Gender Issues, are they still necessary?

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Abstract

Is the inclusion of gender aspects necessary in the formation of knowledge? Is gender a determining factor in learning, teaching and working? If there are differences due to gender and we disregard them as if they did not exist, then maybe the quest for neutrality or equality is merely a false impression on the part of the observer. If we do not take into account the differences that have existed traditionally between men and women, we could be perpetuating the lack of equality without realising it. We are presenting here the results obtained from a study carried out with secundary students and first-year Engineering students. The opinions of these two groups show that the stereotypes of gender and therefore the different perceptions of boys and girls, still prevail and that they do affect their professional choices and motivations in their teaching-learning process.

1. Introduction

The socialisation process of boys and girls is different, with education being imparted partially according to one set of values or another. This process has led to men and women acquiring different ways of thinking, relating with one another, doing, enjoying themselves, feeling and of being in the world. Women have been given certain roles, jobs, functions, values, which are the ones that will define “the feminine gender” whereas men take on other roles, jobs, functions and values which define the “masculine gender”, even though a person’s sex does not always coincide with the assumption of his or her corresponding gender role.

The metamorphosis of the new-born baby into an adult person capable of living, growing and working in society is achieved through several inter-dependent processes. These processes of transformation are: physical and sexual maturing, individuality, cognitive development, socialisation and the acquisition of culture. The roles and stereotypes of gender, acquired during the socialisation process, explain many of the differences observed between men and women, such as those of behaviour, interests and personality traits.

Much of the research carried out in the educational field, particularly since the sixties in the 20th century, explains the transmission of the gender codes that each society or cultural group has imposed on its members regarding sexual difference. They show the inequality of options and choices in terms of academic studies and professional activities. They also show the sexist biases of school materials and textbooks, even though their aim is to transmit an assumed neutral culture. At the same time, they

reason how the expectations and meanings attributed to the roles of gender, due to one's being a boy or girl, by both male and female teachers, influence the configuration of identities of their students, boys and girls alike, such as by the differential language loaded with meaning that they use.

Whilst masculine conduct continues to be the standard that is applied within a culture, the differences of women with respect to men are interpreted as deficiencies. As a result, in order for women to be considered equal to men they have to be "equivalent to" or "as good as" them. Most of the research carried out on the subject of socialisation has investigated the so-called deficiencies and limitations of women: fear of success, acquired desperation, apprehension about mathematics, lack of leadership qualities and low self-esteem. The negative effects of masculine socialisation, on the other hand, have been subject to much less scrutiny than the negative effects of feminine socialisation [1]

2. The current context

The increasing focus of gender studies on different social contexts covers many areas, such as the family, education, the media and the job market, in which there are different expectations of men and women.

Studies of gender and science, such as the ETAN [2], She Figures 2003 [3] and Women in Industrial Research (WIR) [4] reports, show the lack of recognition of women in public and private research institutions in Europe. A comparative analysis of countries in the EU reveals that discrimination propels the promotion of measures to correct it and to guarantee the access and the promotion of women, under equal conditions, in science and technology and in the design of research policies.

As noted in the "White Book of Women in Catalonia in the World of Science and Technology" [5]: "*If we wish to attain the equality of women in education and the job market, it is necessary to spark the interest of young women in science and technology*" because, as stated in the ETAN report:

In terms of schooling, there is widespread concern for the poor performance of boys, the lesser aspirations of girls, and generalised stereotypes in the choice of disciplines and careers. The objective must be for both boys and girls to choose and prosper adequately, without being influenced by stereotypes. Making certain subjects compulsory up to the first years of adolescence may help end prejudice and to ensure that girls study sciences for longer.

In individual terms, for both men and women, it is essential that they face up to uncertainty and overcome the rigid stereotypes that still hold sway over both sexes. The evolution of social norms (values, attitudes and beliefs) that have been implicit –many of which have been invisible and hidden from view for centuries –is a much slower process than that required to draw up a law. In fact, although men and women may be equal in the eyes of the law, this does not necessarily mean that there are really equal opportunities in the family, at school and in the workplace.

The new approach to diversity management emphasises the potential of individual variability, such that each person is valued as an individual, without making comparisons or hierarchising differences. The assessment of this criterion basically involves a change of perspective, to the extent that diversity should be conceived as a potential of which full advantage should be taken rather than a problem that needs treating [6].

