

CASE OF STUDY ON GENDER EQUALITY IN THE CONTEXT OF VOCATIONAL EDUCATION TRAINING

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Abstract

This study aims to evaluate the reality over gender equality within a Vocational Education Training (VET) context, by analyzing the current situation in Spain, by means of interpreting a case of study carried out in a local Spanish high school.

The obtained data will be assessed taking into account the Sustainable Development Goals (SDG), within the 2030 horizon, held by UNESCO. The current study has been focused towards both 4 and 5 SDG, named as quality education and gender equality, respectively. Above this, the real concern relies on the elimination of gender disparities in this educational framework, that will certainly preserve into lifework.

This research has been theoretically based on gender imbalance proof and empirically supported by a poll asked by VET teachers from a high school in Catalonia (Spain). The items of the survey are focused on the disparity issues which lead to this current situation.

The findings of the survey embrace the fact that gender clichés notably exist in our present society, and as a result, in our schools. VET lecturers and high schools are essential to amend this handicap. The hereafter lines mean to be based on merge gender competences as much as promote a more likely gender-sensitive atmosphere.

Key words: Gender inequality; gender parity index; sustainable development goals; Vocational Training Education

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Caso de estudio sobre igualdad de género en el contexto de la Formación Profesional

Resumen

Este desafío de investigación está determinado por la necesidad de dar un paso más hacia el desarrollo sostenible en el contexto de la Formación Profesional, mediante la comprensión de su marco y la situación actual en España, en relación con las cosas que se han hecho, así como la falta de acciones o debilidades.

Concretamente, esta información se analizará principalmente a partir de los Objetivos de Desarrollo Sostenible (ODS), dentro del horizonte 2030, declarados por la UNESCO. Dentro de estos objetivos, la presente investigación se dedica a los ODS 4 y 5, titulados como calidad en la educación e igualdad de género, respectivamente, y más específicamente, se centra en la eliminación de las disparidades de género en la FP y los hechos que promueven dicha situación, en la educación de la Formación Profesional, y que consecuentemente, más tarde, se perpetúa en el mercado laboral.

Esta investigación se basa en un marco teórico de evidencias de disparidad de género y se acompañará empíricamente con una encuesta realizada con la participación de diferentes profesores de FP de un instituto público de Cataluña (España). Esta encuesta está básicamente orientada a diferentes problemas de disparidad de género que son relevantes en la situación actual de este asunto dentro del sistema de Formación Profesional.

Los resultados de la encuesta abarcan el hecho de que los estereotipos de género están notablemente presentes en nuestra sociedad y, en consecuencia, en nuestras escuelas. Los profesores de Formación Profesional y las escuelas secundarias son un elemento clave para mejorar esta situación desfavorable. Las líneas futuras que deberían recomendarse se basan en la integración de las competencias de género y en la promoción de entornos sensibles al género.

Palabras clave: Desigualdad de género; índice de paridad de género; objetivos de desarrollo sostenible; Formación Profesional

Estudo de caso sobre igualdade de gênero no contexto da formação profissional

Resumo

Este desafio de investigação está determinado pela necessidade de dar um passo mais longe rumo ao desenvolvimento sustentável no contexto da Formação Profissional, compreendendo o seu enquadramento e a situação actual em Espanha, também em relação ao que tem sido feito, como falta de ações ou fraquezas.

Especificamente, essas informações serão analisadas principalmente com base nos Objetivos de Desenvolvimento Sustentável (ODS), no horizonte 2030, declarados pela UNESCO. Dentro desses objetivos, esta pesquisa é dedicada aos ODS 4 e 5, intitulados como qualidade na educação e igualdade de gênero, respectivamente, e mais especificamente, enfoca a eliminação das disparidades de gênero no EFP e os fatos que promovem esta situação, na formação profissional, e que conseqüentemente, mais tarde, se perpetua no mercado de trabalho.

Esta pesquisa é baseada em um referencial teórico de evidências da disparidade de gênero e será acompanhada empiricamente por uma pesquisa realizada com a participação de diferentes professores de EFP de um instituto público da Catalunha (Espanha). Este inquérito está basicamente orientado para os diversos problemas de disparidade de gênero que são relevantes na actual situação desta matéria no sistema de Formação Profissional.

Os resultados da pesquisa abrangem o fato de que os estereótipos de gênero estão fortemente presentes em nossa sociedade e, conseqüentemente, em nossas escolas. Os professores de formação profissional e as escolas secundárias são um elemento chave para melhorar esta situação desfavorável. As futuras linhas que devem ser recomendadas baseiam-se na integração das competências de gênero e na promoção de ambientes sensíveis ao gênero.

