



EVIDENCE-BASED GAME

Anna Giulia Ingellis (Ed.)

Recommendations
from the research
findings



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Evidence-based Game

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the research findings*

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Introduction

The ultimate objective of the *Free to Choose* (FtC) project¹ was to design, test and implement a game addressing the reduction of the negative impact of gender stereotypes in the school-to-work transition. This objective was pursued in two phases, the first being dedicated to providing empirical evidence of the general condition of females and males at school and work and of the presence and impact of gender stereotypes in education and at work, in the countries involved in the project: Cyprus, Italy, Portugal, Slovenia and Spain. The second phase was dedicated to the appropriate design of the game and to its implementation.

Therefore, in the framework of the FtC project, the research task has been twofold: on one hand to produce knowledge about gender gaps and stereotypes in the school-to-work transition in the five countries involved in the project and on the other to provide evidence on which to base the creation of the anti-stereotyping game.

The main objective of this report is to present in a single document all of the suggestions that the FtC research team has made to the project's game designers during the preparation of the several prototype versions of the game. The greater part of the recommendations and advice reported here is derived from the theoretical and statistical analysis of the main topics related to gender gaps and stereotypes, and from the field-work carried out in the *Coming Out* research.

The report is organized into five main sections. The first offers a brief theoretical review of stereotypes: the definition of the term, how stereotypes appear, what they are based on, the behaviours they produce and how to deconstruct them. The second section is concerned with their psychological and sociological functioning. The third and fourth sections present the main findings useful for the game design, provided respectively by the statistical analysis in the FtC report *Mind the Gap* (Ingellis and Diaz, 2018) and the qualitative results of the *Coming Out* research. The fifth section reports some direct suggestions which were made to the design team during the creation and testing of the game. The report concludes with a brief section suggesting future work.

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1. A theoretical map of stereotypes as mental models: The role of socialization and the construction of social reality

To reduce the impact of gender stereotypes on people involved in the school-to-work transition, whether as educators, career counsellors or young people, we needed first to identify the main existing gender stereotypes and to determine how they work. These were the objectives of the Mind the Gap and Coming Out research actions. This section presents the findings of a literature review and of that empirical research useful to the game designers, beginning with a brief definition.

Stereotypes are beliefs held by a certain social group and representing the idea that all members of that group share one or more personal traits. Stereotypes are related to both individual perceptions and social reality. Individual perceptions and subjective views are driven by social thoughts and mental models which are not natural; on the contrary, they are socially and culturally constructed. Social structures constructed in this way influence and determine individual behaviours, thoughts and beliefs. To understand stereotypes, we need to understand three processes: 1) patterns of thought, i.e. the schemes through which human beings perceive social reality; 2) the ways in which social reality is constructed; 3) the ways in which individuals interiorize social reality and its representation.

1.1 Patterns of thought: the relevance of social thought and mental models - *Capitolina Diaz Martinez*

Individual perceptions and subjective views are driven by social thoughts and mental models. The World Bank's 2015 World Development Report entitled *Mind, Society and Behavior* "explores the myriad psychological, social and cultural factors that influence the way people think and decide in their everyday lives". The report is based on the discoveries of numerous disciplines, such as neuroscience, cognitive science, psychology, behavioural economics, sociology, political science and anthropology. In ongoing research these discoveries help to explain the choices individuals make in relation to numerous aspects of development, such as savings, investments, energy consumption, health and parenting. They not only identify the determinants of individual behaviour but also allow us to better understand the ways in which collective behaviours develop and take root in a society (Vedantam, 2010; Bertrand and Morse, 2011; Dawson, Gilovich and Regan, 2002; Frankish, and Evans, 2009; Slovic, 1987; Todd and Gigerenzer, 2000).

Three principles of the human decision-making process that guide the new approaches to understanding behaviour and design and implementing gender equality policies are automatic thinking, social thinking and thinking based on mental models.

First, individuals adopt most of their opinions and decisions automatically, not deliberately, by a process called **automatic thinking**, which leads us to simplify problems and see them through narrow frames. We complete the missing information based on our assumptions about the world and evaluate the situations from the associations that come to mind automatically and from the belief systems that we take for granted. By doing so, we may form an erroneous picture of a situation. The fact that people resort to automatic thinking has important consequences for the ways in which development challenges are understood and the most adequate policies are designed to overcome them (Fryer, 2012).

Second, the way in which people act and think often depends on what people around them do and think; we call this **social thinking** (Reyes, Thompson and Bower, 1980). People are social animals, subject to the influence of social preferences, social networks, social identities and social norms, so most of them care about what those around them do and how they fit into their group. Human sociability implies that behaviour is also influenced by social expectations, social recognition, cooperation patterns, care of group members and social norms; the distinction between men and women is without a doubt one of these influential factors (Ariely, 2008).

Third, individuals in a given society share a common perspective on the world around them and on themselves; this is called **thinking based on mental models**, derived from their own societies and collective histories. Individuals do not respond to objective experience, but to mental representations of experience. To construct these representations, they use the interpretive frameworks provided by the mental models. Individuals have access to numerous mental models, often mutually contradictory. The use of a different model can change what the person perceives and the way he/she interprets it (Ariely, 2008; Kahneman, 2003).

Biases in thought

Human beings are commonly thought of as individuals thinking and acting via individual rational processes. Nevertheless, when people think, they do not generally use concepts that they have originated themselves; they use concepts, categories, identities, prototypes, stereotypes, causal arguments and worldviews drawn from their communities. A canonical example of a mental model is the stereotype, that is, the mental model of a social group. Stereotypes influence the opportunities to which people have access and configure processes of inclusion and social exclusion. As a result of stereotypes, members of disadvantaged groups often underestimate their own abilities (Guyon and Huillery, 2014) and may even have worse performance in social situations when they are reminded of the group to which they belong. In this way and others, stereotypes can self-fulfil and reinforce differences between different groups. Likewise, the evidence shows that interventions and policy designs that alter this mental model and allow people to more easily recognize their own potential can improve important developmental measures such as school achievement or participation in the labour market. All human beings are subject to psychological biases and this includes educators and people responsible for the selection of personnel in the world of work, as well as those in charge of formulating policies (Beaman, 2009; Bertrand and Morse, 2011).

Confirmation bias

Another common mechanism is confirmation bias, the tendency of individuals to filter data in search of the proofs and arguments that confirm their prejudices while undervaluing the importance and credibility of any reasoning and facts that contradict them. Our way of approaching reality is contextual, based on frames of reference, so we normally discard what does not fit these frames and are left with the information that confirms what we already thought (Reyes, Thompson and Bower, 1980; Bertrand and Morse, 2011). Han and Man (2015) review what is known about the subject and explain that our ability to respond to rapid cultural changes is possible because the brain is able to reuse cerebral circuits arising from old motivations for new purposes, with consequences summarized by Moya et al. (2018) as follows:

Our brain has evolved with social conditioning that has much to do with the tribe, with the close, with the familiar, and now we are in a situation in which the destiny of humanity is global. Our brain has evolved to recognize the near as our own and the distant as alien, and now we are facing a situation in which fate is the same for the near and the distant.

