encountered ICT in their first (clerical) jobs, seizing the opportunity to qualify themselves, either through learning by doing (the older ones) or through additional training.

**Building one’s own environment:** Some informants’ stories show a strong will and skill to shape their own environment so that it fits their idea of good work and a good life. This is a theme in their accounts which they address explicitly as ‘building’. These women define themselves through the content of their work.

**Good work but limited ambitions:** Several biographies exhibit rather ‘normal’, unexciting patterns. These women have good qualifications and good work and feel competent in their work, but other important life perspectives (having more time for their family, hobbies) emerge from their histories, together with few professional ambitions.

**Being open, having not yet arrived:** These are examples of women who had a good start into working life but it is still open where they will go in the future. They take up opportunities where they are offered and are not always sure where to go. Most of these women are still quite young.

**Struggling but not giving up:** In some of the life stories constraints and how women succeeded in overcoming them play a dominant role. These constraints vary from lacking qualifications and/or a degree to suffering from adverse working conditions and problems in managing work and family life. They can as well suffer from limited perspectives in their region, perceived as more penalizing when they received a good education or accumulated an interesting skill profile. Anyway, after these bad starts into working life, they succeeded in overcoming obstacles.

**Fragile or broken careers:** In some cases women do not succeed in coping with the constraints they encounter. We have several cases of women who did not have a good start into working life, due to lack of qualifications and/or degree, unsatisfactory working conditions, limited job possibilities, having made a wrong career step or simply not liking to work in ICT. But they lack motivating and realistic alternatives, in some cases feeling discouraged and having failed and/or with unfulfilled ambitions.

Here we describe one of the patterns we identified — from the margins to a field of opportunities. These are women who have seized the chance to move out from
their milieu – a rural background (Austria), an area with limited job opportunities (the South of Italy) or ethnic background (UK, Belgium) – into jobs that offer good pay, a high level of job security, and the opportunity for learning. The reason for selecting this life story pattern is that it concerns a particularly interesting group of women, who have not been so much in the focus of research. There are a few studies that identify ethnicity as an important factor in women’s access to and experience of IT. Nielsen, von Hellens, and Wong (2000), for example, compare the computing orientations of white and Asian students. They found that Asian females more readily chose computing and IT subjects at school, despite the presence of negative perceptions. Asian girls experienced pressure from their families to pursue IT. Margolis, Fisher, and Miller (2000) looked at who where the persisters among women students at Carnegie Mellon. Most of these were international students from Asian countries. Many of them had only minimal computer experience and little interest when they entered the program. The students’ persistence and later success in computing is attributed to their sense of self efficacy around math and a different motivation: “Having done well in math and/or science in their home countries, computer science is regarded as a ticket to economic opportunity. For many of these students, their families are depending on them for economic survival. For these women, there is little or no option for failure. Several have chosen computer science because good scholarships are available for students willing to study computer science” (Margolis et al., 2000, p. 119). Our experience is that also growing up on a farm in the countryside (in the case of Austria) or living in an area of poor job opportunities (in the case of Sicily) may spur women to enter computing and is connected to a particular combination of motivations and experiences.

Apart from our interest in women ‘from the margins’, focussing on the biographies of our Austrian and Italian respondents has the advantage that our more intimate knowledge of the cultures allows us to anchor the individual life stories in the context of the women’s family background, field of work, and work organization. As we will show later, such an anchoring of the fieldwork requires that the researchers have some background knowledge about this context which goes beyond what interviewees ‘tell’ them, providing them with a more extended horizon of meaning. This is resonant with the aim put forward by many feminists that a researcher articulates her positionality, because position indicates the power to generate certain kinds of knowledge and ‘may influence the “data” collected and thus the information that becomes coded as “knowledge”’ (Madge, quoted in Rose, 1997, p. 308).

Method

The aim of a biographical interview is to develop an understanding of a person’s biography or trajectory — her development as based on opportunities, choices, and individual coping strategies. Biographical research was emphasized in particular by the Chicago school of qualitative sociology (e.g. Glaser & Strauss, 1967). It was and is mostly used to understand people’s sometimes life long struggles with particular problems (e.g. a disability, being an outsider) or crises (e.g. unemployment, migration) or to understand historical events — how they were experienced, shaped people’s lives and are remembered. A more recent notion that stimulated the examination of biographical forms is that of the self as a ‘reflexive project’ (Beck & Beck-Gernsheim, 2002; Lash & Urry, 1994). We use it here as a method for learning more about the still not so common situation of women in a particular technical field, to dig through the maze of assumptions and prejudices surrounding it, and this from the perspective of the women themselves.