Palavras-chave: Desigualdade de gênero; índice de paridade de gênero; metas de desenvolvimento sustentável; Formação profissional

1.Introduction

Vocational education and training (VET) is an education path based on teaching people with skills and/or competences that are directly relevant to the labour markets, in other words, VET aims to provide a practical work-oriented skills base. It is a key factor concerning a country’s social and economical performance and competitiveness, as well as it provides knowledge and a personal development for those students. Beyond skilling world populations at large and especially to youth, VET has relevant potential for dealing with two global challenges as youth employability and unemployment, chiefly after the slow recovery from the global economical and financial crisis of 2008, as stated by Marope et al.,(2015).

Making a closer approach to the main concern of this study, related to gender disparity reality in VET education, and aligned with the Sustainable Development Goals (SDG) stated by UNESCO (2015), research elsewhere (Ganea & Bodrug-Lungu, 2018) identified that VET infrastructures related to the SDG are still on its early stages of deployment, as it will be fully detailed in the following sections. Seen in Marope et al. (2015), despite the present research analyses and addresses the current and future challenges in VET education, at the same time that it is steadily rising to the top of policy agendas, the capacity of VET systems to respond to multiple and elevated demands and to shape the future is often limited. Besides, there is an existing lack of actions and evidence done within the VET context aligned with the 2030 horizon goals, compared to the actions done at a higher education level, being this the main focus on the own SDG initiatives.

2.Development

Taking into account the current situation of VET, and adding the gender disparity issue among VET studies, this research aims to better understand why gender equality is so important and how the enhancement of this challenge could lead us to shape a fairer society in terms of education, employability, labour environment, or simply as an approach to a better level of global well-being, understanding that gender equality is a fundamental human right.

3.State of the art

The relevance of applying the SDG to the VET educational system is mainly due to a lack of actions or research done in this context. In other words, VET educational system is in its early stages of being acknowledged as a crucial role model in order to achieve the lines of action that are linked to the 2030 agenda, mostly faced towards higher studies.

Albeit there is not much literature review in terms of SDG in the context of VET, and even less in a Catalan framework, there are many parallelisms that can be studied and further analysed within a superior education and university literature context, more precisely related to the already mentioned 17 SDG, within the 2030 agenda, stated by UNESCO (2015) and promoted by The Global University Network for Innovation (GUNi), together with the Catalan Association of Public Universities (ACUP) (ACUP, n.d.). Those 17 SDG described by UNESCO (2015), are mentioned in the following lines. Related to the topic of this research, quality education (SDG number 4) and gender equality (SDG number 5) goals will be the focus of the study, as they have a specific approach in the interest of this research, in terms of VET education.

End of poverty	Zero hunger	Health and wellness
Quality education	Gender equality	Clean water and sanitation
Affordable and non-polluting energy	Decent work and economic growth	Industry innovation and infrastructure
Reducing inequalities	Sustainable cities and communities	Responsible production and consumption
Climate action	Underwater life	Life of terrestrial ecosystems
Peace, justice and solid institutions	Alliance to achieve the objectives	

Together with many particular researchers and advisors as well as other institutions, the Advisory Council for the Sustainable Development of Catalonia (CADS), have reported different challenges for meeting SDG in Catalonia, that could be used concerning this research, and somehow, be the backbone of the same, aforesaid by Rodés et al. (2016). This report goes through the mentioned targets according to different level organizations, from an international framework to national and local ones, starting with the United Nations 2030

agenda targets, followed by an international context, European context and finally the Catalan context. It gives a real approach to the main lines to follow within the 2030 horizon and can be totally adapted to the VET educational needs.

4.Objective and scope

The chased goal of this research is to contribute with facts that prove the mentioned reality regarding gender disparity among VET education in Catalonia and how this could be addressed in order to approach to the 2030 horizon goals, specifically goal 4.5 regarding the elimination of gender disparity in an education context, and more precisely in the VET framework, by proposing future lines of action as possible solutions.

More precisely, the objective of this research is to deliberate about the current situation of gender disparity in VET studies, concretely addressed in Catalonia, to further propose feasible solutions linked to the exposed facts and empirical results obtained, that could help diminishing gender disparity.

The objective will be addressed by tackling some independent facts that will be exposed within the theoretical framework of this research, but yet related to the nature of the gender sensitivity in a VET context.

5.Theoretical framework

Linked with the introduction, state of the art and objective sections, the theoretical framework stands for developing the gender inequality evidences that may be relevant for this research, as well as defining the work hypothesis. So, the assumption of this research is based on making incision to certain facts and information of notable relevance, related to gender disparity issues that could be addressed and replied within a VET context.