In the 1990s, social psychologist Ziva Kunda consolidated the concept of motivated reasoning by citing “considerable evidence that people are more likely to reach the conclusions they want to reach”. In sum, if what we see and hear does not directly prove us right in our beliefs, we take care to make the data fit our mental schemes. Prejudice and preconceptions help us to manage reality by creating a simulation with which to move forward: “When people develop a particular belief, even one that contradicts the facts, their brain continues to sustain that belief”, according to Newberg (2001). When we receive information, our brains are far from responding objectively and neutrally. That is, they process what is communicated to them according to confirmation bias (Owad, 2006; Marks and Fraley, 2006).

Some gender-related forms of bias

Gender stereotypes are founded on a wide range of biased ideas about social reality. Here are the most relevant ones.

Monolithic bias supports the concept of the traditional family and assumes uniformity. It emphasizes the universal structure of a family rather than the diversity of roles within it.

Conservative bias takes a romantic view of the nuclear family of the past, overlooks problematic views of the family and does not recognize problems.

Sexist bias treats the family as a small unit of analysis with a division of labour between gendered roles whereby men provide for the family while women are caregivers.

Ageist bias pays little attention to younger and older people, focusing narrowly on what 40-year-olds have to say.

Microstructural bias treats the family as an encapsulated unit and an entity in itself, failing to consider social institutions that affect what goes on within the unit.

Racist bias devalues families of different cultural backgrounds and does not recognize diversity. It is related to **ethnocentrism**, evaluating other cultures according to the standards and customs of the dominant or majority group.

Heterosexist bias assumes that heterosexual units are the only acceptable ones and that any other arrangement (gay, lesbian, single, etc.) is deviant.

Selective collection of evidence

So clear is this bias that, according to a study by the Ohio State University, we spend 36% more time reading what confirms what we think (LaMarre, 2009). Unconscious prejudice is a major obstacle to gender equality, but we can all do something about it. When companies address it, the results occur with surprising speed. A clear example is the case of Ernst & Young, a company which decided to eliminate all academic and educational details from the apprentice application process and introduce a blind CV policy to reduce unconscious bias (Rodionova, 2017).

Bias, perception, assessment and recognition

Within society there is no independent experience of society itself and its rules; our experiences are mediated by the configurations of the different spaces in which we live and interact. The same part of the brain processes both imagined and remembered objects and events; perceptions of the future depend considerably on memory and are therefore also subject to strong bias. These findings are revolutionizing knowledge and recognition of inequalities and opening new perspectives for intervention. This is the field of neurodevelopment that can move towards neuro-equality, which leads us to think that society should bid strongly for equity from the earliest stages of human life. If our future is partially conditioned by our past, we need a past as egalitarian—in gender terms—as possible.

This review of patterns of thought has made it evident that many individual thoughts are learned, interiorized from the thinker's social reality. People reproduce, in a certain sense, the social thinking they assimilate from their social environment, which is why it is relevant to try to understand how social reality and the related social thought are created and interiorized by individuals. The humanistic approach in sociology can help us to understand these processes.

1.2 The social construction of reality - *Anna Giulia Ingellis*

Sociology was born as a science with the ambition to subject social reality to the scientific method in order to discover the underlying laws, as in natural science, which explain human behaviour and social phenomena.

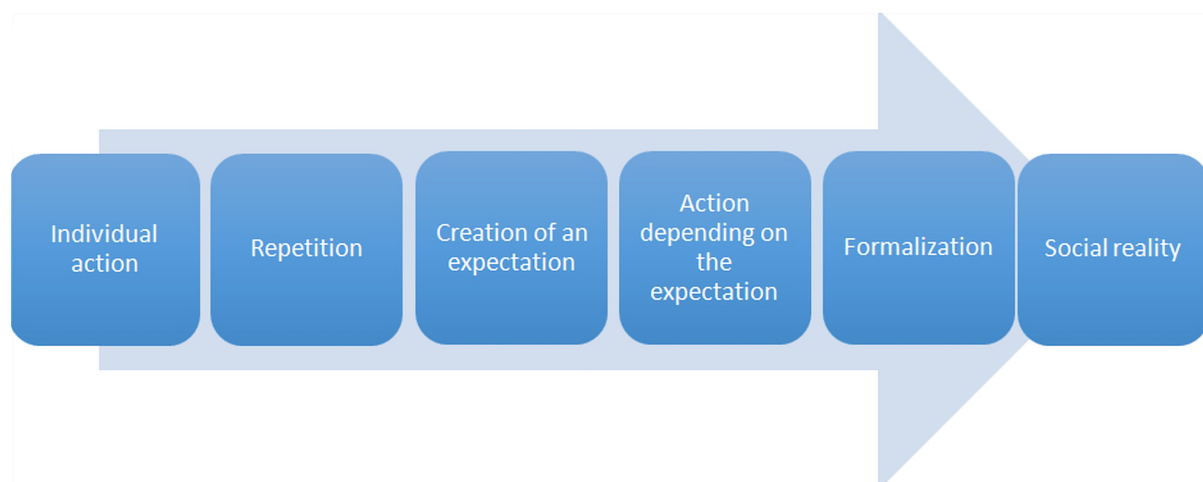
The implicit idea on which this approach is founded is that nature and society are very similar as objects of observation, which is why we can understand and describe both in an objective way. This positivist paradigm, which left its mark in the origin of sociology, was strongly criticized and to some extent overturned by the emergence of action theory and more generally of the humanistic approach. The key idea underlying this approach is that human nature makes the object of knowledge of the social sciences ontologically different from the elements of nature, for two reasons. The first is that social reality includes both an externally observable reality, such as behaviour, and an invisible part, the meaning that subjects attribute to their behaviour. The second reason is that the researcher is part of the reality he or she is studying, in that observing social

phenomena implies that the observer must interpret the meaning attributed to that reality by the subjects of the research. It is thus not possible to study social phenomena as if they were element of nature. The observer and the observed share the same nature: they are human beings, both continuously interpreting the reality in question.

Furthermore, not only is the subjectivity of perception not a problem when analysing social reality; it is an indispensable instrument, a tool to understand that reality. Two of the main theoretical perspectives arising from this approach are symbolic interactionism and phenomenology, whose emergence strengthened the relevance of subjective interpretation and the interactions among individuals, in terms not only of research but also of the underlying ontological question of what social reality is.

Rooted in these two theoretical perspectives is social constructionism (Berger and Luckmann, 1966), which holds that social reality and its elements are constructed by individuals and groups who actively participate in the construction of the social reality they perceive. The key principle here is that social reality is constructed when human beings interact. The authors detail the process, illustrated in the following figure, by which each new social structure or element is constructed and analyse how social phenomena are developed, institutionalized, known and converted into traditions by humans.