The most common method for unravelling biographical information is the narrative interview. Although parts of the interview may be pre-structured, in particular those that concern information about the cornerstones of a person’s biography, most of the interview is conducted in an open way. This kind of interview is what Flick (1995) calls episodic interviews with a strong narrative character. The main idea is to stimulate a person to tell ‘stories’ — significant episodes in her life that illustrate the whys and hows of important events in her biography and the role of relevant others in these events. Normally the interviewee covers several topics in her narration in her own sequence. A good narrative interview also allows for a certain amount of reflection, supporting a person to remember, to make connections, to evaluate, regret or rejoice. The role of the interviewer is to stimulate, listen, and eventually suggest additional topics that help cover all the relevant points in the interviewee’s biography. On the basis of the interviewees’ rich accounts that cover many dimensions, particular social patterns or ‘types’ may be identified (Lamnek, 1995). Conversely, the interpreter may be interested in recognizing unique features that help widen the perspective on a particular problem.

Ezzy (2000, p121) views biographical accounts as “rhetorical constructions that both imperfectly reflect experiences of the past and shape possible actions in the future”. They are constructed from the interviewee’s present social position and life situation and coloured by it, by the interview situation itself and the interpretive frameworks that are operative: “When interviewees report
on experience, they do so from different social positions and in greater or lesser agreement with recognizable cultural scripts” (Järvinen, 2000, p. 386). Parts of these narratives are probably performances they have practiced with others (Järvinen, 2000). Bourdieu (1994) is highly critical of biographical interviews as a method which he sees as being corruptible by the interviewee’s wish to construct a convincing, clear-cut personal life history. He talks of the ‘biographical illusion’ which describes life as a coherent path according to culturally available interpretive patterns and images.

This is precisely what we sought to avoid. It was our explicit aim to dig up the detours, confusions, and contradictions in the women’s biographies, thereby satisfying our curiosity and the desire to ‘see things differently’. Gherardi’s (1996) narratives of ‘women travellers in a male world’ come closest to this notion of biographical interviews, the concepts that shaped her reading of the women’s narratives being ‘the presence of a common plot, the outsider, the journey, the unexpected encounter with the different’ (Gherardi, 1996, p. 190). Hence, crucial concepts for conducting biographical interviews are:

- **Developmental tasks** that pose themselves in particular phases of one’s life and/or in particular professions/work organizations (e.g. juggling the demands of work and private life, planning a step in one’s career)
- **Individual coping strategies** in relation to given structures — enabling factors and constraints
- **Detours and their implication** for the person’s biography — paths in a career that a person takes in order to prevent exclusion, find new points of entry, avoid exposure to particular expectations, etc.
- **Transitions** — changes of field of work, occupation, life situation, etc. that allow a person to redirect her biography, define new challenges, find better opportunities, etc.
- **Life themes** (Thomae, 1996) — topics that emerge in the women’s own accounts as crucial for understanding their choices.

In our analysis we pursued a variety of strategies: First of all we (each national researcher team) jointly interpreted the biographical material, trying to acknowledge and respect ‘gaps in meaning’ (Rose, 1997) but also to contextualize each account as far as this was possible. It turned out that the interviewer was crucial for this joint interpretive work, remembering tone, atmosphere, difficulties of constructing a narrative, interruptions, emotions — all things that are important for coming to a ‘grounded’ understanding of the material.

Apart from constructing life story patterns, we searched the material for experiences that cut across the 107 female biographies. They allow a more general view of women’s situation in ICT, namely of the diversity of backgrounds and career paths, of jobs and working conditions in the field, and the role of gender. We also coded the narrative interview material, combining a descriptive analysis of these data with a cluster analysis revealing particular career patterns (Valenduc et al., 2004).

### The ICT sector and women’s participation in Austria and Italy

At the time of the interviews the ICT sector in central Europe is still offering good job opportunities, although there has been a downturn after the hype of 2000 and the introduction of the Euro in Austria in 2002 (Webster, 2004). The ICT sector provides respectable employment in an open, competitive labour market. In Italy, although the growth rates in ICT were the same all over the country, the generally bad economic situation in the South with high unemployment rates especially for women also affects ICT jobs. In Austria the situation is not so different, however there is a concentration of big international companies in Vienna, hoping to be able to expand the market to Eastern European countries.

In Italy and Austria the ICT sector is dominated by firms offering software consultancy and supply. These are mainly small companies, most of them with less than ten employees. Big software companies, including banks, offer an internal labour market and formal training programmes, although many of them reduced their budget for training as a result of the crisis in the ICT sector. Small work organizations rely on self learning and peer group support. The qualification level is generally high for the ICT sector in both countries: Many employees have university degrees or other high level ICT skills. Continuous vocational training and learning on the job is necessary, and often inter-company mobility is the only way to acquire new knowledge, increase one’s experience, and grow in one’s profession. The prevalent mode of work is full-time.
In 2001 about 28% of the employees in ICT companies in Austria were female, reflecting the average for all EU countries (Valenduc et al., 2004, p. 16). However this includes administrative, support and other non-technical personnel. In Austria and Italy women have the main responsibility for childcare, although in Austria for some of our interviewees the fathers of the children were the main carers. In both countries the availability of publicly and privately run nurseries that take children from an early age is limited. Private networks are important. In Italy professional women with small children often have a good support network.