5.1 Implicit bias in society

The focus of the work hypothesis relies on figuring out that all those stereotypes regarding gender inequality may be provoked by ignoring or misunderstanding a common nexus among them, which is notably related to the unconscious of people, like teachers or parents in this case. In other words, implicit bias research

states that one does not have to have negative intentions in order to have discriminatory outcomes (Staats, 2014). This sentence applies to the concern of this research, and enlightens the path and solutions that could arise from it.

Even though our modern society has come a long way overcoming explicit bias, discrimination and prejudice, that are broadly considered as unacceptable, or at least, less common, Staats assures that implicit bias remain incredibly omnipresent among us, as everyone is susceptible to implicit biases. Also, one can consciously agree or disagree with some statement, but unconsciously, still hold biases against their own thoughts.

The following sections tackle the background that supports and gives meaning to the previous mentioned hypothesis.

5.2 Gender disparity in the Spanish educational background

First of all, there is a gap to be filled in relation to the initiatives that could be done at a VET level. Understanding VET as a specific studying and reliable working path, rather than despise it or qualifying it as less valuable or transcendent among higher education and college, is the first step to do so. From an international standpoint, at a policy level, some critics highlight the fact that VET studies are expensive, inefficient and unresponsive, mainly claiming that specific jobs belong in the workplace rather than in education and training institutions (Marope et al., 2015). Moreover, in many countries, the public in general do not favour VET studies and still view it as a choice of last resort, as well as find this type of studies unattractive, compared to other academic tertiary education programmes. In consequence, VET programmes are perceived, in a stigmatized point of view, as leading to less distinguished career paths as well as lower expectations of higher earnings once employed and lower prospects for further education and training, as Marope et al., (2015), stated.

From a Spanish national point of view, one can easily expect a similar approach, as VET has always been classified as a lower degree of studies, for people who could not achieve a university degree, falling into the temptation to look down upon it (Stegmann, 2017).

Contrarily to these general thoughts described in the preceding lines, and focusing on unleashing the potential of VET studies, within the SDG context, many efforts have been put together in order to overcome these general thoughts, propel and place VET studies in a higher status quo. Hence, VET is steadily emerging, albeit doing it slowly, as one of the most relevant global debate in government priorities for education and national development agendas (Marope et al., 2015). Furthermore, as an inspiration quote, the Bonn declaration states that since education is considered to be the key to effective development strategies, technical and vocational education training (TVET) must be the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development (UNESCO-UNEVOC, 2004).

Focusing on the real issue to tackle, the mere hypothesis of this research relies on the evidences of an existent gap in terms of gender disparity within all levels of education, from primary education to doctoral research, and later on in a professional framework. This gender gap normally places women at a lower status, in any term that could be object of discussion or debate. Although the following research embraces different levels of education, as a common nexus regarding the gender disparity issue, the focus of attention remains on the VET educational system, that will be analysed and discussed one step further.

The analysis related to this research is done at different levels, thinning out from a generic exposure to a concrete level of approach, being all of these stages interconnected.

From a holistic point of view, one has to analyse the reality of the Spanish education background. The main foundation is based on two processes that took place in Spain during the last decades. On the one hand, the globalization of compulsory education that leads to a considerable increase of studies among the population. On the other hand, there is a reality of a massive embodiment of young people applying for university. Both facts truly contributed in a positive way to enhance women's education, and in consequence, reduce the gender disparities (Bericat & Sánchez, 2008)

Nonetheless, research elsewhere pose that new trends related to education means new possible emergent dy-

namics that could worsen the whole gender disparity situation. In order to evaluate and interpret that, there are some statistic results that have to be taken into account. The authors of the research, Bericat and Sánchez (2008), focus on the same with two indicators of great relevance regarding gender disparity, such as the level of studies and the election of technical studies. Despite the fact that this second indicator is based at a higher education level, it can be feasibly applicable to VET education.

As a result of the previous research mentioned above, in Spain, the presence of women at secondary studies (baccalaureate and VET) is relatively less than men. This little deviation could represent a serious handicap for gender disparity, taking into account the possibility that women keep not considering the performance of certain types of professions, related with secondary studies. Still, this deviation is being minimized facing the new generations. In sum, the educative structure of young Spanish population gives us some clues related to the gender disparity evolution, concluding that the disparity seen at primary levels of education is due to the traditional education exclusion of women in the past. However, the same disparity at a higher education level has totally changed its sign, taking into account that women took advantage of the educative globalization and the access to university. Moreover, Valiente et al., (2014), assure that educational progress in Catalonia has been mainly led by the good performance of young women in tertiary studies.