Figure 1. Steps in the social construction of reality



Source: Author's elaboration

The first step in the social construction of reality is the action of individuals. The process actually starts when many people act similarly and repeat the action. This inevitably creates an expectation, in those who observe that action, that other people will act in the same way. This expectation in turn influences the actions of people observing the initial action. The combination of repeated actions and related expectations over a long period results in the creation of a new element of social reality, through the process of formalization, which is the social recognition of the new element by the majority of society.

A social construct thus concerns the meaning, notion, or connotation placed on an object or event by a society and adopted by its members. According to this sociological perspective, in order to create a new social reality, such as improved gender balance, it is necessary to pass through all of these phases. For example, in order for it to

be considered normal for women to do a particular traditionally masculinized job, it would be successively necessary:

- for women to do that job;
- for many women to do that job;
- for people to begin to expect women to do that job;
- for women to believe that they could do that job;
- for recruitment to take no account of gender; and
- for a new gender balance to apply in that job.

Once the new reality exists, it should be known and recognized by all members of society, or at least by a majority. The early steps in the process are the most difficult because they involve overturning an existing social reality. In some way, active policies have that role, as they promote the beginning of the change process.

New members later entering the society in question have to be taught to know, recognize and take for granted all of the main elements of the social reality they are living in. This is known as socialization, the process by which someone is introduced into a concrete social context. At the very beginning of life we undergo primary socialization, by which our parents or relatives train us in the rules, norms and values of the context in which we are expected to live. As these norms, rules and values are very numerous, our learning mechanisms (observing our parents and doing what they do) are necessarily very rapid, involving the unconscious interiorization of much information. It would not be possible to think consciously about all of the norms and rules each time we are required to respect them in our behaviour, so we interiorize much of them. The second step, secondary socialization, occurs through inclusion in the educational system, when a social structure (school) is responsible for conveying information about the functioning of the social system and the social acceptability of behaviour. In addition to these two processes by which we interiorize the elements of social reality, including norms, values, social structures in general and gender stereotypes in particular, a third instrument of socialization is the media, a powerful source of information about how our society expects us to behave.

2. Applying evidence from psychology and sociology to stereotyped thinking - *Anna Giulia Ingellis*

The abovementioned findings of a wide range of studies and theoretical perspectives in the fields of sociology and social psychology address issues about how people perceive reality and interact as they construct social reality. This section shows how these two main questions are central to the key topic of the FtC project: understanding and dismantling gender stereotypes.

2.1 Why stereotypes appear

The fact that people tend to attribute some personal traits to all members of a group, despite not knowing all of these individuals, can be explained synthetically as involving two processes, generalization and socialization, whose mechanisms can be explained as follows.

Behaviours arising from stereotypes are wrong because they are based on the false belief that all members of a group are similar and characterized by what they have in common. Nevertheless, this erroneous belief has a basis in fact: that a large number of people belonging to a specific group do have a specific trait or behaviour in common. Take for example the stereotype of women remaining at home to cook and do housework. It is indeed true that a great many women assume responsibility for these domestic tasks. Statistical data on the distribution of time for unpaid work at home show that there is an unbalanced distribution of domestic and caring work within families. However, not all women spend as much time on housework and there are some who do very little or none at all, while there are equally obviously some men who do some or all of the housework in their homes. Nevertheless, because a strong majority of people act in a certain way, the more extended social belief is that women do all of the housework and cooking in their homes, and because of the generalization mechanism, people tend to attribute this behaviour to all women.

We can therefore state that stereotypes depend both on the generalization mechanism, the false belief that all members of a certain group act in a similar way or share a common trait, and on the fact that many members of that group do act in that way. This raises the question of why in each society people tend to act in similar ways depending on their group membership. The answer lies in the socialization process, by which all members of a given society are taught how to behave, what role each has in that society, how society works and so on.

The organization of a society is founded on social structures, which are specific patterns of organization of the various elements of the society. Schooling, for instance, is a social structure and in each society it constitutes a particular way of organizing teachers, students and parents, characterized by certain values and norms which underlie that structure.

The socialization process makes us behave according to the groups we belong to, which is why we act in similar ways within each group. These groups can be organized by sex, age, job, level of education, social class etc. The generalization and socialization processes explain why many people in any society act in similar ways and why we tend to transfer our perceptions of a majority to all members of the group in question. This is the basis of every stereotype.

2.2 How stereotypes reaffirm themselves

Stereotypes act in a vicious circle, reaffirming themselves through the operation of two main mechanisms: the creation of expectations and the reinforcement of self-identity.

The perception that the majority of people who belong to a certain group act in a certain way creates the generalized expectation that they will all do so. Our beliefs are particularly powerful because they establish our expectations, which in turn determine our actions and behaviour. We act in accordance with our expectations and this expectation-driven behaviour can determine the actions which are expected of us. This mechanism is a form of self-fulfilling prophecy.

Gender stereotypes differ from stereotypes in general in that people tend to act according to the social image of being female or male. Especially during adolescence, when we are entering social contexts as individuals and trying to become adults, we feel social pressure and seek social acceptance. Young men, as they grow up, try to be what they perceive as masculine, to affirm their identity according to the social image of maleness, and the same is true for young women's conformity to femininity.

In the case of racist stereotypes, people suffering racist behaviour do not try to act in accordance with the stereotypes and do not recognize themselves in the socially stereotyped representation. By contrast, males and females, especially when engaged in creating their self-identity, do try to act according to the social representation of being male or female. They tend to feel more comfortable in adhering to the socially constructed image of their respective genders.

2.3 Deconstructing stereotypes

Stereotypes can change. Research on this issue has focused on the so-called contact hypothesis, which states that under certain conditions, direct contact with members of a stereotyped group can reduce a tendency to overgeneralize some of its characteristics or traits. But mere contact is not sufficient. Despite being in contact with actions and traits clearly inconsistent with the stereotyped image, people tend to resist change in one or more of three ways: 1) they rationalize it, i.e. they give a rational ad-hoc explanation of the exceptional behaviour of the outlier compatible with the permanence of the stereotype; 2) they create subtypes for the outliers; or 3) they treat the unusual behaviour of the outliers as irrelevant.

Therefore, to make contact effective in challenging the stereotype, the outlier behaviour or trait has to meet the following criteria:

1. It must be recurrent (to prevent it from being rationalized);
2. It must affect many members of the group (to prevent the creation of subtypes);
3. It must proceed from a member of the group perceived as typical rather than odd.

Taking our example of women stereotypically doing housework and cooking, the contact strategy will not be successful if it involves contact with:

1. a woman not doing housework only one day, or in exceptional circumstances;
2. only a few women not doing housework;
3. atypical women (singers, TV stars, feminists etc.) not doing housework.