**From the margins to a field of opportunities: the life stories**

The seven Austrian and Italian women in this pattern come from very different cultural and social backgrounds and they have reached different levels of competence in IT and positions (Table 1).

**The Austrian cases**

Four of the 15 Austrian women informants grew up in the countryside. This has been a strong shaping force in their biographies. First of all, growing up on a farm (which four of the women did) helps children, also girls, get independent very soon. Moreover, technology is much more accessible to girls than in the city. Antonia, the youngest of our interviewees, was raised by her mother, who works in the local drugstore, without any support, her father having died when she was eleven. She grew up with lots of boys around her and only few relationships to girls.

After having finished secondary school, she went to a vocational technical high school (HTL) where she participated in the ‘IT and organization’ programme. For a young girl from the countryside this was a quite unusual choice. But she always had liked mathematics and her math teacher at school talked to her mother, arguing that she could do it because she was so quick in understanding things. Her mother already had selected a vocational school for women — ‘she wanted me to become a housekeeper, and this I absolutely refused’.

Today she is aware that her mother was the one who had to face her neighbours’ comments:

> This is what my mother had to face: ‘What shall she do afterwards? What will become of her?’ But I didn’t mind because I was not aware, and I don’t mind now. And now they make ‘big eyes’ since no one had imagined that I’d finish this.

Everyone around her asked, ‘are girls admitted?’ In the end she was the only one from her class who went to the HTL, which was a strange experience at the age of 14, but people ‘were impressed’; and in fact there were only two other girls in her year group at the HTL. She remembers that during her first year her mother asked almost every week: ‘Will you make it? And if not, what will you do then?’ Now the mother is proud of her daughter, who has got a high school diploma, and as Antonia formulates it:

> Now she is glad, there is someone who can fix her TV or her video recorder and everything works and she doesn't need a man for this, she can just ask me.

After graduation Antonia was lucky enough to find a job as a junior programmer in Visual Basic and with object-oriented databases (‘this was a completely new

<table>
<thead>
<tr>
<th>Age</th>
<th>Background</th>
<th>Position</th>
</tr>
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<tbody>
<tr>
<td>22</td>
<td>Small village, grew up with mother Informatics, technical high school (HTL)</td>
<td>Junior programmer, software company</td>
</tr>
<tr>
<td>34</td>
<td>Farmer family with five children, M. is the only one with an academic degree Clerical jobs, than Informatics at University</td>
<td>Associate professor, University</td>
</tr>
<tr>
<td>27</td>
<td>Farmer family, four girls High school diploma, further training in IT</td>
<td>Network support and training, IT training programme for women</td>
</tr>
<tr>
<td>45</td>
<td>Farmer family with six children, Ch. is the only one to have moved to the city</td>
<td>IT department of a large bank</td>
</tr>
<tr>
<td>26</td>
<td>Family of three from Napoli Self-trained on the job</td>
<td>Software engineer in US IT company</td>
</tr>
<tr>
<td>40</td>
<td>Family of immigrants from the South, all five children graduated from University Degree in applied mathematics</td>
<td>Senior systems engineering in large IT company</td>
</tr>
<tr>
<td>25</td>
<td>School diploma in arts</td>
<td>Teacher of Informatics in a technical school Computer sales and customer care</td>
</tr>
</tbody>
</table>
terrain’) in a young and successful IT company in a nearby town, which offers her the opportunity to learn and to grow. Although in a junior position, she describes her work as a series of challenges:

    Let’s say in between there are always small things that have to be resolved immediately and you may not have a clue how to arrive at a solution, but it always works out. You also make it. And this challenge … there is always a challenge, because there are never things that occur twice … there is always something a bit different, even when someone from outside would think that I am sitting at my PC all day long typing and getting angry because this and this doesn’t work. I have always got my challenge, to accomplish something.

For Antonia her present job is ideal. She feels accepted, has a strong interest in her work, is curious to learn more, and is very happy in her work environment. Her desk is in a large office space. This she likes, although there is one desk no one likes since passers-by can have a view of your screen. Although the company has grown, she knows the people around her very well. Some of them she even knows from her school time. This creates a family feeling. Her colleagues are cooperative — when new and difficult questions arise she knows whom to ask. They often go out together in their free time. Antonia enjoys the possibility to work in an environment characterized by familiarity and physical proximity. The last company outing to Dublin was a great experience — ‘I cannot think of another company that would fly for four days to Dublin’. Antonia does not have the feeling to work in a hierarchical structure:

    S who talks to the client, he sits just next to me. When I need something, I just ask. There is no hierarchy, rather a ‘doing things together’.