Regarding the second indicator, there is a very clear bias on the election of studies. Women choice is concentrated on social and humanities studies, whereas men election into scientific and technical studies, also known as STEM (Science, Technology, Engineering and Mathematics), is three times the ratio of women. As a conclusion, even in young generations

there is a sexist academic orientation that could have serious outcomes. On the one hand, the actual scientific-technical societies are being developed without a clear participation of women, what shows the real need of social policies towards the elimination of gender disparity in this context. On the other hand, this sexist academic orientation leads to a limitation of women own development as well as their professional success. Both conclusions point out the fact that this bias surely has relevant consequences within the con-

text of women labour insertion, taking into account the direct connection between education and the labour market, as well as associating STEM careers to a higher professional and social status.

5.3 Gender gaps in STEM education

Taking a deeper thought on how is the gender disparity involved or related with STEM education, it is safe to state that there are visible gender gaps within this context (Xie et al., 2015) In order to explain that, this causal link between cultural beliefs and STEM interest is demonstrated in studies of stereotype and identity threat (Nosek et al., 2002; Aronson & McGlone, 2008; Nguyen & Ryan, 2008), and occupational preference formation (Correll, 2001, 2004)

Research elsewhere also points out that female students face negative biases in the grading of their school work (Lavy & Sand, 2015 and evaluation of their competence and qualification for STEM employment (Moss-Racusin et al., 2012); Knobloch-Westerwick et al., 2013; Reuben et al., 2014) and gender segregated networks and “cold” climates in STEM higher education and workplaces (Steele et al., 2002; Logel et al., 2009; Koput & Gutek, 2010; Sheltzer & Smith, 2014). Future research on this issue should focus more on identifying the nature, timing, and relative impacts of these processes to develop effective practices that foster and sustain interest in STEM among girls and women, as stated by Xie et al., (2015).

Besides these generic suggestions regarding gender gaps in STEM education, there are more conclusions to extract from different inquiries, such as the fact that the lack of diversity in STEM academic and professional positions is a multilevel problem that begins in early childhood, where the motivations that nourish the election of studies start being consolidated (Bericat and Sánchez, 2008), from stereotypes of girls’ lack of STEM talent (Gunderson, et al., 2012; Shapiro & Williams, 2012). As stated by Gunderson et al., (2012), regarding Mathematics competences, girls tend to have more negative Math attitudes, including gender stereotypes, anxieties, and self-concepts, than boys. These attitudes are somehow critical considering that will certainly develop difficulties within Math performance, Math courses and Math-related career paths. As a conclusion, it is shown that parents’ and teachers’ expectancies for children’s Math competence are of-

ten gender-biased and can influence children’s Math attitudes and performance (Gunderson et al., 2012), and ultimately undermines the performance and interest in STEM fields, as stated by Shapiro and Williams (2012).

From a group-discussion involving scientist at different stages of their careers, a group conclusion relied on the fact that changing the academic culture to make it more welcoming for women should focus on making it more welcoming for other underrepresented groups, that also account for a lack of diversity in STEM academic and professional positions, such as colour people, LGBTQ+ and individuals with disabilities (Adamowicz, 2017). Regarding the already named culture of welcoming women to STEM fields, experts claim the need of place greater emphasis on increasing the number of women applicants and placing advertisements in venues that specifically target women (Glass & Minnotte, 2010), being this latter one a crucial issue within VET educational system, since there is an important lack of appropriate psycho-emotional environment to attract girls: lack of gender-sensitive images on informational boards in vocational/technical schools and websites, specifically those related to traditional male professions, as stated by Ganea and Bodrug-Lungu (2018).

Taking into account a national Spanish perspective, but following the generic trends and conclusions explained above, that are more based on an international context, back with the entry into force of the LOGSE Spanish education law (1990), the principle of the education in equality of opportunities as well as non-discriminatory sex behaviours was first introduced at schools. Different studies that relate the educational system with the kids’ education reveal that the presence of sexism has still not surpassed in the classrooms, where some ideas and educative procedures related with gender disparity still persist nowadays. Although these issues are explicitly present in the current Spanish educational policies, it has not been consolidated on a day to day basis, in the classroom context, where stereotyped social schemes are still being reproduced. Besides, this disparity remains valid after secondary education, within a social and professional context, where these traditional schemes of roles division still happen (Sebastián, 2006).

This whole information can be easily extrapolated to a

VET educational system, understanding that the main issues and extracted ideas are also perpetuated in this specific area. Nonetheless, there are some specific arguments that are of great importance and should be further analysed.