2.4 Stereotypes and behaviour

Stereotypes can lead to discriminatory behaviour, when someone interacts with another person based solely on that person's membership of a group and the general traits (normally negative ones) associated with it. This can amount to discrimination in two ways:

1. Because not all members of the group share the trait attributed to it. In this sense, interacting with a person as if he/she shared that trait can constitute discriminatory behaviour.
2. Because it is not true that the group itself is characterized by the trait in question; in other words, it is a false belief.

All of the above arguments show that it is necessary not only to work on gender stereotypes at a cognitive level, seeking to correct our false beliefs and to prevent generalization, but also to re-socialize ourselves, reformulating our beliefs about how society should be in gender matters.

Adolescence is a good time to undertake these measures, because adolescents tend to call into question many social norms and values, which implies a general process of de-internalizing them, so that they are able to perceive the existing stereotypes explicitly and thus to challenge them.

The key distinction between stereotypes and discrimination is that the former are cognitive and the latter behavioural, but stereotypes can lead to discriminatory behaviour. This suggests that in designing the game, we should decide whether to work on stereotypes at the cognitive level or on discriminatory behaviours. A justification for the latter option would be that it doesn't matter what people think; the main issue is what they do. Nevertheless, as a research team, we believe that it would be more effective to tackle the origins of the unwanted discriminatory acts, by challenging the stereotypes at a cognitive level.

3. Knowledge arising from *Mind the Gap* - Anna Giulia Ingellis

Some of the most persistent gender stereotypes concern women's position in the labour market. Although the care gap and gender gaps at work are strictly related, as the literature and a wide range of studies demonstrate (Cebrian and Moreno, 2015; Diaz Martinez, 1996; Eydal G'islasan, 2008), the fields in which gender inequality is most socially evident and is addressed as a social problem are those of education and work. The statistical analysis of data on the labour market and education presented in *Mind the Gap* (Ingellis and Diaz, 2018) shows that many indicators point to a gendered position of women and men in the labour market. This section presents synthetically the indicators related to each of the main gender stereotypes.

3.1 Women are primarily responsible for care work and occupy subsidiary work positions compatible with their main responsibility

There are data reinforcing the stereotype of women as primarily caregivers: Table 1 shows that women are clearly less present in the labour market, with a gender gap from 6 to almost 20 points, and Table 2 identifies family responsibilities and looking after children as reasons for economic inactivity overwhelmingly more among women than men.

Table 1. Active population (15-64) by sex and gender gap, 2017

	Total	Males	Females	Gender Gap
EU-28	73.4	78.9	67.9	11.0
EU-15	74.1	79.3	68.9	10.4
Spain	73.9	78.9	68.8	10.1
Italy	65.4	75.0	55.9	19.1
Cyprus	73.7	78.6	69.2	9.4
Portugal	74.7	77.9	71.6	6.3
Slovenia	74.2	77.1	71.2	5.9

Source: Eurostat (lfsi_emp_a) extracted 09.05.18

3.2 Women are less proactive at work, less autonomous and less good at assuming responsibilities

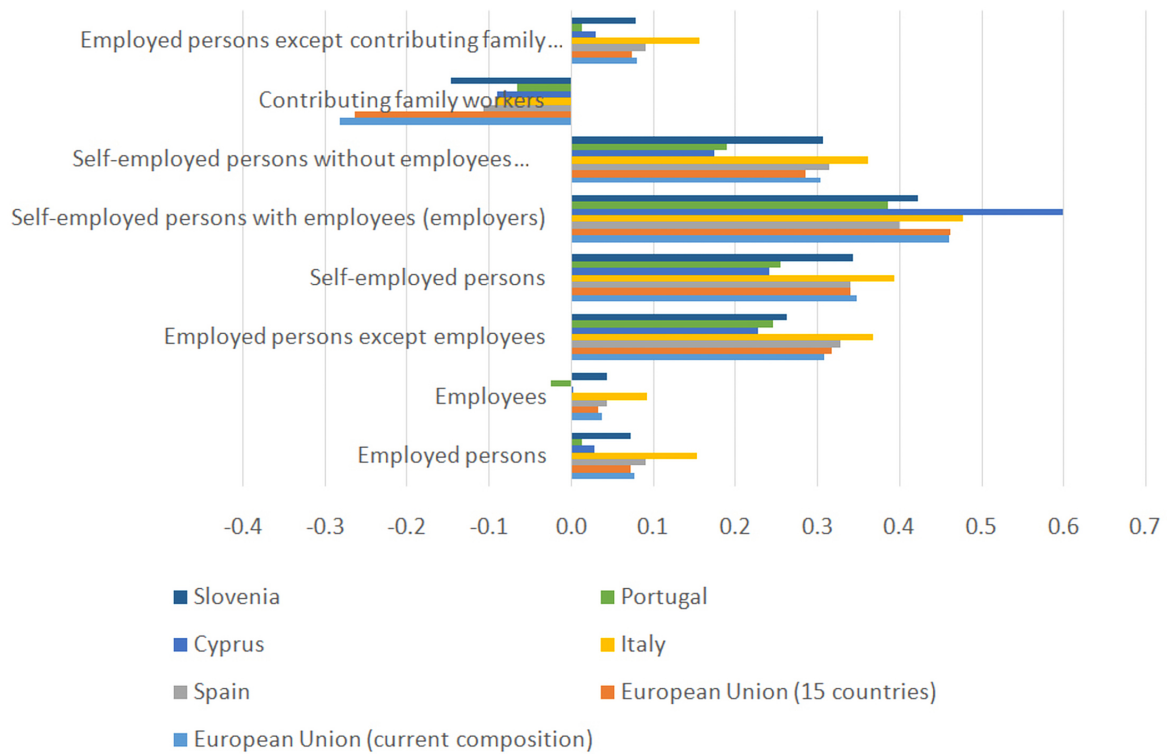
Although women's participation in the labour market has increased throughout the last two decades, the quality of their work and their positions are not the same as for men. Figure 2 shows a breakdown of gender gaps in employment by occupational status, revealing that the gender gap is particularly wide among the various categories of self-employment, with the widest gap of all among self-employed people with employees. Among employed people, and particularly among employees, we find the narrowest gender gaps and, not surprisingly, the presence of women is greatest among contributing family workers. In other words, women are most likely to work in family businesses or to be employees, while their absence from self-employment status is very striking.