2.1. And in the field of science and technology?

Many studies have been carried out recently, showing the persistence of the gender stereotypes of boys and girls with regard to their approach to these fields of

knowledge. It is sufficient to refer to a few authors on the subject:

'*Despite a large number of interventions undertaken in the 80s and 90s, the future pipeline of scientists and engineers is likely to remain unchanged… 'What remains an enigma is why girls choose not to pursue science even though they are both competent and believe in their aptitudes to succeed?…. It is not that girls are under-represented in there in maths and physics, but that boys are over-represented……'* (J.Osborne, 2003) [7]

'If the fact that there are fewer gender differences in attitude regarding ICT in younger pupils is interpreted as a generation question, we can assume that the differences will disappear in the next generation. But while this difference can still be interpreted as a question of age, we must pay attention to changes in girls' attitudes towards ICT at the beginning of secondary education ().Teachers must be aware of this and correct an unbalanced division of tasks, for example by explicitly discussing the division of tasks in the class.' (Volman et al. 2005) [8]

'…There is however no need to pathologise girls' more negative computer profile. Non-use of computers should not necessarily be understood in terms of individual deficiencies. A lower level of use may, for example, simply reflect lower observed relevance or may translate as 'utilitarian' consideration: digital media are used only for limited, but more useful, purposes…' (J.V.Braak et al, 2005) [9]

'…The causal model identified here does not, thus, provide an adequate explanation for why girls choose fewer science and mathematics subjects than boys. This disappointing finding can perhaps be partially explained by the absence of some variables within the models. The majority of the (..) relevant effects (..)were indeed included. There are nevertheless other characteristics that are influential, according to the literature, such as estimated competence, chances of success and effort, and recommendations from teachers, parents, and so forth……' (A. Van Langen, et al. 2006) [10]

3. Beyond the differences

Two contemporary intellectual movements, constructivism and deconstruction, question the idea of there being one reality and one truth. Instead of being concerned with finding "the truth", the focus is on the way in which meaning is negotiated, the control that is exercised over it by those in positions of power and the manner in which meaning is represented in language. Current interest in constructivism and deconstruction is a reflection of increasingly sceptical views of the positivist tradition in science and of essentialist theories concerning truth and meaning [11]. Both movements question these postures and assert that social context shapes knowledge and that meaning is constructed and situated within history and is reconstructed through language [1].

From a constructivist perspective, the theories on the sexes are, like all scientific theories, representations of reality that are informed by assumptions that reflect certain interests. From a constructivist viewpoint, therefore, the real nature of what is masculine and what is feminine cannot be determined [1]

Currently, within this new epistemological framework, the focus is shifting away from studying and assessing the differences between the sexes towards finding new tools for diversity management, in which gender is one of the main variables.

3.1. Our approach

The proposal emerges from within the AMPVOC (Assessing Multiple Intelligence Performance in Vocational Students) a project in the European Union's Leonardo da Vinci programme. Its objective is to develop methods for applying the theory of Multiple Intelligence [12] in the processes of assessing students undergoing professional training. More and more frequently, the labour world is demanding profiles which

include aptitudes and skills which go beyond the traditionally developed ones (linguistic and mathematical). Communication skills are demanded as well as team work and time management. This model offers a broader scope for evaluating the aptitudes of boys and girls while at the same time being better adapted to everything that will be expected of them in the job market.

The project, co-ordinated by Denmark, has participants from Finland, Greece, Germany, Latvia, Ireland and Spain, with the UPC. It has been structured in work packages which include the analysis of various evaluation systems, a comparative study of the situation in other European countries, detecting the needs of the job market, and the development of an assessment instrument based on the application of Multiple Intelligence which takes into account the aspects of gender in its approach. The purpose of the work package co-ordinated by the UPC is to propose strategies for including the perspective of gender in the application of this new methodology.

Our proposal consisted of discovering stereotypes that represent invisible barriers in the development of individual potential, both for boys and girls, ending with the publication of the final results in October 2006. One of the activities agreed upon was to carry out a study on stereotypes in terms of gender between boys and girls. The starting point was to tackle the hypothesis of a lack of neutrality when working with men and women, as students or other professionals. The objective proposed was drawn up as follows:

To reveal masculine and feminine stereotypes in:

- the perception of aptitudes of Multiple Intelligence
- the vocational trend and professional interests

A pilot test was run, the results of which were used to define the strategies to extend the study to schools in Greece, Finland and Ireland.

4. Results

The test, still under way, is being carried out on several levels: post-compulsory secondary education students of varied profiles, students from different fields of professional training and different countries, secondary education students with a certain affinity for polytechnical studies (pilot phase) and students in their first and second years in Industrial Engineering at the UPC. Given their affinity with the scope of the congress, we shall be referring here to the last two groups.

4.1 Results from the pilot phase

The pilot phase was designed to value the correct intelligibility of the questionnaire and to show the results of this sample to the other partners of the AMPVOC project.