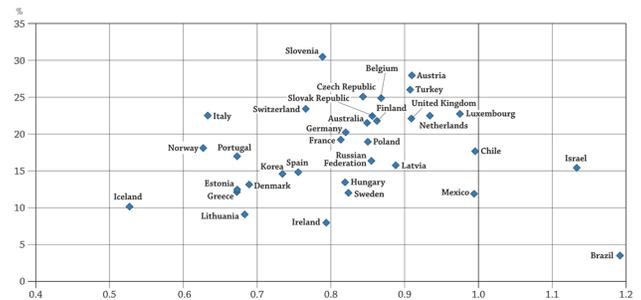
For instance, in Catalonia and many other Southern Europe regions, both interests and possibilities of students are strongly marked by the profile of young people with a gender, social status and migratory origin and for the same effect generated by the schools where they are enrolled during secondary school (ESO). Thus, one has to bear in mind that young people identities are intrinsically social, as well as their desires, interests, talents and abilities. In other words, what some students may consider as normal, for others is not part of their symbolic universes, due to their own reality in terms of familiar, personal and social daily situation. This explains, for example, why girls, regardless of their results and status, continue to choose much less post-compulsory studies within STEM fields, in relation to boys (Tarabini, 2017)

5.4 Gender parity in VET programmes

Directly related to target 4.5 of the SDG, being this the elimination of gender disparities in education, there is a very relevant indicator to measure this target. The gender parity index (GPI), is the main indicator to measure equity across the SDG 4 agenda. GPI is defined as the ratio between the values of a given indicator for two different groups, with the value of the likely most disadvantaged group in the numerator. A parity index equal to 1 indicates parity between the two considered groups. A value of less than 1 indicates a disparity in favour of the likely most advantaged group, and a value greater than 1 indicates a disparity in favour of the most disadvantaged group (OECD, 2018). Thus, this index, which is widely spread, generally shows the under-representation of women, in this case, within the vocational education context (Bartlett, 2009)

As a general idea out coming from the OECD indicators, in most OECD and partner countries, boys are at least 40% more likely than girls to enrol in vocational education (figure 1), and concretely a 32% in Spain, with a GPI of 0,756.

Figure 1
Gender parity index



6. Methodology

The empirical research methodology related to this investigation is based on a survey towards different VET teachers from a State high school located in Girona (Spain).

The willingness of the experiment is to analyse and evaluate the sincere impressions and judgment of different teachers that freely wanted to participate, regarding the opinion and point of view of different gender disparity issues that came up in this research, and may be of great value in order to better understand this situation as well as envision the capability of enhancing the same within a SDG framework towards the 2030 agenda.

This survey, without taking into account any gender or age constraints covered a total of 36 teachers (20 men and 16 women), all of them heading and teaching the VET studies of the called high school.

Taking into account the reality of the named high school itself, there are different VET studies that can be chosen there. These are the following.

- **Intermediate VET (Cicle Formatiu de Grau Mitjà - CFGM)**
 - Commercial activities
 - Aesthetics and beauty
 - Administrative management
 - Electrical and automatic installations
 - Maintenance of ships
 - Hairdressing and hair cosmetics

•Higher VET

(Cicle Formatiu de Grau Superior - CFGS)

- Management and finances
- Childhood education
- Management of sales and commercial spaces

Most of the studies held in this particular education centre have a clearly strong trend regarding gender disparity depending on the type of studies. For instance, the maintenance of ships VET course has never had women since it started ten years ago, and the same stands for the hairdressing and hair cosmetics VET course, that have hardly ever had male presence.

Taking this into account, the participation of these VET teachers could take great value understanding their day to day situation, living and handling with these gender particularities.

The survey itself is based on three statements that respond to different gender disparity issues, but yet deal with the same problem. The respondents have to choose over five options of response on a five-point Likert scale: “strongly agree”, “somewhat agree”, “neutral”, “somewhat disagree”, “strongly disagree”.

After answering the gender biased statements, they will read an interspersed paragraph regarding some gender disparity facts that have been mentioned along the research. Therefore, they will be able to change their opinion or not.

At the end of the survey, the participants will optionally comment or make observations about the mentioned statements. These reviews could be of great interest in order to integrate different perspectives and thoughts.

The statements are the following.

- Generally, women choose VET studies that are less technical for the simple fact of their personal interests and/or aptitudes.
- Generally, VET studies’ offer in Catalonia (or at your high school) is adequate within a gender equity context; in terms of promoting these studies to equally captivate boys and girls (by means of open day sessions, informative boards, website information and so on).

- Generally, teachers may have certain gender biased behaviours that could undermine girls throughout their academic career (from primary to high school and higher education).

After having answered the questions, the respondents will read the following information, respectively, so they will be able to change their opinion afterwards.

- Several studies point out the fact that women choose VET studies that are less technical because they may feel uncomfortable or embarrassed by choosing those types of studies. Besides, kids’ motivation about their future studies expectations has a strong relation with the education received from their parents as well as parents’ and teachers’ expectations for STEM field competences are often gender-biased.