Table 2. Reasons not to be actively searching for a job, by sex, 2011

REASON	Awaiting recall to work (on lay-off)		Own illness or disability		Other family or personal responsibilities		Looking after children or incapacitated adults		In education or training		Retired		Think no work is available		No response		Other	
GEO/SEX	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
EU-28	50.89	49.11	46.98	53.02	9.22	90.78	3.90	96.10	49.48	50.52	46.15	53.85	41.01	58.99	36.22	63.78	28.41	71.59
Spain	71.32	28.68	60.82	56.12	6.10	93.90	3.11	96.89	50.89	49.11	70.92	29.08	31.03	68.97	41.68	58.32	36.32	63.68
Italy	43.68	56.32	67.31	54.31	14.22	85.78	1.13	98.87	47.86	52.14	59.49	40.51	33.75	66.25	41.05	58.95	21.20	78.80
Cyprus	:	:	0.71	51.93	7.88	92.12	:	99.29	46.97	53.03	55.74	44.26	29.51	70.51	:	69.17	52.69	47.31
Portugal	:	:	10.09	63.53	:	92.28	:	96.68	50.34	49.66	57.63	42.37	34.31	65.69	43.66	56.35	42.02	57.98
Slovenia	:	:	3.78	39.56	21.87	78.13	:	86.81	49.97	50.03	39.53	60.47	47.71	52.29	54.09	45.95	51.56	48.46

Source: Eurostat (hlth_dlmo6o) extracted 11.11.18

Figure 2. Employment by occupational status, gender gaps 2017



Source: Eurostat (lfsa_egaps) extracted 31.03.2018

3.3 Women are more likely to be employed in care-related jobs

Although great advances have been made, the inclusion of women in the labour market has not yet reached equality. There remains considerable bias in several respects. This subsection seeks to illustrate the wide range of gender gaps affecting the position of women in the labour market. The sociological literature speaks of gender segregation in two senses, horizontal and vertical, referring respectively to the different domains in which men and women are employed and to the differences in the hierarchical positions that the two sexes occupy in the organizations, both public and private, which employ them.

Table 3 shows the extent of the employment gender gap in ten sectors of the economy, revealing that different sectors remain more or less masculinized or feminized. At the two extremes of the distribution, construction is the most masculinized sector in all five FtC countries and in the EU averages, while health/social work and education are the two most feminized. Electricity, gas, etc. and manufacturing are still male domains and so, to a lesser extent, are agriculture, forestry and fishing, and information and communication. The most gender-balanced sectors are financial and insurance activities, professional, scientific and technical activities, and administrative and support service activities.

Table 3. Employment gender gap index* by economic activity (15-64), 2017

	All Nace _R2_ activities	Agriculture, forestry and fishing	Manu- facturing	Electricity, gas, steam and air con- ditioning supply	Construc- tion	Information and communi- cation	Financial and insurance activities	Professional, scientific and technical activities	Adminis- trative and support service activities	Education	Human health and social work activities
EU 28	0.08	0.33	0.41	0.52	0.80	0.39	-0.02	0.04	0.03	-0.45	-0.57
EU-15	0.07	0.42	0.46	0.50	0.78	0.40	0.02	0.06	0.01	-0.42	-0.56
Spain	0.09	0.53	0.48	0.60	0.83	0.38	0.04	0.02	-0.08	-0.34	-0.57
Italy	0.15	0.47	0.48	0.53	0.87	0.40	0.10	0.04	-0.06	-0.52	-0.42
Cyprus	0.03	0.60	0.35	n.a.	0.79	0.26	-0.25	-0.17	-0.20	-0.48	-0.47
Portugal	0.01	0.35	0.20	0.45	0.86	0.39	0.09	-0.22	0.08	-0.55	-0.67
Slovenia	0.07	0.20	0.38	0.61	0.81	0.43	-0.25	-0.05	-0.08	-0.59	-0.56

*Gender gap index: employment expressed in thousand (male-female)/total

Source: Eurostat (from 2008 onwards, NACE Rev. 2) - 1 000 (lfsa_egan2)extracted 31.05.2018

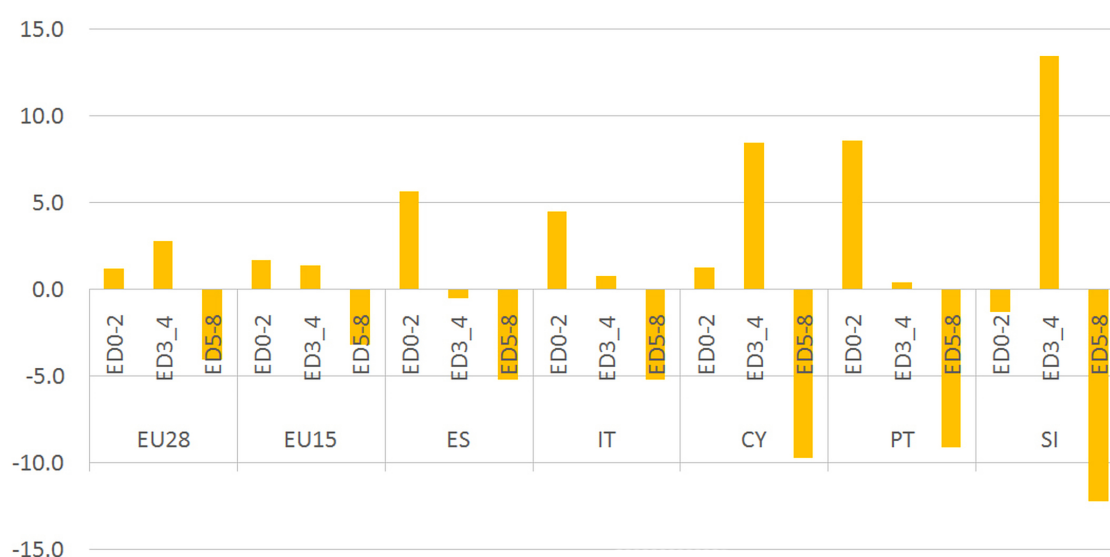
Among the five countries of interest, Portugal is seen to have a generally low rate of horizontal segregation, but those sectors which are feminized tend to be more so than in all or most other FtC countries. This is the case for education, for health and social work and for professional and scientific activities. Furthermore, economic sectors which are in general strongly masculinized are less so in Portugal, examples being manufacturing and electricity, gas, etc. In Cyprus the same is true of information and communication. In Spain, the education sector appears less feminized than in other countries. Finally, the statistics show that in Portugal and Cyprus, unlike in other countries, the professional, scientific and technical sector is quite feminized.

3.4 Women are not good in leading positions at work

If this is the situation in terms of horizontal segregation, the position of women in the socio-economic hierarchy is notably unfavourable. They are clearly overrepresented in positions of lower status, while conversely, men are more likely than women to occupy managerial positions and to be small entrepreneurs. As for skilled employees, once again the situation differs by sector: skilled industrial employees are predominantly men and those in the service sector are more likely to be women. This division by sector of economic activity is consistent with and symmetrical to the gender gap in education.

The status quo in the labour market is clearly unfavourable to women and reinforces negative gender stereotypes, whereas women perform better in education. Nevertheless, while the indicators related to negative stereotypes, such as those in labour market, are well known, those related to a positive image of women are less well known and relatively undervalued. Figure 3 and table 5 show that women are less likely to be early leavers and their attainment is considerably better than that of men. In all FtC countries, women are overrepresented at the tertiary educational level.