What stands out in Antonia’s account is that going to a technical school and choosing informatics was her own choice. She ran a risk by entering a career venue that broke with the expectations of her environment and that activated her interest in IT, wanting to understand the hardware they sold on the one hand, to develop better software on the other hand. After four years of work experience she was already financially and intellectually independent from her family and took the decision to study informatics:

    I was sure of what I wanted to do and did not discuss it at home … I knew, I will do this, and they accepted it, I always had my own way.

Monika is very proud of her decision to go to a big Italian city for two years after having graduated, to go abroad, to build her own life in another place. This experience was formative, also for her intellectual orientation. She was part of an interdisciplinary team and supposed to learn something that was completely different from what she had done before. This is where she developed a strong interest in cognitive psychology which helped her form her ‘holistic’ approach to the design of information systems; which she sums up as to develop a mental model which then is transformed into an architecture with the help of graphic elements, textual descriptions, and language.

Monika explains in great detail what she considers her major intellectual achievement. Her language communicates that successfully describing complex systems means to be able to control them. The impersonal ‘one’, as well as the terms ‘model’ and ‘architecture’ emphasize a generalizing perspective (backgrounding of self). Monika masters scientific methods and through this the complex realities she models. In her work she looks at herself as the architect who tries to maintain an overview of an extremely complex, open system:
This is my motivation, that it is something very complicated and complex. Maybe not complicated but very complex and not something small and closed but something big and open where I cannot foresee everything. … Not only what is logical, bounded, and can be unambiguously described …

She appears to be where she wants to be, doing the research that fascinates her and satisfies her ambitions — ‘at the frontline of research, where I can be creative, design things, produce ideas’. Monika has a university position and plans to apply for a chair at some point. She talks a lot about being determined and persistent to know positively how you organize all this, plan a project financially, write project proposals, and introduce creativity.

Being able to master things that are ‘very complicated and complex’ is not only an approach to planning and designing systems but a crucial aspect of Monika’s life orientation.

Barbara comes from a family of farmers in ‘an economically disadvantaged area’. She grew up with three sisters, learning to be independent, since when she came home from school her parents were often working. She took care of her youngest sister helping her with her homework.

When things broke, a wheel or so, then I mended it myself or together with my sisters, since if we had waited for our dad, then nothing would have happened, since he had little time and almost never was at home …

And as there was no brother

I was not scared of these things (things to repair) and was able to manage equipment such as screwdriver and drill.

In these descriptions Barbara presents her childhood as having been untypical of a girl. She made broken things work and was ‘not scared’. ‘Screwdriver’ and ‘drill’ stand for male competence.

After graduating from high school she made ‘a wrong choice’, starting at a teacher’s college. She became pregnant very soon, interrupted her education, had a lot of time to think and decided to look for something else. She contacted the local employment agency as well as a consulting agency for women and decided to apply for an eighteen month training programme in system administration for women from the area. What attracted her was not just IT but also the focus on key competences such as project management, teamwork, communication, cooperation, and that English is a central aspect of the programme.

After graduating she looked for work, more and more, ‘enlarging her radius’, realizing that she would have to commute. At that time she also started a small project with two other women thinking about how to design IT education for women in the villages. Then the women from the training programme asked her if she would be interested in an internship. After that she was offered a job as part of their team.

Barbara loves her work. Her passion is training other women. Her description of what it means to work as a system administrator conveys excitement and adventure, and also fun:

This is challenging, this is always something new, at least for me there is no schema, where I would say, OK, this is how I do it. Firstly, since there is always the possibility that problems and situations come up unexpectedly or which worked out fine before and don’t work now, for whichever reason. Sometimes you never find out. … the women are highly motivated and committed. And you receive so much in return. And it is just fun to do something together with them and to see their progress.

There is also an element of drama in Barbara’s account. ‘There is no schema’ or ‘situations come unexpectedly’ suggest a vast and open space of possibilities where she has to find a solution — ‘sometimes you never find out’.

Barbara is aware of the limitations of her home region that do not allow her to move on. Moving to the city is going to be her next project.

Charlotte comes from a farmer family with six children. After secondary school she went to a two-year agricultural school, and having finished her apprenticeship she worked on her parents’ farm until she was 20. This didn’t interest her. Very early she knew that she wanted to move to the city. She tried to find something different from a normal office job, to do something a little more demanding, and get a good salary. At that time there were no IT schools and Charlotte started in a small trading and production company where she stayed for seven years. Although she had no background in IT, she managed the transition from manual to IT supported work in the office. She talks about the way office work was organized 20 years ago in such a company. It included everything, from shorthand to typing, accounting, and skilled clerical work. She describes her work:
In such a small company IT is something very small, this was just two terminals and a printer … for orders and accounting, just these things. And I learned the operating and programming, this was not difficult, because I took a couple of courses at the software company, and that was it.

The main reason for looking for another job was that Charlotte wanted to develop herself, learn something new, and ‘become more professional’.