- Several studies point out the fact that there is an important lack of appropriate psycho-emotional environment to captivate girls towards VET education, or at least, to specific courses traditionally related to male studies (lack of gender-sensitive images on informative boards, web pages and so on). Besides, one can add a lack of gender-sensitive teaching material in high schools (guides and methodological support to incorporate gender in the education and training process).

- Several studies related to implicit bias point out the fact that one does not have to have negative intentions in order to have discriminatory outcomes, taking into account that everyone is susceptible to implicit biases. In other words, one can consciously agree or disagree with some statement, but unconsciously, still hold biases against their own thoughts (i.e., considering the stereotype that men are better than women in technology, a woman, could consciously disagree with this affirmation, but yet, could unconsciously associate superiority in this field with men rather than with women).

7. Results

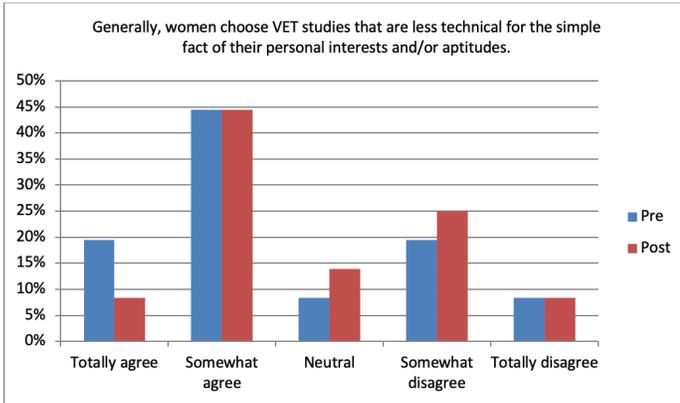
Having compiled and analysed the results of the experiment, one can manifest a noticeable opinion change before and after the interspersed facts, in all the given statements, respectively.

7.1 Analytical results

The obtained results are represented in the following figures.

Figure 2.

Results of the first statement

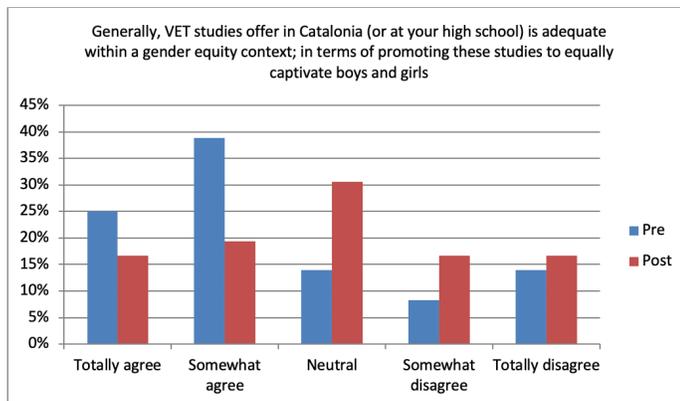


As seen in the figure above, regarding the first statement, there is an appreciable change of opinion after having read the supplied gender-sensitive data. Thus, 63.85% of respondents that initially “Totally agree” or “Somewhat agree” with the statement, changed their opinion and the percentage diminished to 52.75% (-11.10%), mainly relocating this proportion to the “Neutral” (+5.55%) and “Somewhat disagree” (+5.55%) options.

Despite the fact that “Somewhat agree” response has been maintained, the “Totally agree” rate has been radically reduced from 19.45% to 8.35%.

Figure 3.

Results of the second statement

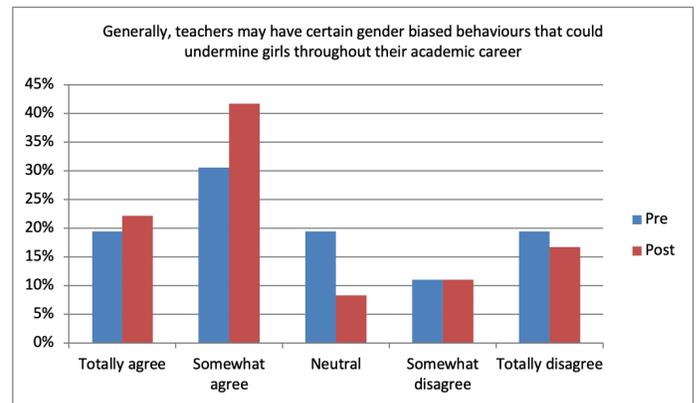


As seen in the figure above, regarding the second statement, there is also a considerable change of opinion, after the given interspersed information, mainly affecting the left columns of the figure. So, 63.90% of res-

pondents that initially “Totally agree” or “Somewhat agree” with the statement, changed their opinion and the percentage diminished to 36.10%, mainly relocating this proportion to the “Neutral” (+16.70%) option. This may explain that the respondents are not really aware of this situation, or they maybe found the statement slightly difficult to answer with enough conviction. Furthermore, the “Somewhat disagree” column increased its value from 8.30% to 16.65%.