Figure 3. Gender gap in educational attainment (15-64), 2017



Source: Eurostat (edat_lfse_o3) extracted 13.04.2017

Table 4. Employment gender gap by European socio-economic group, 2017

	Total	Managers	Professionals	Technicians and associate professional employees	Small entrepreneurs	Clerks and skilled service employees	Skilled industrial employees	Lower status employees
EU-28	0.08	0.33	-0.04	-0.03	0.34	-0.30	0.71	-0.18
EU-15	0.08	0.35	-0.01	-0.02	0.37	-0.33	0.76	-0.16
Spain	0.09	0.40	-0.13	0.19	0.37	-0.24	0.80	-0.19
Italy	0.16	0.47	-0.09	0.17	0.43	-0.24	0.72	-0.05
Cyprus	0.04	0.61	-0.10	0.05	0.32	-0.37	0.83	-0.18
Portugal	0.03	0.32	-0.21	0.07	0.30	-0.23	0.52	-0.30
Slovenia	0.08	0.18	-0.23	0.05	0.29	-0.04	0.61	-0.33

**Gender gap index: employment expressed in thousand (male-female)/total*

Source: Eurostat (lfsa_esegg) extracted 31.05.2018

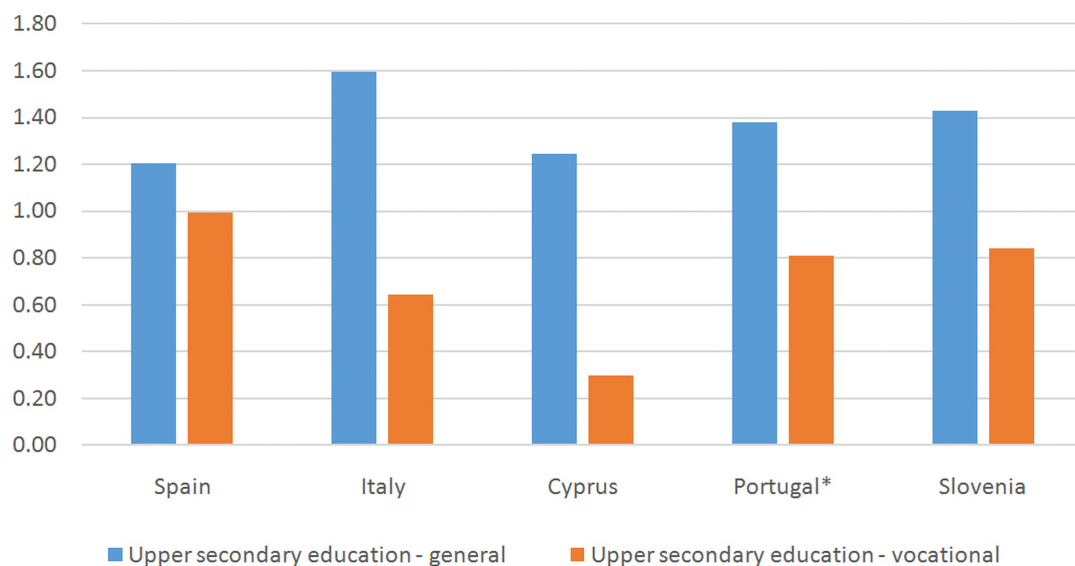
Table 5. Early leavers from education and training by sex, 2017
(18-24 years)

	Total	Males	Females	Gender gap
EU-28	10.6	12.1	8.9	3.2
EU-15	10.9	12.7	8.9	3.8
Spain	18.3	21.8	14.5	7.3
Italy	14.0	16.6	11.2	5.4
Cyprus	8.6	9.4	7.8	1.6
Portugal	12.6	15.3	9.7	5.6
Slovenia	4.3	5.8	2.5	3.3

Source: Eurostat (edat_lfse_14) extracted 13.04.2017

However, the good news ends here, because the fields where women are overrepresented in education are not those which facilitate entry into the best jobs (well paid, with benefits, good contracts etc.). Firstly, females have a preference for general programmes over vocational ones. This applies to all FtC countries as well as to the OECD countries.

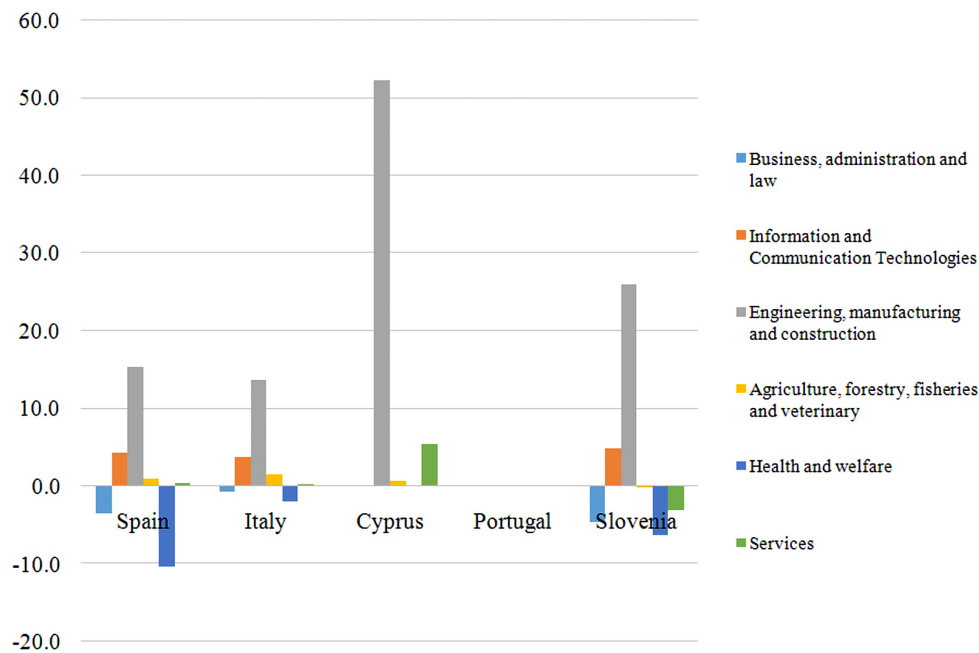
Figure 4. Number of female per male graduate in upper secondary education, general vs vocational programmes, 2016



Source: Eurostat (educ_uoe_grad01) extracted 15.06.2018, except Portugal (OECD, 2014)

The gender bias in vocational programmes is most visible when we consider the various disciplines within vocational further education. In the countries considered, as Figure 5 shows, there is an overwhelming gender gap in engineering, manufacturing and construction, where male graduates heavily outnumber females. There is also a male bias, albeit much narrower, in information and communication technologies. In all of the other vocational fields considered, the situation is much more gender balanced according to the Eurostat data.