There is a different level of professionalism in a larger company … there is also a difference concerning the type of machine — it is much more interesting to work on a large computer installation. … In IT salaries are good and you don’t need an academic degree to reach a certain level and climb up a career ladder; move up in the hierarchy to earn a good salary.

For Charlotte IT is not a passion but a vehicle to an interesting, well paying and respectable position. She found it in a bank. The bank is a stable environment that also offers a variety of fringe benefits for its employees — they reach from six weeks of paid vacation and daily lunch in the cafeteria to a place in a nearby kindergarten and a parking lot. Charlotte emphasizes these benefits, although she has no children and no car. The fact of working in the city centre adds to the attractiveness of her present work. She adds:

And everybody knows X, this adds to your own reputation and signals prestige … this is how I look at the company.

Charlotte has achieved what was possible for a woman from the countryside with no high school diploma. Currently, the bank makes the transition from host technology to a server–client technology. This creates a problem for Charlotte, since she belongs to the ‘old group’ who was responsible for the host-based system:

I am part of a group who has a position at the periphery. And I don’t like this, I don’t like this at all … the group that worked on the old system, which has been stopped. And the other group works on the new system … we currently have this game of two types of employees in IT … Everything can be different in a month, since everything is changing … My old area of work … no longer exists and I have to build a completely new area of expertise, and this will take a year … This is the first time in my life that I experience something like this. It is as if I started in a new company.

While Charlotte’s accounts are quite pragmatic and ‘matter-of-fact’, here she conveys some of her anxieties. Her stability is threatened — ‘everything can be different in a month’ — and she for the first time in her life feels not in control.

What these women have in common is that they are very attached to their home environment. Moving out did not imply breaking with their roots. Charlotte is the only family member that moved to the city and she is part of a professional culture that for example her sister does not understand. But she is still very attached to her family. She mentions having gone through a difficult time recently with her mother, a close friend, and some other family members having died from cancer. Her father suffers from Parkinson’s Disease. Charlotte is always there to help — to pay regular visits, to inform herself about the disease and try to support decision making in the family. She says:

We are a big family, my father comes from such a big family, and we maintain very close relationships with each other. I am always informed about what my siblings are doing, where they are, we give each other support. When I need a machine or so … we swap things, even things to eat.

What brings Monika back home on weekends is her love for music. She plays several instruments, is part of her university’s orchestra and still takes music lessons. Music is also the field where her social life takes place:

Music helps me to balance out, and also (offers) a social life … already while in school I was active in our local music association, with the saxophone and clarinet … and for some time I was responsible for youth, before I went to L. … And on weekends I often travel to K (where she grew up) because I am still active in the music association. And this is another world, and there I show another face … I am aware of this that I have different faces …

Monika alludes explicitly to the fact of living in two worlds, which she manages to hold together, showing the appropriate ‘face’ in each of them. She refers to her readings in psychology as having helped her live these different images and roles consciously and to reflect on them.

Only Barbara, who still lives near her home village, feels trapped. Her daughter is seven now. Her husband comes from the same area. He works in a print shop and can walk to work. His mother looks after their little daughter. Her family has to be flexible, since she has to commute to work and sometimes she has to tell them ‘I’ll be an hour late’. Things get a little difficult when he needs the car. She feels that she gets a lot of support from the whole family.
At home she has the role of the technician (concerning IT), since her husband is totally inexperienced. He does not want to move to Vienna but she mentions that he seems to re-orient himself professionally. This gives her hope in eventually one day being able to leave the region. They live in his parents’ house, which is small, and everyone in the village is asking when they will start building their own house. This is something she fiercely resists:

*I don't have these roots, to say, the house is so important, this place is so important, this is the place where I want to stay. This is not it. And I refuse to build a house in W. They put up so much pressure ... these people put too much thought into my life. Where I build my house, I stay. This I resist.*

Building a house stands for being trapped, having to stay.

*The Italian cases*

Our Italian informants come from the South of Italy, an area with limited job opportunities and very far from the major business cities. Scarcity of economic activities makes it very difficult to find a job there, especially for graduated people. Two of the informants, in fact, moved from the South to the biggest business centre in the North, Milano. Anyway, the third, after having reached a satisfactory, autonomous position in a traditionally male high-tech job, seems quite happy to stay in her Southern hometown, Catania.

*Alessandra* has left her hometown, Napoli, to have more employment opportunities and now lives in Milano. She is a very positive and determined person. She is sincerely interested in IT, although her first job choice was different (she graduated in languages). She began to learn computer science (a Microsoft certification evening course) while she was attending her university courses. This decision was expressly made in order to optimize the chance of finding a job — “Computer and languages: it seemed to me a great combination!”.