Figure 4.

Results of the third statement



Finally, as seen in the figure above, regarding the third and last statement, there is a slightly mind shift in terms of agreeing with the given affirmation. The majority of the respondents initially choose the “Totally agree” or “Somewhat agree” columns, concretely a 50%, and afterwards, these columns have increased by 63.90% (+13.90%), empowering the agreement over the mentioned assertion.

7.2 Discussion

Once the results have been analytically exposed and commented, it is safe to say that the unconscious bias of VET teachers may notably contribute to the broadly commented gender disparity reality.

In particular, the experiment results have left slight changes within the teachers’ perceptions and opinions that may explain why these gender stereotypes are still very relevant in a daily basis and have to be tackled from the origin in order to improve its current situation. Having said that, teachers are increasingly expected to play relevant roles in forming the youngest to face their future with endeavour, courage, ambition and gender sensitivity, stated by UNESCO (2015). For this reason, it is important to provide palpable future

lines to follow, at a high school/classroom level, in order to improve this handicapped situation.

Nonetheless, it is not fair to blame VET teachers as if they were the only responsible ones, taking into account that there are many more agents involved, such as respective families, friends and the students' inner circle. Consequently, considering the respondents' points of view, there is a common nexus of opinions regarding how this gender bias begins to be formed within the first community that students recognize: the family. Once students reach VET studies, they are already conditioned by their familiar nature, which will get intensified throughout their educational career when students seek and find partners that are of their interests, as a symbol of condescension and survival.

8. Future lines and conclusions

As general conclusions, this research has provided independent evidences, but yet interrelated, of the existent gender bias reality, in the educational system, and particularly within a VET context, where the academic offer may be noticeably polarized between boys and girls, possibly more than in higher education.

Moreover, empirical research based on a survey supports the hypothesis that the unconscious bias, particularly in VET teachers in this case, may be a key factor that answers why there is no such improvement towards diminishing gender disparities in high schools, and more precisely in VET studies. These issues affect negatively to the most disadvantaged gender group, most often women, in terms of women biased expectations for STEM field competences or for a lack of confidence applying for future jobs traditionally related to men, among other stereotypes.

Some future propositions have been made in order to overcome this current burden, mainly focused on VET teachers themselves and high schools, as key elements to make a game changer towards this issue.

The elimination of gender disparities must be understood as a win-win situation for the whole society in terms of attaining equality in all forms.

References

- ACUP. *Objectius de desenvolupament sostenible*. <https://ods.cat/>
- Adamowicz, E. M. (2017) "Why aren't women choosing STEM academic jobs? Observations from a small-group discussion at the 2016 American Society for Microbiology annual meeting", *FEMS Microbiol. Lett.*, 364(6)
- Aronson, J. and McGlone, M.S. (2008) "*Stereotype and social identity threat*". In: Nelson, TD., editor. *The Handbook of Prejudice, Stereotyping, and Discrimination*. Psychology Press; 2008. pp. 153-78.
- Bartlett, W. (2009) "The effectiveness of vocational education in promoting equity and occupational mobility amongst young people", *Econ. Ann.*, 54(180), pp. 7-39.
- Bericat Alastuey, E. and Sánchez Bermejo, E. (2008) "Balance de la desigualdad de género en España. Un sistema de indicadores sociales", *Rev. Actualidad Centro de Estudios Andaluces.*, (23).
- Correll, S.J. (2001) "Gender and the career choice process: the role of biased self-assessments". *Am J Sociol.*; 106, 1691-730.
- Correll, S.J. (2004) "Constraints into preferences: gender, status, and emerging career aspirations", *Am Sociol Rev.* 2004; 69, 93-113.
- Ganea, E. and Bodrug-Lungu, V. (2018) "Addressing Inequality in Vocational *Technical Education by Eliminating Gender Bias*", *Rev. Rom. pentru Educ. Multidimens.*, 10(4), 136-155.
- Glass, C. and Minnotte, K. L. (2010) "Recruiting and hiring women in STEM fields", *J. Divers. High. Educ.*, 3(4), 218-229.
- Gunderson, E. A.; Ramirez, G; Levine, S. C. and Beilock, S. L. (2012) "The Role of Parents and Teachers in the Development of Gender-Related Math Attitudes", *Sex Roles*, 66(3-4), 153-166.
- Knobloch-Westerwick, S.; Glynn, C.J. and Huge, M. (2013) "The matilda effect in science communication:

- an experiment on gender bias in publication quality perceptions and collaboration interest”, *Sci Communication*. 35, 603–625.
- Koput, K.W. and Gutek, B.A. (2010) “*Gender Stratification in the IT Industry: Sex, Status and Social Capital*”. Edward Elgar Publishing Ltd.
- Lavy, V. and Sand, E. (2015) “On the origins of gender human capital gaps: Short and long term consequences of teachers’ stereotypical biases”, *National Bureau of Economic Research Working Paper Series*; (20909)
- Logel, C; Walton, G.M.; Spencer, S.J.; Iserman, E.C.; Von Hippel, W. and Bell, A.E. (2009) “Interacting with sexist men triggers social identity threat among female engineers”, *J Person Soc Psychol*. 96, 1089–1103.
- Marope, P.T.M.; Chakroun, B. and Holmes, K.P. (2015) “*Unleashing the Potential. Transforming Technical and Vocational Education Training*”. UNESCO
- Moss-Racusin, C.A.; Dovidio, J.F.; Brescoll, V.L.; Graham M.J. and Handelsman, J. (2012) “Science faculty’s subtle gender biases favor male students”, *Proc Natl Acad Sci*; 109(41), 16474–16479. [PubMed: 22988126]
- Nguyen, H-H.D. and Ryan, A.M. (2008) “Does stereotype threat affect test performance of minorities and women? A meta-analysis of experimental evidence”, *J Applied Psychol*. 93, 1314–1334. [PubMed: 19025250]
- Nosek, B.A.; Banaji, M.R. and Greenwald, A.G. (2002) “Math = male, me = female, therefore math ≠ me”, *J Personal Soc Psychol*. 83, 44–59.
- OECD (2018) *Education at a Glance 2018: OECD Indicators*, OECD Publishing. <http://dx.doi.org/10.1787/eag-2018-en>
- Reuben, E.; Sapienza, P. and Zingales, L. (2014) “How stereotypes impair women’s careers in science”, *Proc Natl Acad Sci USA*., 111(12), 4403–4408. [PubMed: 24616490]
- Rodés Vilà, F. (Coord.); Ibáñez Martí, C. and Serena, J.M. (2016) “The 2030 Agenda: Transform Catalonia, improve the world”, Report 3/2016 *Consell Assessor per al Desenvolupament Sostenible. Generalitat de Catalunya*
- Sebastián Ramos, A. (Coord.) (2006) *La presencia de estereotipos de género en el sistema educativo como determinante del desarrollo personal y profesional (estudio descriptivo)*, Editorial DYKINSON SL.
- Shapiro, J. R. and Williams, A. M. (2012) “The Role of Stereotype Threats in Undermining Girls’ and Women’s Performance and Interest in STEM Fields”, *Sex Roles*, 66(3–4), 175–183.
- Sheltzer, J.M. and Smith, J.C. (2014) “*Elite male faculty in the life sciences employ fewer women*”, *Proc Natl Acad Sci*., 111(28), 10107–10112. [PubMed: 24982167]
- Staats, C. (2014) “*State of science: Implicit bias review*”. Kirvan Institute
- Steele, J.; James, J.B. and Barnett, R.C. (2002) “Learning in a man’s world: examining the perceptions of undergraduate women in male-dominated academic areas”, *Psychol Women Q*., 26, 46–50.
- Stegmann, J.G (2017) *¿Por qué se le da tan poco valor a estudiar FP en España?*. ABC Sociedad. <https://www.abc.es/sociedad/>
- Tarabini, A. (2017, May 11). L’educació secundària postobligatòria a Catalunya: dilemes, indicadors i hipòtesis. *Crític*. <https://www.elcritic.cat/opinio/>
- UNESCO-UNEVOC (2004, October 25-28) Bonn Declaration on Learning for Work, Citizenship and Sustainability. *UNESCO International Meeting of Technical and Vocational Education and Training Experts*.
- UNESCO (2015) *A guide for gender equality in teacher education policy and practices*. http://www.ungei.org/A_Guide_for_Gender_Equality_in_Teacher_Education_Policy_and_Practices.pdf
- Valiente, O. (Coord.); Zancajo, A. and Tarrío, A. (2014) “Els reptes de la Formació Professional a Catalunya: indicadors comparats i propostes de reforma”, *Dossier de premsa Fundació Jaume Bofill*, no. 16.
- Xie, Y; Fang, M. and Shauman, K. (2015) “STEM Education”, *Annu. Rev. Sociol.*, 41(1), 331–357.