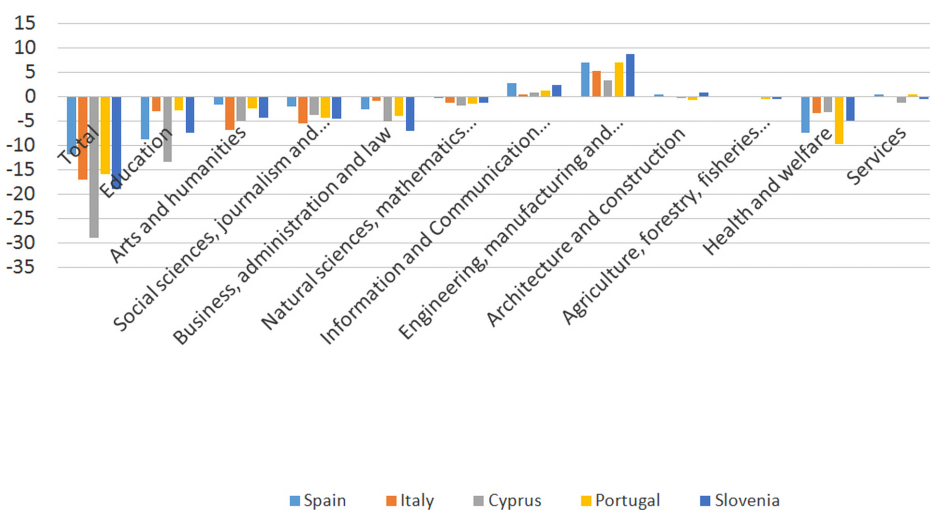
Figure 5. Gender gap in further education-vocational programmes, per field of education, 2016



Source: Eurostat (educ_uoe_grado3), extracted 23.11.2018

While tertiary education as a whole is a female domain, with a gender gap of 11.8 to 29 points in FtC countries, as shown in Figure 6, there are fields which are particularly feminized, such as education, health and welfare, followed by arts and humanities and then by social sciences, journalism and information. Conversely, male graduates predominate in information and communication technologies, in engineering, manufacturing and construction, in architecture and construction and in agriculture, forestry, fisheries and veterinary studies.

Figure 6. Gender gap in tertiary education level by field of education, 2016



Source: Eurostat (educ_uoe_grado3) extracted 07.06.2018, except Portugal: National Institute of Statistics

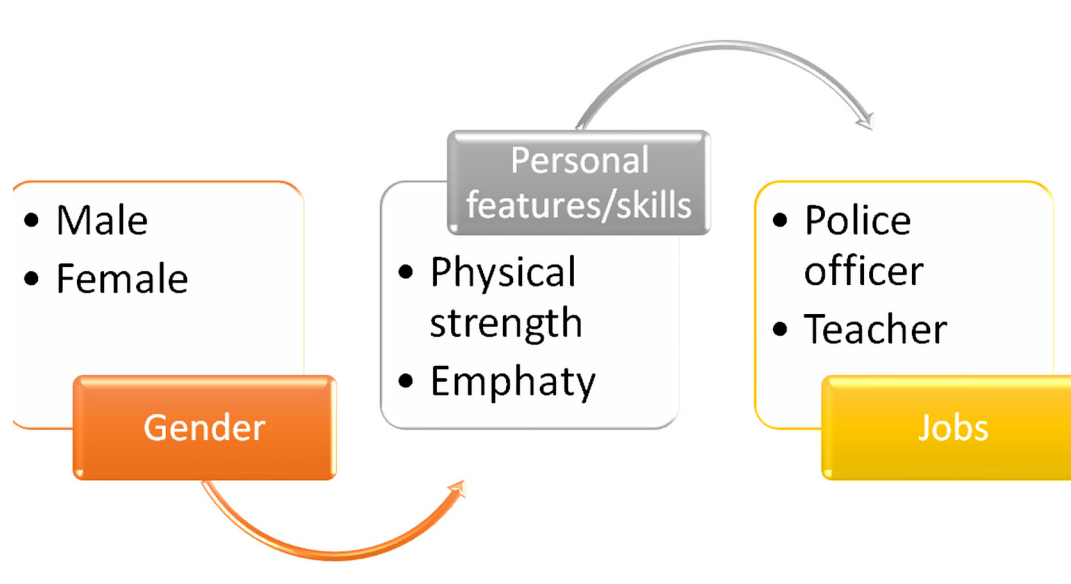
Therefore, gender gaps and gender stereotypes seems to be linked by the phenomenon of the self-fulfilling prophecy: The more unequal women's condition is at work, the more the gender stereotyped conditions reinforce themselves.

4. Knowledge from the *Coming Out* fieldwork - Anna Giulia Ingellis

The Coming Out arm of the mixed-method FtC research involved interviews in each of the five countries with nine young people and nine adults engaged in career counselling, in education and in employment services. The main objective was to identify the main extended gender stereotypes among people involved in the school-to-work transition, their influence in that process and the ways in which they are elaborated, stereotypes being mental processes.

In the representations offered by our interviewees, the gender stereotypes applied to occupations seemed to work in an indirect way. Occupations were not directly specified as male or female. Political correctness prevented people from assigning a gender to a job. It appears that public discourse about the fairness of gender equality has reduced the presence of sexist discourses. The connection is instead created through intermediate variables: personal and psychological traits. Figure 7 illustrates this process.

Figure 7. Job genderization process



Source: Author's own formulation

Males and females are thus assumed to have certain distinctive and gender-specific characteristics. The following table lists the main features attributed to each gender in the majority of the FtC countries.

Table 6. Main gendered attributes

	Male	Female
Physical features	Physical strength, toughness	Beauty, sensuality, sexiness, charm
Mental skills	One task at a time	Multitasking
Attitudes	Authority, decisiveness, strictness, hard work	Patience, maternal instinct, precision
Emotional skills	Rationality, goal orientation, coolness	Empathy, sensitivity, more emotional
Social interactions	Make their voice easily respected, more reserved and introverted	No good bosses, relational capacity, more expressive

Source: Author's own formulation

Data elicited from our 90 interviewees in five countries indicate the existence of gender bias regarding some occupations because of a belief that they can only be carried out by people with gender-specific features and personal characteristics. The association of women with certain occupations and men with others is based on those specific characteristics and not on the occupations themselves being gender biased. Thus, what is stereotyped, in the participants' discourses, is not the occupation but the personal characteristics required to perform it, gendered as described in Table 6. In other words, jobs are gendered because of the skills required to do them.

Table 7 gives some examples of occupations emerging as particularly gendered because of the skills they require.

Table 7. Gendering jobs

Personal feature	Gender	Job
Kindness, empathy, maternal sense of care	F	Teacher, doctor, psychologist
Precision	F	Secretary
Decision-making capacity,	M	Manager, policeman, firefighter
Physical performance	M	Sportsman, soldier

Source: Author's own formulation

As a number of career counsellors stated during the interviews, technology has brought significant changes to the ways in which jobs are now carried out, to the benefit of gender equality. Many occupations which formerly required 'masculine' traits such as physical strength no longer do so. There is, however, a sort of inertia in the social representation of such work, according to which these gender-based requirements persist.