The sample was of 63 secondary school girl students of 15, 16 and 17 years of age or, in other words, one or two years prior to going to University, who were participating voluntarily in the UPC's Woman Summer Programme (Estiu del Programa Dona). This is a programme of promotional activities creating awareness of polytechnical studies and installations for girl students with some kind of inclination towards these subjects.

The results were as follows:

- 59% of the girls change profession when they think like boys.
- The most popular choices in professions are: engineering, medicine, architecture, veterinary and biology.
- The girls who choose engineering when imagining they are boys, on the other hand say that, as girls, they would like to be architects, doctors, interior designers and meteorologists. Why do they choose these professions? Imagining themselves as boys they answer: "I like computers and machines, to achieve prestige and money"

... and, answering as girls, they say: "it's the profession I like or that interests me, to get a good reputation".

- When they have to choose between full time or part time, if they answer as girls the percentage choosing full time is 10% lower. The reasons they give for this are: "to have some time free for doing other things" and "to have time for my family". However, when they answer as boys who choose the part time option, the reason is "to have time to spend with my friends"
- The aptitudes most highly appreciated as necessary for the profession when they put themselves in the place of girls are: foreign languages, problem solving, accepting one's own errors, natural sciences and team work.
- The aptitudes most highly appreciated as necessary for the profession when they out themselves in the place of boys are: giving orders, foreign languages, making decisions individually, technology and team work.
- The top five aptitudes selected from the entire list also produced different replies: speaking as girls they say foreign languages, natural sciences and experimental sciences, accepting one's own errors and seeking/analysing information; speaking as boys they say technology, foreign languages, computer sciences, giving orders and mathematics.
- The final question about whether they noticed any difference between the questionnaires being answered as if they were boys or girls gave a 42% replying "yes". The reasons were: "boys and girls have different professions and studies. I, as a boy, would prefer a profession related to technology and architecture; boys are more scientific than girls; as a boy I said architect but as a girl I said biologist because I believe I could not be a good architect; I don't think a boy can be an interior designer."

The girls who said there are no differences gave the following reasons:

"because I believe in equality"

"because being a man or a woman is the same, we all need the same knowledge and the same skills at work, you have to so what you like."

The general conclusion we reach is that the perception of this group of students shows they are aware of the existence of masculine and feminine stereotypes in the professional world and that this can determine their choices and expectations, both in their choice of academic studies and, of course, in their professional lives.

4.2 First-year Engineering students

The general conclusions obtained from the results of the questionnaires (36) show:

- Most of the students change profession when they imagine they are the opposite sex: boys 56% and girls 50%.
- The perception girls and boys have of the professions in which they would like to work in the future: boys change profession and, as girls, choose stereotyped professions such as teacher, secretary and other more feminine fields. By contrast, when girls change, putting themselves in the place of boys, they think of an executive post.
- The perception of boys regarding the aptitudes they believe most necessary as boys are: foreign languages, physics, creativity, computer skills, team work and technology and, as girls are: foreign languages, physics, team work, good appearance, creativity and mathematics.
- The difference between the most highly valued traits lies in technology (more necessary as a boy) and good appearance (more necessary as a girl)
- Girls' perceptions of the most necessary aptitudes as boys are "giving orders" and "co-ordinating", and, as girls "resolving problems" and "physics".
- Boys believe they are better at physics, languages, mathematics and drawing and they believe that girls are better at

languages, team work, physics and good appearance.
- Girls think they are better at co-ordination, having initiative and physics, and they believe boys are better at giving orders, empathy and negotiating.
- As to the level of the work place, the percentages are higher in the top level when they see themselves as boys.
- 78% of the entire sample believe there are differences due to being a boy or a girl.

5. Conclusions

With these results we believe we have reached the goal we had set for ourselves: to show the differences of gender in the perception of students of both sexes, both in choosing a profession and regarding the aptitudes they think they have to acquire due to their being a man or woman.

Despite there being equal opportunities on a legislative level, in general and more specifically on an educational level (boys and girls have the same access to education in each and every one of the professions on the job market) there is still a gender barrier which determines the selection of the professions and the development of aptitudes according to personal motivations. As we have been able to observe, these motivations are pre-determined due to having been born a boy or a girl. The assumed neutrality at the time of teaching/learning or selecting personnel is nothing more than something to look forward to in the future.

We all have gender. It is an invisible barrier that hinders the development of individual potential, for men and women alike, and is not just a problem of equality or the infra-representation of women in all public fields.

Everyone, meaning students and the team of professors, is socialised within the roles of gender. It is necessary to recognise that neutrality does not exist when we talk of how boys and girls learn, of how men and women teach. Therefore it is essential to be aware of these barriers if we really do want to compensate the differences through education.

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