After graduating she found work for six months in a small library database project, as the only girl and the youngest one. This is where she really learned to program. She soon realized that her hometown did not offer many job opportunities, especially in the computing sector. All subsequent decisions were made in a very pragmatic mood. She started looking for a job in Milano, because of family friends who could help her. She also looked in the Internet and sent her CV to four or five companies, to be honest without following a precise pattern, and one company called me in the same day … I started working soon in an IT company that sent me to a customer. The customer hired me. I've been doing C, C++ programming, Shell, Unix …

Again she was the only girl in her group. *Alessandra* found space for learning and for developing herself, although the company went through a severe crisis. She mentions her boss, a woman who went on maternity leave and now works from home for a while who managed to set up a big project. She describes her as splendid, and she gets along with her very well. *Alessandra* loves programming. She stresses how much she is still learning. After her first year she asked for promotion which they granted her, including a higher wage:

*I am sitting all day long in front of a PC but the activities I perform are not mechanical or boring; when a new project arrives this is nice because I have to sit down and study the logics, to understand; to do the analysis may take days, you have to use your head, reason, to be very precise.*

Having to study hard is described as a challenge and almost as an adventure. *Alessandra’s* account contrasts ‘mechanical’ and ‘boring’ with ‘logics’ and ‘precision’ — she says ‘essere precissimi’.

It was hard for *Alessandra* to leave home and she found a place to live with a friend:

*At the beginning, in Milan it was hard for me, I missed Napoli, my friends, I found it difficult to make friends here, but at the end I realized that it was me who was frightened about not being accepted, as a person from Napoli ... Now I am really happy to live on my own, I feel free to do what I like, it is the first time for me.*

Success for *Alessandra* is closely linked with the fact that she managed the transition from a traditional and very protective environment – Napoli, her family – to the big city, which represents a modern life: being independent, having an interesting job, exciting options for the future. She adds, laughing:

*I have a systematic and precise mind, very little napolitana*, in fact I have moved from there.

Anyway, after only a few years her detachment looks complete and she even begins to consider moving farther away, maybe to Ireland.

Also the story of *Carla*, who has achieved a successful career as project leader in a software company, is a story of social and territorial mobility. She was born in Calabria; she is the third of five children.
When the youngest child was born, her parents migrated to the North. She is well aware of their motivation:

As a matter of fact, my parents were well off there, they were landowners … It was expressly for their children that they decided to move; it was to give us a good education. They always regretted not having a good culture and education, so they encouraged all of us to study. We were free to choose what we preferred, but we had to study, absolutely! And we did so, all of us graduated …

As a student she developed a deep interest in maths and a strong commitment to study but her most important goal was to become independent from her family as soon as possible. So she got a degree in applied mathematics early and was immediately hired by an American IT company. At that time the IT sector was growing considerably. She was the only woman in the team. She mentions the satisfaction she found in her work. She had to work hard but she had a good salary and enjoyed the recognition and esteem she received from her bosses. When her company, like many others in the computer industry during the nineties, faced a critical period and was obliged to reduce its staff, there was never a question that she might lose her job:

I started as a programmer, then I became analyst and programmer in a branch of the company that dealt with financial software. I felt at ease, the climate was very good; it was a young company that was expanding; I started growing professionally and I became responsible for a rather important project … After that I worked in another project, always with other women, I was senior systems engineer at that point, and this work gave me enormous satisfaction, because the client was pleased, although (the product) was not successful on the market.

Carla’s style here is rather factual but we can see from her wording how proud she is of her career. One can always feel how her competences grow with the expansion of the company and that she was even spurred by the economic difficulties the company was facing.

She got married one year after she had started working. Her two children were born a few years later, one close to the other. When she returned to work the first time, a woman had become her boss and she offered her the opportunity to join a new project team on electronic payment. This was very interesting work from a technical point of view. After one and a half years she had her second child. That she was able to return to work soon each time is also to do with her family network, in particular her supportive and understanding mother in law:

Anyway, I can honestly say that my professional life never had obstacles from my children: I always worked hard and never stayed at home when the children were ill, even if I had to turn somersaults.

Carla argues that to have a successful career a woman ‘must work twice as much as a man does’. For example, after returning to work after the birth of her second child, there had been changes in the company and she had to restart, with ‘zero responsibility’ and there were a number of new things for her to learn. After a little while the project leader took maternity leave and Carla was offered her position. She remembers

This was a particularly hard period since we also had to work on the new house my husband and I had bought: a hot month of July I will never forget, with the children at summer camp, impossible working hours, things to organize for the house but all of it had to be done and it got done.

Carla presents herself as a woman who is able to move away the obstacles she encounters. She is building and organizing at work and at home, as during the hot summer months she remembers — ‘all of it had to be done and it got done’. Nevertheless, after fourteen years in the same company, she found it difficult to go on, feeling the weight of the sacrifices her career had cost her. There was a period of tough competition and much stress after which she decided to start a new professional life as a teacher in computer science in a technical high school. She doesn’t regret her choice — her life has changed, she has more time now. She says she wants a quiet life with her family but, in fact, she always let herself be involved in many new projects and in extra schoolwork and seems enthusiastic about it. Her plans are to study to be a school director and also to work as a free-lance consultant.