Another relevant finding which emerged from the interviews is that participants differed greatly in their levels of awareness of their own gender-stereotyped perceptions of the world. Analysis of the interview data allowed the research team to construct a theoretical gender stereotype awareness scale. The different levels of awareness seem to be influenced by cultural factors in the micro-social context of each respondent and

by the national cultural context. This explains why different levels of awareness have been identified both among interviewees from the same country and across the five national samples.

Table 8 shows how the different level of awareness corresponded to differences in participants' attitudes to gender stereotypes.

Table 8. Levels of awareness of gender stereotypes and attitudes

Level	Awareness	Attitude
0	Gender stereotypes have been overcome and no longer exist.	Denial
1	Gender differences do exist, because of personal characteristics or preferences.	Reinterpreting, justifying and hiding.
2	I have no gender stereotypes but society does.	Externalizing
3	Gender stereotypes exist and we can do little to change them.	Acceptance.
4	Gender stereotypes exist and we must actively combat them.	Opposition, hostility.

Source: Author's own formulation

To close this section, it is worth underlining the finding of our Coming Out research (Ingellis & Diaz, 2019) that young males are much less aware of gender stereotypes than their female peers. This gender difference in awareness levels may be relevant to the design and testing of the game.

5. Direct suggestions for the game designers

In this section we have assembled all of the suggestions given by the research team to the game design team during the trial phase. Those presented in the first subsection arise from the two arms of the FtC research and these are followed by suggestions inspired by experience of video games.

5.1 Practical suggestions from literature and empirical research - Anna Giulia Ingellis

Breaking stereotypes at a cognitive level

Stereotypes work at a cognitive level, which is why they cannot be observed directly. The cognitive nature of the construct is the reason why our game has to work at the

cognitive level, not the emotional one. It is also highly advisable to work on beliefs, mental models and social thinking during the debriefing.

It is worth providing representations which help girls to see the potential which stereotypes tend to conceal. One possible strategy would be to put girls in male-dominated roles.

As mentioned above, the genderization of jobs operates through the personal traits and skills required to perform them. There is a double link, between gender and personal attributes, and between attributes and jobs. The link between a job and a gender is mediated by personal attributes. The game should try to break both of these links, by separating the attributes from the gender with which they are associated and by separating the jobs from the attributes.

It would be better not to use adjectives associated with any very gendered personal attributes, either during the explanation of the game or in relation to the objects represented on the cards.

Players' awareness

As explained in Section 4, people vary considerably in their awareness of their own gender stereotypes. It might be useful to prepare a test of gender stereotype awareness for players of the game in order to prepare an appropriate debriefing. The lower a player's awareness, the more the debriefing is likely to be, because resistance will be stronger. The qualitative research found that young males were less aware than females. Our suggestion is to work more with males and to take this into account in designing the game.

National peculiarities

All of our empirical data reveal considerable differences among the five participating countries. As the game is the same for all five, educators should take this variation into account when using the game in each country.

From a pedagogical perspective, it might be useful after the game has been played to show some data from the *Mind the Gap* report (Ingellis and Diaz, 2018). Especially for those countries with wider gender gaps, this would provide the youngsters with evidence about other countries in the FtC area where there is greater gender equality. In other words, the message could be that an alternative reality is possible in culturally similar countries.

5.2 Direct suggestions for the game design, inspired by experience of videogames - *Capitolina Diaz Martinez*

Challenge the role of the player

The player's role can be challenged in two ways. First, if there is player choice, make it significant. Have them experience situations and roles unfamiliar to them. Don't force

it or have the world overact to it, but show it as being natural. Don't be afraid to make the player uncomfortable. Decisions should have weight and not be simple good/bad choices. Subtle changes work best. Force them to take a wrong turn every once in a while, then show them the negative consequences of their actions. Let them realize for themselves that they have messed up. This is hard, even more so taking possible player choices into account, but works best.

The other way is to have the narrative directly driven by set characters and storyline, more similar to a book or a film. This is easier, but makes players less prone to immerse themselves and identify with their avatars.

Use gender-fair linguistic forms

Gender-neutrality is easier in English. Most games use gender-neutral scripts and refer to the player as 'them' to avoid writing two entire scripts that differ with the player's gender. Adopt this device in general, but it's also wise to add nuances here and there, as too much neutrality may make some players feel their identity is being erased or ignored. Avoid paternalisms like "*even though you're a girl/boy, you're doing...*".

As to adjectives, avoid the use of 'pretty', 'polite' or 'sweet' for girls and 'strong', 'big' or 'boisterous' for boys.

Transference: Show girls as good with computers and technology

Avoid character tokenization. Every time a character is defined more by identity labels than characterization, it generates distrust and is met with controversy.² The game's main audience is going to be boys either way, and it's better not to alienate them. Gamers don't like to be preached to when they are playing a game. Basically, try not to make a big deal of it. As more boys will play the game, they should also be transferred to traditionally female occupations/roles.

Colour coding

Colour codes are useful for characterization (certain characters like green or yellow) or communities (the police force wears white and blue uniforms) and helps players to identify and remember story elements. Avoid pink nurses, but don't rule out colour codes.

It's a game. No need to refer to the real world

Yes and no. Suspension of disbelief may kick in and take the game's events as fundamentally surreal for the sake of entertainment, dismissing morals and lessons as part of the game's own world and nothing else. Trying to tackle real-world issues on a wildly different reality is met with discontent, as we saw in the previous example.

2 <https://www.hobbyconsolas.com/noticias/lanzamiento-polemico-baldur-s-gate-siege-dragonspear-140832>

In a similar fashion to Russian formalism, show the art (the game in this case) in a way that alienates the gamers from their everyday experience. Challenge their habitual conceptions and force them to enter freely into a clean, new perception of game elements. The gamers should think about their preconceptions and reflect on what is not visible in their everyday lives or play.

The game fosters feelings of control, agency and possibility. Control, because the illusion is generated that to beat the game is to control it; agency, because we consciously exercise our will through actions that are transformed into concrete facts in the fictional world of videogames. The issue of possibility is a little more complex.

Conclusions

The Free to Choose project ultimately amounts to an experiment. The idea was to create a new game to combat gender stereotypes and promote gender equality among people involved in the school-to-work transition. The results of the project, in terms of both research and game design, open the door to a wide range of new experiments, two examples of which are suggested here.

An interesting experiment would be to have the game played by groups homogeneous as to gender, social class, cultural context or age, then to compare the results obtained in terms of gender stereotype awareness during the debriefing. This would provide empirical data which would help to explain how structural factors influence awareness of gender stereotypes.

The second suggestion is to plan the creation of a range of games. Each version could be adapted to the extreme variability of the real world: one for adults, one for educators and counsellors, one with no pedagogical orientation, that is to say for individual or home use, one for children and so on.

The project leaves us with a lot of work still to do.

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