Fiorella works as technical assistant in a computer shop. She is very young and sensitive, but she is a determined woman as well. Her mother has a small shop. Her father is retired. They give her a lot of freedom. She attended the public school of arts, where she did graphic art for advertising and photography, which she enjoyed very much. She should have continued with computer-based graphic art, instruction at the school being rather old fashioned, but was too lazy. After working for a short time with a photographer, her older brother offered her a job in his small hardware and software company. She started answering the phone, now she is able to assemble and install a computer on her own. She sometimes also deals with the technical service.
Fiorella remembers her panic when she answered the phone and a client started asking more specific questions. Although she encountered technologies late and had to start a different path from that opened by her education, she got more and more fond of her job. Now she thinks that assembling a PC is an art, saying:

At the beginning I did not know what to do with all these cards, cables... then when you start understanding what there is inside a computer, you start loving it and what at the beginning seems you a terrible mess you can do easily, with ease and pleasure, and it is beautiful, the inside of a PC.

There is this element of adventure, starting out with a mess of cards and cables and ending up in perfect order—a functioning computer. She gets much satisfaction from experiencing that many clients do not expect a young girl to be able to install a computer, ‘with a screwdriver in her hands’. But Fiorella also observes that clients first talk to her and then look for confirmation to her brother — ‘as if I were not competent because I am a woman’. Nevertheless, she likes her work and the fact that the IT sector is always evolving:

You don’t stop learning, knowing new products and applications. New software and hardware come out over a few months period and you have to update your competencies to be prepared when a customer arrives.

A big theme for Fiorella is the family. She still lives at home and would so much like to live on her own. Right now her boyfriend decided to move to Catania to be close to her and this will have to be discussed with the family. She is close to her brothers, in particular the one who opened up the computer field to her. Fiorella remembers how much she cried when he got married:

This was a trauma, a tragedy (in an exaggerating tone), I cried during the marriage preparations, also because we slept in the same room and there were so many common memories, when he returned home in the evening, we had fun, he told me things...

Now things are little more complicated, since her brother has become her boss—her ‘maestro’. At work all are a family, having known each other as children, she says:

But there is a difference that is to do with the roles, employee–boss. There has been a small problem (problemino) recently... it is not so easy to work with family members, you have to try to do everything, there is this familiarity, it allows you say things that you maybe would not say to others... There are things that don’t make it easygoing but you have to find ways to deal with this. He understood that I feel myself punished...

While the childhood story about her crying at her brother’s marriage is full of warmth and a little irony, Fiorella hesitates to address the ‘problemino’ directly. The mere adult relationship is not only more difficult; it also allowed her to re-assess the dominant older brother, seeing him in a more realistic light.

From the margins—experiences and metaphors

The seven women come from completely different cultural backgrounds (see Table 1). The Austrian women all come from the countryside, either growing up on a farm together with several siblings, or, in the case of Antonia, in a small village. Although there is much freedom on a farm, because parents don’t have much time for their children and these can roam around and are exposed also to technical things, having a good education is not a topic. Daughters are supposed to learn something useful so that they can help on the farm or find a job in the immediate environment. The situation in Sicily is completely different. For our interviewees’ parents providing their children with a good education is a high value and one family went to Milano for this reason even though they were quite well off in their home region. In almost all Italian cases, families gave much emotional and moral encouragement (and also an economic support) to their daughters; in the words of one of our other Italian interviewees, also from Sicily:

In my family there’s always been a good atmosphere: far away from the limitedness that’s typical of Sicily. My school years have been lived under the sign of freedom, personal growth, culture, and what I learned at that time helped me a lot later on...

Choosing an IT profession for the Austrian women meant moving out of their milieu, and in some cases it also required moving to the city. The women from Sicily have to leave because of the lack of job opportunities in the South. As Fiorella, who is still in Catania, says:

Unfortunately, the situation in the South is not easy and sometimes we are obliged to take jobs we don’t like, people must adapt... Anyway, this is not my case, I like my job!

Quite a number of the informants from Italy motivate their choice of ICT with the job opportunities in the
field. Getting an education in engineering and ICT is seen as the most reasonable way to optimize their chances on the labour market. Job security is a strong consideration especially for women from the South.

Also, entry routes into computing differ. Two of the three Italian women graduated from good schools and went to university to study languages in combination with computer courses (Alessandra) and applied mathematics (Carla). Two of the Austrian women came to IT through previous clerical jobs, Charlotte learned programming on the job, and Monika moved on to university to study informatics. Antonia went to a technical high school and Barbara received training as a system administrator in an education programme for women.

Using biographical material, Wagner and Wodak (2006) show how many of the rhetorical and argumentative strategies in the women’s self-presentation can be summarized by focussing on one of the most foregrounded linguistic devices: the use of metaphors. Metaphors define the conceptual and perceptual frames of our informants:

Metaphor … is not a mere reflection of a pre-existing objective reality but a construction of reality, through a categorisation entailing the selection of some features as critical and others as non-critical … metaphors can consciously be used to construct … reality (Goatly, 1997, p. 5).

Self-presentations, perceptions, stereotypes, opinions and beliefs are enforced and manifested inter alia by metaphors, analogies and insinuations as well as stories (Van Dijk, 1984). They are cognitively and emotionally deeply embedded and also have historical roots. This crucial aspect of the use of metaphors – i.e. discursively and cognitively constructing one’s own subjective realities – is present throughout our interviews. In the analysis we found the following clusters of metaphors, which are connected to both, coming ‘from the margins’ and having chosen IT:

**Self-presentation as boundary crossing women:** Having chosen IT requires to some extent to break with the expectations of one’s environment. These expectations are present in gendered roles (for little girls) and in traditional school options or life patterns. The women present themselves as not conforming with these expectations. Crossing over culturally often requires geographical mobility — crossing from South to North (Italy), from country to the city. However, crossing over does not necessarily imply separation. The women stress their ability to stay connected (to their family) and to bridge the different worlds they inhabit.

**Self-presentation as building and controlling:** This is a strong metaphor that is present in how the women describe their work. It may mean solving puzzles so that a programme actually works, bounding things together logically so that they can be mastered or controlling complex systems by modelling them. Building also captures how the women view their careers — then it is connected with learning and personal growth – and how they hold together the different aspects of their lives, moving away the obstacles they encounter.

**Self-presentation as getting independent — staying attached:** The women had their own way, when choosing IT. This meant to detach themselves from their families, in some cases gradually and with their support, in others more abruptly. The women need to escape their home environment to shape their own lives but to return as visitors, still feeling attached to, for example, go home for the weekend and play music in the local band, to receive nephews and nieces from the countryside in her city apartment, and last not least, to maintain the family networks that help the Italian women to keep on working while they have young children.

**Self-presentation as embarking on adventure — mastery:** IT is described as an open, highly complex field, with many and often unexpected challenges, something you may not understand at the beginning to then discover order and logic, something you may fear and then learn to love. These characterizations are connected with a strong sense of mastery and the certainty that problems can be solved.

**Life story patterns — concluding remarks**

The metaphors and stories in the women’s biographical accounts reveal a diversity of strategies. These make the life story pattern ‘from the margins’ different from all others.

We can see that ‘from the margins’ as a life story pattern has some elements in common with ‘building one’s own environment’. It also shares, in the case of the young women, some features of the ‘being open, having not yet arrived’ pattern. But we have also shown that it is quite unique.

This uniqueness becomes more readily visible, if we look at the ‘event models’ present in the women’s narratives, which help us systematize the narratives, organizing them coherently, and thus providing a rational order for the life trajectories. ‘Event models’ (Linde, 1993) integrate and update every new experience in specific stereotypical and/or prejudiced ways even if these events might mean something totally different. Event models store experiences in specific schemas and scripts and offer models to update and explain new experiences. We encountered three such event models:
Creating one’s space: The stories describe the women’s steps at getting independent (from their families, from social expectations) and how this helped them create their own space — at work, in another city, in a culturally different and geographically remote environment — and be autonomous. It is mostly work achievements that describe this space of their own. Their identity is set in contrast to where they come from.

Moving: The women move, from home and their local milieu to another region, to a place, where they stand for themselves. They move in the right direction, taking the right train. They, together with others, in some cases other women, move their projects so as to get good results. They move away obstacles that pose themselves. They also move between different worlds.

Self-made woman: Life stories are structured around constructing the self through personal choices. Achievements are presented as the result of hard work. ‘I’ is used throughout.

If we compare these event models to the ones that Wagner and Wodak (2006) identified working with another set of biographies, several observations stand out. There is much less emphasis on ‘symbiosis’ in our narratives, of work being “experienced together, the women’s own identities merge with the identities of the other team members”. Moreover, much more emphasis is given to the women getting independent, developing a contrasting identity. Finally, what we did not find or found to a considerably lesser extent (with the exception of Fiorella), is traces of ‘coincidence and luck — ‘it simply works’: achievements are presented almost as unpredictable miracles; the hard work involved is denied (Wagner & Wodak, 2006 p. 406).

IT allows the women to be independent in many ways: It is a challenging work, offering the opportunity for learning and perfection, and for being creative. It is also fascinating, satisfying the urge to ‘solve riddles and generally the curiosity to get to the bottom of things’. It is an open world, with a wide horizon. It offers jobs, and this in a respectable area, and status. It helps the women to emancipate themselves from some of the constraints of their social and cultural environment, to detach themselves from their families, moving to a big city and living on their own.

Endnotes

2 The names of the interview partners are changed to ensure anonymity.

References